An Annual Magazine of OUHS

Arogyam

2024-25

ODISHA UNIVERSITY OF HEALTH SCIENCES

BHUBANESWAR

Dt. 30.03.2025

Editorial Bord

ANNUAL MAGAZINE OF ODISHA UNIVERSITY OF HEALTH SCIENCES

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TRAVELLING FELLOWSHIP

" OUHS announces Travelling Fellowship for Faculties and PG Residents"

Prof. Dr. Manash Ranjan Sahoo
Vice Chancellor,
Odisha University of Health Sciences

Dear Faculty Members and Students,
I am delighted to announce the Travelling Fellowship Programme of Odisha University of Health Sciences, a unique opportunity to gain advanced training and knowledge at national centres of excellence. This initiative aims to nurture talent, advance academic excellence, and empower future leaders in healthcare. I encourage all eligible faculties and PG students to seize this chance to enhance your skill and contribute to elevate the status of quality healthcare and medical education in Odisha.

Sishu Bhawan Square, Bapuji Nagar, Bhubaneswar. Website: www.ouhs.ac.in

Dr. Hari Babu Kambhampati
Governor, Odisha

RAJ BHAVAN
BHUBANESWAR - 751 008

CHANCELLOR MESSAGE

I am glad to know that the Odisha University of Health Sciences (OUHS) brings out "AROGYAM", the university magazine and "OUHS", a multi-disciplinary Health Journal on its Foundation Day on March 30, 2025.

As the apex institution overseeing health sciences education in the state, OUHS has a vital responsibility in standardising and strengthening medical, dental, nursing, and allied health education. By fostering academic excellence, ethical medical practice, and professional competence, the university will play a crucial role in shaping a robust healthcare ecosystem in Odisha. I hope that the magazine "AROGYAM" will reflect the aspirations, achievements and creative expressions of students and faculty, while the Journal "OUHS" will serve as a valuable academic platform as the university progresses toward research-oriented learning in the future.

On this momentous occasion, I convey my best wishes to the university for its continued growth in advancing quality healthcare education and service.

I wish the publication all success.

Hari Babu Kambhampati

Honorable Chancellor

Phone: +91-674-2536111/2536222, Fax: +91-674-2536582, Email: govodisha@nic.in, Webstite: rajbhavanodisha.gov.in

Vice Chancellor Message

It gives me immense pleasure to present to you the inaugural issue of Arogyam, the annual magazine of Odisha University of Health Sciences (OUHS). More than just a publication, Arogyam is a vibrant platform that brings together the intellect, emotion, and creativity of our diverse health sciences community. It reflects not only the scientific and academic essence of OUHS, but also the soul and spirit of the people who form its core—our students, faculty, researchers, healthcare professionals, and administrators.

In today's fast-paced academic world, where research papers and clinical work dominate our schedules, it is important not to forget the power of literature, stories, and artistic expression. Human emotion, culture, and compassion are as vital to healing as any medicine. Arogyam celebrates that very human essence-through poems that express the healer's heart, stories that capture the experiences of care, and articles that spread awareness and knowledge about health and well-being.

A Multilingual Celebration of Expression

What makes Arogyam unique is its inclusive and multilingual nature. With contributions in Odia, Hindi, and English, this magazine becomes a true reflection of the cultural and linguistic diversity of our university and our state. Whether it is a poem in Odia evoking the rhythms of village life, a heartfelt article in Hindi describing the challenges of caregiving, or a health awareness write-up in English for the modern reader-every language brings its own flavor, depth, and reach.

It is our belief that language should never be a barrier to expression, and Arogyam is our attempt to embrace voices from all corners of our academic ecosystem. This multilingual format will not only encourage more participation but also resonate with a wider audience across Odisha and beyond.

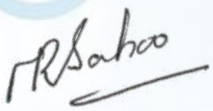
A Platform for Every Health Science DisciplineJust as OUHS brings together diverse streams like modern medicine, dentistry, AYUSH, nursing, pharmacy, physiotherapy, and allied health sciences, Arogyam too is a space where all disciplines converge-not just through facts, but through feelings. A doctor's reflection after saving a life. A nurse's poem capturing quiet moments in a hospital ward. A physiotherapist's inspirational story of a patient's recovery. A pharmacy student's article on new drug discoveries.An Ayurveda practitioner's thought on holistic wellness.Each contribution adds a different tone, texture, and truth to our shared healthcare journey. Arogyam as a Mirror of the OUHS Community.

This magazine is more than printed pages-it is a mirror of our collective identity, our dreams, and our values. It is here that academic brilliance meets human sensitivity, where cultural richness meets scientific rigor. It gives us an opportunity to document our experiences, share our thoughts, and inspire one another. I firmly believe that health education and healthcare are not just about the head and the hands, but also about the heart. Arogyam symbolizes this integration of intellect and empathy, making it a perfect companion to our academic journals and formal publications. A Call to Engage, Express, and Enrich As we release this inaugural issue, I invite all members of the OUHS family-students, teachers, staff, alumni, and healthcare partners-to see Arogyam as their own space for reflection, creativity, and communication. Let us use this platform not only to inform and educate but also to inspire, encourage, and connect with one another on a human level.

I extend my heartfelt congratulations to the Editorial Board of Arogyam, the contributors of this issue, and all those who made this publication possible. May this magazine continue to grow year after year, and may it always echo the spirit of OUHS-compassionate, creative, and committed to the well-being of society.

Let Arogyam be a reminder that in the world of health sciences, we are not just building better professionals-we are nurturing better human beings. Warm regards, Prof. (Dr.) Manash Ranjan Sahoo Vice Chancellor, Odisha University of Health Sciences Editor Emeritus, Arogyam

Warm regards,



Prof. (Dr.) Manash Ranjan Sahoo
Vice Chancellor, Odisha University of Health Sciences
Editor Emeritus, Arogyam

PROF. DR. MIHIR RANJAN NAYAK
SCB MCH, Cuttack.

Editorial.....

On behalf of editorial committee of OUHS magazine, I extended my sincere gratitude to the honorable vice- chancellor of Odisha University of Health science, BBSR for selecting us as editorial board members & me as editor-in Chief of the OUHS 1st magazine on auspicious occasion of 2nd foundation day celebration.

I sincerely thanks to the faculties and students of different college under OUHS to write difference innovation health science related articles & poems.

I have no word to express my gratitude to all my editorial board members for gives their valuable time to correct the article.

Its great news that honorable vice- chancellor decided to inaugurate the 1st historical O.U.H.S magazine Arogyam on the 2nd foundation day celebrations that is 30th march - 2025.

I extend my warm welcome to all the delegates on the 2nd foundation day celebration I prayed to the almighty to the fruitfull out come.

In this occasion, I wish the function a grand success and informative lesion to the society. I wish all to be mentally, emotionally land, physically healthy, wealthy , cheerful always.

Success is not final;
Failure is not fatal
It is the courage to continue...

EDITORIAL BOARD,
ANNUAL MAGAZINE OUHS AROGYAM

OUHS FELLOWSHIP PROGRAME

ONLINE CME AND RESEARCH TALK

BEST 10 STUDENTS (1ST PROF.) AND TEACHER'S FACULTIES FELICITATE BY HONOURABLE VC, OUHS

OUHS JOURNAL MEETING WITH HONOURABLE VC

ADDRESSED TO FACULTIES OF MKCG MEDICAL COLLEGE,
BERHAMPUR BY HONORABLE VC

TRAINING OF THE TOT

FACULTY DEVELOPMENT PROGRAME BY OUHS

PHD PROGRAMME BY OUHS

DECLARATION OF 1ST RESULTS, 1ST PROFESIONAL MBBS UNDER OUHS WITH 15 DAYS

OUHS EXCELLENCE AWARDS

OUHS TEACHER'S REGISTRATION

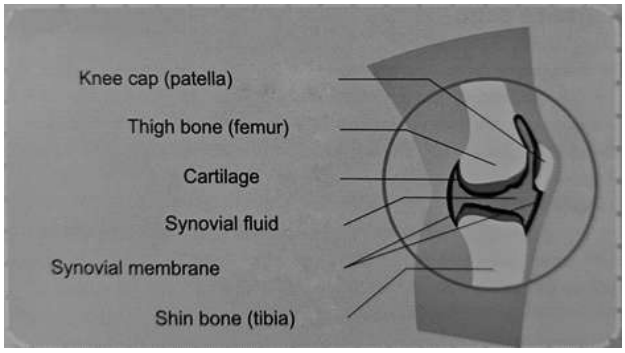
CONTENTS

SCIENTIFIC SECTION

UNDERSTANDING OSTEOARTHRITIS OF WEIGHT BEARING JOINT

Knee is one of our biggest joints. Not only does it carry our body weight, but it helps us to stand, walk, run and sit normally. It bears load during running and playing too.

Little bit of anatomy



Basically, our knee joint is made up of three bones, i.e., femur, patella and tibia. Whenever two hard objects come to each other, there is some friction and chance of damage. To prevent that damage there is synovial fluid and cartilage.

Like there are buffers at the end of tables or chairs to make them stable which are made up of tough rubber or plastic, the end of our bones is covered with cartilage. This cartilage prevents friction & relevant decay.

Inside the joint there is a membrane called synovial membrane. This synovial membrane produces synovial fluid which is thick and like lubricant of a car engine. This synovial fluid protects the cartilage.

The bones of the joint are attached with each other by capsule and ligaments. It is then covered by different muscles which helps to move the joint.

The whole of the knee joint is covered with networks of fine nerves which generate and send signals of pain sensations from knee joint to brain, and we feel pain in the knee in disease state. If these nerves are blocked, we may not feel any pain.

Causes of knee pain:

Knee pain in younger age group (less than 40 years) is either related to trauma of ligaments or cartilages, or inflammation of joints, inflammatory disease like rheumatoid arthritis and spondylo- arthritis. Knee pain in elderly (more than 40 years) is mostly due to osteo-arthritis.

Other causes of knee pain are rare and we shall discuss mostly osteo-arthritis which is the commonest cause of knee pain.

What is osteoarthritis?

It is a kind of disease which is due to the decay or degeneration of cartilage. There is slow but persistent decay of cartilage but not the bones. Cartilage surface gradually becomes irregular. The thickness of cartilages are reduced and gap between two bones are also reduced.

The cells that produce synovial fluid are situated over the cartilage surface and thus they are reduced in number because of the decay of cartilage. So synovial fluid is produced less and is no longer able to prevent friction related

decay of the cartilages. The friction co-efficient between the bones is increased and therefore patient complains of pain.

What are the causes of osteo-arthritis?

Osteo-arthritis is considered as an age-related degenerative disease mostly. Though there are other reasons too, main reasons are:

Age is considered the most important.

Body weight is important because, knee joint has to take the load of the whole body. Lifting heavy weight repeatedly, injury trauma in knee may be responsible.

There may be genetic predisposition.

Diseases of younger age like damage of ligaments and cartilages, rheumatoid arthritis or spondylo arthritis may predispose to osteo-arthritis much early.

What are the symptoms of osteoarthritis?

The most important symptom is pain. Pain is increased after exertion & Pain and stiffness are more in morning after awaking or after long rest. Cracking sounds during motion.

Swelling of knee

Wasting of muscles around knee.

Pain on less movement or even pain at rest. Stiff joint, unable to fold or open it fully.

If these continue, it affects quality of life severely with other symptoms: Hampers activities of daily living like movement, cooking food etc.

Brings depression. Disturbs sleep.

How should we treat osteoarthritis?

1. **Change of life style.**
2. **Exercises.**
3. **Oral medicines.**
4. **Injections and interventions.**
   a. **Visco-supplementation.**
   b. **Platelet rich plasma injection.**
   c. **Nerve block by radio frequency.**
5. **Surgery.**

First 3 points are for initial phases, but in advanced situation we need to use combinations of different treatments. We shall discuss later each process in details:

1. Life style changes:

Body weight:

Because knee bears load of the body weight, increased body weight damages cartilage more. Aerobic excercises and

controlled diets helps in controlling body weight. We must remember that if we can't reduce overweight, we can't get rid of this problem totally.

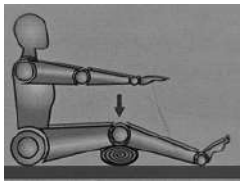
Diet:

Fried, oily and junk food with high calorific value must be avoided. Diet containing omega 3 fatty acid (flaxseeds, walnuts, river/sea water fishes etc.), Vitamin C (guava, pineapple, papaya, tomato etc.), Vitamin D (fishes & egg), Vitamin E (sunflower oil, almonds, spinach, broccoli etc.), Beta carotene (carrot, papaya, tomato etc.) should be taken.

2. Exercises

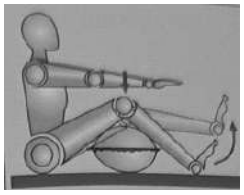
Osteo-arthritis weakens muscles around it and they are atrophied. That's why thigh and calf muscles should be strengthened. These muscles bears load of knee joint and protects knee joint from further damage. We must do few exercises regularly and must not use braces or knee supports which otherwise weakens knee muscles.

1) Isometric Quadriceps Exercise:



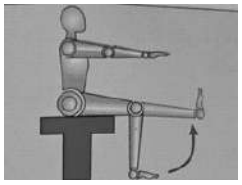
Person should be sitting in a long sitting position. A towel roll is to be placed under the knee joint. Person is asked to press on the towel by the knee. Hold it for 10 sec, repeat it for 10 times. Other parts of the body will be relaxed, normal breathing is continued.

2) Isometric Hamstring Exercise:



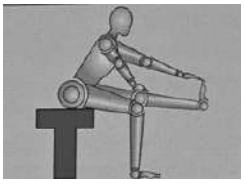
Person should be sitting in a long sitting position. Hip and knee joint of the exercised limb is in semi flexed position. Person is asked to press the floor/bed by the heel. Hold it for 10 sec, repeat it 10 times.

3) VMO (Vastus Medialis Obliques) Strengthening Exercise:



Person should be sitting in a long sitting position. A pillow is placed under the knee joint, so that knee will be resting in a flexed position. Person is then asked to press down by the knee on the pillow, so that the same side heel will be lifted, slightly, and simultaneously. Hold it for 10 sec, repeat it 10 times.

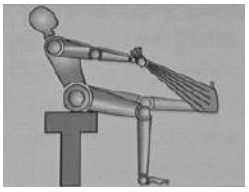
4) Quadriceps Strengthening Exercise:



Person should be sitting on a chair. Person will be asked to straighten the knee slowly to full 90-degree movement. Hold the end position for 10 sec. After completion of it, make the limb slowly down to complete the exercise. Repeat it 10 times.

5) Hamstring Stretching Exercise:

Person should be sitting in a high sitting position with non-exercised lower limb hanging down at the edge of the plinth. Person is asked to lean forward (from the hip joint, without bending the spine forward), and try to touch the toes with the same sided hand. The opposite hand can be used for the stabilization of the knee joint.



6) Gastrocnemius Stretching Exercise:

Person should be sitting in a high sitting position with non-exercised lower limb hanging down at the edge of the plinth. Person is now asked to make a loop with a towel and hold the two ends of the towel loop. The loop will surround anterior and front part of the foot. Person will then be asked to lean backward to force the ankle joint towards passive dorsiflexion. Maintain it for 30 sec. Repetition = 3-5 times.

3. Oral medicines

Pain killer medicine - It helps to reduce symptoms of osteo-arthritis. Normally light pain control medicine like Paracetamol is used which don't have much serious side effects.

Anti-depressant - Medicines like Duloxetine is used in low doses that attenuates pain signals. It is an US FDA approved medicine for osteo-arthritis.

Glucosamine & Chondroitin - These were thought to regenerate cartilage earlier and were used randomly. But recent researches don't support the use of these medicines.

4. Injections and interventions

a. Visco-supplementation

This is a process where artificial synovial fluid is injected in the knee joint. It lubricates the knee joint, and as a result, friction related decay & pain is reduced.

The fluid inside knee joint is called synovial fluid. In osteo-arthritis, there is reduced number of cells (chondrocytes) that produce this fluid. So, synovial fluid is produced less and there is more friction and more decay of cartilage. In visco-supplementation, a healthy artificial synovial fluid that is like natural synovial fluid is injected inside the joint. It lubricates, redistributes load, reduces stiffness and reduces pain.

Visco-supplementation is an US FDA approved procedure. It is also approved by American College Rheumatology and Osteoarthritis Research Society International.

b.Platelet rich plasma injection

There are some growth factors inside all of us which helps us to repair any tissue damages. This growth factors are mostly found in platelets that can be concentrated by filtration and centrifugation after taking blood from patient and then injected inside knee joint. This modern treatment is also called regenerative therapy and is getting very popular in the entire world. It prevents decay and may repair decay.

c. Nerve block by radio frequency treatment

It is an US FDA approved intervention where network of nerves around the knee are blocked. It

stops pain signal and don't allow it to reach brain. It is very effective procedure to management pain in advanced osteoarthritis. It is alternative to TKR (Knee replacement surgery).

When do we advise injections and interventions?

When there is pain in activities of daily living, pin & needle sensation in knee, stiffness, locking of knee, difficulties in climbing stairs, cracking sound inside knee, we should consider interventions. Visco-supplementation & platelet rich plasma injections reduce pain and delays further decay & repair damages.

Dos & don'ts after interventions:

If there is pain, swelling or heat at knee apply ice, and take pain medicines as advised by doctor. Do not apply hot fomentation, do not stand too much, walk too much or lift heavy items, particularly on first 2 days.

3. Surgery:

When osteo-arthritis is advanced, when other interventions have failed to produce good outcome then surgery is the last option. Here artificial knee made up of plastic or metal are implanted.

DR. ARATA KUMAR SWAIN
Prof. & Hod.
Deptt. of Anaesthesiology & Critical care
Shri Jagannath Medical College & Hospital, Puri

ACTIVITIES OF DEPT. OF PSYCHIATRIC SOCIALWORK, MENTAL HEALTH INSTITUTE (CENTER OF EXCELENCE) SCB MCH, CUTTACK : AT A GLANCE

VISION :

- To be a world leader in the area of mental health and neurosciences and evolve state-of-the-art approaches to patient care through Service & Translational Research.

MISSION :

- Tests establish the highest standards of evidence-based care for Mental Health related Disorders and Rehabilitation.
- Develop expertise and set standards of care for diseases of public health relevance in the developing world.
- Human resource capacity building by training in diverse fields related to mental health and neurosciences.
- Work with the government and provide consultancy services for policy planning and monitoring strategies in the field of Mental Health and Neurosciences and facilitate execution of National Health Programme.
- Develop and strengthen inter-disciplinary, inter-institutional and international collaboration with universities and research institutes across the globe to foster scientific research, training in advanced technology and exchange of ideas in the areas of Mental Health and Neurosciences.
- Strive to enhance equitable accessibility of primary care in Mental Health to all sections of society and ages including the vulnerable population.
- Evolve and monitor the strategies for disaster management and psycho-social rehabilitation in different cultural and ethnic groups.
- Integrate physical and metaphysical aspects of Neuroscience research to promote yoga and its application to positive mental health.
- Promote Mental Health literacy and eliminate the stigma attached to the Mental and Neurological Illnesses by taking the measures and the delivery system to the centres of primary health care honouring the human rights and dignity.

INFRASTRUCTURE :

Mental Health Institute (COE), SCBMCH, Cuttack is the only referral Mental Health centre with four Departments for patient care, teaching, training, and research of the State. It is situated in the SCB medical College and Hospital premises. As per the State Mental Health care Act 2017 it is the first referral Centre with higher Mental Health Infrastructure and manpower having four Departments like – Department of Psychiatry, Clinical Psychology, Psychiatric Social Work and Psychiatric Nursing with respect to training and capacity building. The Mental Health Institute (COE), SCBMCH, Cuttack has 150 beds – Male, Female, Child Adolescent & DAC. The Institute declared as Centre of Excellence in the year 2010-11.

DEPARTMENT OF PSYCHIATRIC SOCIAL WORK

Objectives-

- Provision of Psychiatric Social Work (PSW) services for families and person with mental illness, behavioural & Addiction Issues.
- Develop trained manpower in the field of PSW to carry out psychosocial research in the field of mental health.

The Department of Psychiatric Social Work has shown incredible growth, working along with the multi-disciplinary Departments. Besides the psychosocial care that the experts provide, the Department offers advanced level of teaching and training in Psychiatric Social Work. It has the state- of-art facilities and infrastructure for Psychiatric Social Work education in the country in carrying out the Clinical services, training and research.

The trainees are given overall exposure of mental health and behavioural science with the moto to instill the 'unitedness and working alliance among all mental health disciplines (e.g., Psychiatry, Clinical Psychology, Psychiatric Nursing and other allied disciplines)'. The students are also given ample privileges and opportunities like other disciplines to develop their clinical and academic skills. The student-trainees are entrusted to take up daily routine clinical and therapeutic activities at the both in-patient and out-patient levels. They learn to dispense family and community based therapeutic services for people with mental illnesses under direct supervision of the faculty. The Department also undertake socially relevant and culturally appropriate researches to help understand, assess and develop cost effective psychosocial intervention strategies for vulnerable persons and communities. There are 3 nos. of faculties with 6 seats in M. Phil Psychiatric Social Work for each academic session.

REHABILITATION OF MENTALLY ILL DESTITUTE PATIENTS-

YEAR	NGO REHABILITATION			FAMILY REUNION		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
2020	36	40	76	01	09	10
2021	59	55	114	14	08	2
2022	38	45	83	21	11	32
2023	60	37	97	22	11	33
2024	45	39	84	51	18	69

YOGA SESSION

ORGANISATIONAL VISIT TOCHETANA

STATE LEVEL ORIENTATION PROGRAMME OF PSW

COMMUNITY AWARENESS PROGRAMME ON MENTAL HEALTH

FAMILY REUNION OF A DESTITUTE PATIENT FROM U.P.

FAMILY REUNION OF A DESTITUTE PATIENT FROM BIHAR

COMMUNITY AWARENESS PROGRAMME

FAMILY REUNION OF A PATIENT FROM JHARKHAND

GROUP MEETING WITH THE PATIENTS & THEIR CAREGIVER

ORGANISATIONAL VISIT TO NSP (NEELACHAL SEVA PRATISTHAN, PURI)

ROLE PLAY ON SCHIZOPHRENIA DAY -2024

PROF. (DR.) MIHIR RANJAN NAYAK
PROFESSOR, PSYCHIATRY & HOD,
Department of psychiatric social work

DOCTOR, CURE THYSELF FIRST

Consider this: handpicked from amongst the smartest minds in the country, a bright eyed, hopeful, eager, teenager on the brink of adulthood steps into one of the most demanding professions of the country. The privilege has not been handed to him on a platter. It is the result of a childhood dedicated to books, exams, tuitions, endless hours at coaching centers, sleepless nights of revision, not to mention cracking one of the toughest entrance exams in the world. You would think the poor young fellow deserves a break, right? All work and no play as the old adage goes. But no, he/she is subjected to an exhaustive curriculum asking for hours of detailed study apart from practical work, ward rotations, clinical hours, patient interaction, sleepless nights pouring over books heavy enough to crush one's spine if not one's soul, rigorous internships with some more challenging examinations thrown in between And that is how one becomes a doctor. What follows this arduous journey? Throwing the doctor to the wolves, obviously. In other words, putting him/her at the mercy of an unforgiving over burdened healthcare system.

The Indian Medical Association (IMA) Pune chapter says that the average lifespan of a doctor is 55-59 years which is 10 years less than the average lifespan of the general population. Doctors in India are at elevated risks of early deaths due to diseases attributable to unhealthy lifestyle, such as hypertension, diabetes, cardiac events. Add to this the increasing incidence of suicides in doctors and you have painted before you a very sorry picture indeed. You would expect the brightest minds in the country to know better than that. So, what goes wrong?

The academic pressure and the competition a young doctor is subjected to in an endless rat race is enough to rattle anyone's mental health. Toxic training environment in most medical institutions with the glorification of continuous 48-72 hour shifts and a culture of ragging and harassment at the hands of seniors with no outlet for coping with the mental strain are sadly widely known facts that are silently swept under the rug. It is no wonder that young doctors are increasingly engaging in risk taking behavior.

We are all aware of the deplorable working conditions of doctors in government sectors. The patient doctor ratio is highly skewed with most doctors having their working hours stretched beyond what can be termed as 'acceptable'. These doctors are often the targets of frustration of the general public, peppering newspapers with numerous articles on violence against doctors in public sectors. What is done for their security? That remains an open question that no one is comfortable to either answer or be held accountable for. Forget security, these doctors are at the risk of health hazards owing to lack of access to hygienic washrooms, proper working environment, resources to protect themselves from contagious disease. Most of these setups are deficient in support staff providing no breaks to the doctors who survive on tea and samosas. Burnout is hence a common occurrence. Any layman can assess the impact of this kind of lifestyle on a person's health. An unjust social system, no legal aid and erratic insufficient pay are added triggers that push our physicians to the brink of unfathomable stress.

Corporate sectors are not innocent in this vicious layout either. They serve as a suffocating quicksand, setting unrealistic targets, pushing prescriptions and treatments, raising ethical conflicts and harboring a bullheaded focus on generating revenue. They promise no job security and the doctor is continuously threatened by the prospect of being dispensable.

Speaking of female physicians is to open Pandora's box. They are susceptible to being victims of both public rage as well as violence as exemplified by recent incidents. At the receiving end of harassment by both their male colleagues

as well as support staff they have no assurance of security while working late night shifts nor guarantee of safe accommodation, no provision for separate rooms to rest in and no clean and hygienic washrooms. Disparate pay scales, non-consideration for being assigned administrative responsibilities and inadequate leave provisions add to their woes.

These factors weave a web of injustice where physicians are trapped with no respite. Exploitation, unjustifiable working hours, sleep deprivation, lack of privileges, financial strain and a sedentary lifestyle lead to more young doctors featuring in obituaries than is acceptable. If these issues are not addressed, the death knell of an already crumbling health care system shall be rung and it will definitely ring sooner than later.

This raises the pertinent question- who is accountable? Who shall take responsibility? The call of strike has created more harm than benefit, providing only superficial solutions and fueling public and political rage. Candlelight marches have yielded no result. Negotiations have failed and requests fallen on deaf years. So, who shall guard the guards? Where does the buck stop?

It seems the onus falls on the doctors themselves. It is up to us to survive in this system with our health and dignity intact. The public puts us on a pedestal and forgets we are humans with needs. What is frightening is the brutality with which they drag us off the same pedestal. It is therefore up to us to preserve our mental health, create solidarity and a sense of community with our colleagues, prioritize our health, learn the limits of our body, our mind, reach out and speak out and maybe do our children a favor by dissuading them from following us in taking up our profession. Gone are the days where doctors were glorified as gods. If you were to consider the humble opinion of yours truly, it is far better to be a mortal living out his/her due days in peace than to be a vilified god in an early coffin.

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MENTAL HEALTH INSTITUTE (CENTER OF EXCELLENCE) SCB MEDICAL COLLEGE HOSPITAL, CUTTACK AT A GLANCE

Mental Health Institute (COE), SCBMCH, Cuttack is the only referral Mental Health centre with four Departments for patient care, teaching, training, and research of the State. It is situated in the SCB medical College and Hospital premises. As per the State Mental Health care Act 2017 it is the first referral Centre with higher Mental Health Infrastructure and manpower having four Departments like – Department of Psychiatry, Clinical Psychology, Psychiatric Social Work and Psychiatric Nursing with respect to training and capacity building.

The Mental Health Institute (COE), SCBMCH, Cuttack has 150 beds – Adult Male Unit, Adult Female Unit, Child Adolescent Unit, DAC and Forensic Project Unit . MHI was started as an Institute of mental Health in the year 1966 by Govt. of Odisha. The Institute declared as Centre of Excellence in the year 2010-11.

The different departments and facilities available at MHI(COE), SCBMCH, Cuttack are:

1. PSYCHIATRY DEPARTMENT- The Department has 05 MD seats each year and the proposal has been submitted to OUHS for increasing from 05 to 08 seats in this year (2024-25) and in this regards the inspection by OUHS has been done and waiting for NMC approval. There are total 12 nos. of Faculties and 15 JRs in this Department.

2. CLINICAL PSYCHOLOGY- Psycho-diagnostics tools available for assessment & treatment of the mentally ill patients. Therapeutic Counselling done by this Department for Behavioural Disoprder. MHI runs M. Phil in Clinical Psychology course which generates 12 M. Phil in Clinical Psychologist each year. There are total 05 no.s of Faculties in this department.

3. PSYCHIATRIC SOCIAL WORK-Rehabilitation of homeless mentally ill and doorstep services as and when required. Family intervention services given to the patients and caregivers MHI runs M. Phil in Psychiatric Social Work course which produce 06 M. Phil in Psychiatric Social Work each year. There are total 04 no.s of Faculties in this department.

4. PSYCHIATRIC NURSING- MHI (COE) runs Post Basic Diploma in Psychiatric Nursing course that trains Nurses on mental health. There are 02 no.s of Faculties & 20 PBDPN seats in this department.

OPD & IPD Clinical Material

YEAR	OPD	IPD
PERIOD	TOTAL	TOTAL
2018-19	72819	3946
2019-20	73332	4168
2020-21	53723	1402
2021-22	64977	1685
2022-23	80786	2305
2023-24	83578	2442
2024	66202	1870

Specialised Service and Academic

- Ø **NIRAMAYA-** This is a free medicine distribution scheme. The aim of this scheme is to provide quality essential medicines for Mental Health patients visiting Mental Health Institute at free of cost.
- Ø **E-SANJEEVANI-** Providing Mental Health service through Digital Platform. This service is started in 2022 as Hub centre for mental health services.
- Ø **MRD-** Medical Record Department refers to maintenance of records and deals Out Patient, In-patient records after discharge, Death Case and especially keeping the Medico Legal Case records.
- Ø **LEGAL SERVICES-** Assure the mental health services as per court of law and Mental Health Act. Assessment of cases referral from Hon'ble Court of Law, Police and from Jail as per Mental Health Act 2017.
- Ø **REHABILITATION-**After providing the treatment to homeless mentally ill patients**,** they are sent for Mental Health rehabilitation in different centres registered under SSEPD.
- Ø **DE-ADDICTION CENTRE-** 30 bedded Drug De-Addiction Centre providing treatment and counselling services.
- Ø **OST (Opioid Substitution Therapy)-** It provides Opioid substitution therapy for persons with opioid dependence.
- Ø **BIOCHEMISTRY LAB-** This provides pathological and biochemical investigations for OPD & IPD patients attending MHI(COE).
- Ø **Library-** Library having about 1835no.s of books, different types of Journals (CP-16no.s, PSW-18no.s, Psychiatric Nursing-18no.s & Psychiatry-13no.s) and E-library services to provide ample of educational resources for students and faculty members of Mental Health Institute.
- Ø **Research Funding-** Mental Health Institute (COE) has own Research Fund, which was allocated by Health & Family Welfare Department, Govt. of Odisha in year 2024-2025.

Information of MHI(COE), SCBMCH, Cuttack in Brief

- Functioning in this building since - 1966
- Total Numbers of Beds sanctioned - 120 + 30(Newly DAC)
- Numbers of functional beds - 150
- Bed occupancy rate - 87% (2023-24) 91% (2024-25)
- Biomedical Waste Management System - Approved
- Biochemistry Laboratory - Available
- Security /Cleaning /Dietary Service - Out Sourced
- 24x7 uninterrupted Power supply through a500 KVA and another 500 K VA DG .
- Fire Safety - Fire Fighting System install ed and available in all the areas of MHI(COE).

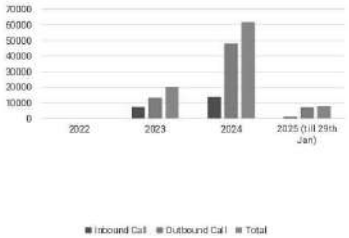
TELE-MANAS & MENTORING INSTITUTE OF MHI(COE)

24X7 online counselling services through the toll-free no. 14416 and provide free tele-Mental Health Services all over the country round the clock, particularly catering to people in remote or under-served areas. Tele Consultation by Mental Health professionals when required & Referral Services to other Mental Health Establishments such as Medical Colleges, DMHP services and speciality institutes

Call Details of Tele MANAS Helping Hand-14416
MHI SCBMCH Cuttack

Yearly Data sheet

Year	Inbound Call	Outbound Call	Total
2022	38	48	96
2023	7224	13191	20415
2024	13894	47957	61851
2025 (till 29th Jan)	939	7016	7955



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ODISHA DIGITAL ACADEMY FOR MENTAL HEALTH (ODAMH)- (2019-2024)

ODAMH has been functioning at Mental Health Institute (COE), SCB MCH, Cuttack since 2019. It was started with the support of Govt. of Odisha in collaboration with NIMHANS Digital Academy VKN, ECHO, Bangalore. It is digital platform for providing training to different stakeholders of health system.

Completed training programs by (ODAMH) VKN- 11 (all the training program duration is from 6months to 8 months).

SOME INNOVATION OF MENTAL HEALTH INSTITUTE (COE) SCB MCH, CUTTACK

- Ø Odisha Digital Academy for Mental Health (ODAMH)
- Ø Tele-MANAS & Mentoring Institute
- Ø RTMS, Modified ECT, EEG & Polysomnography
- Ø Rehabilitation of Homeless Mentally ill on Govt. Registered Mental Health Rehabilitation Centre under SSEPD Department.
- Ø E-Library

Mental Health Institute (Centre of Excellence), SCB medical College Hospital, Cuttack is among the Eleven Centre of the Country to fulfil the Mental Health well being of the people of State and Country as a whole.

PROF. (DR.) SARADA PRASANNA SWAIN
Director-cum-Medical Superintendent &
Professor & HOD, Psychiatry, Mental health Institute (CEO),
SCB MCH, Cuttack

CEREBRAL RESUSCITATION– PRESENT PAST & FUTURE

The human brain consists of 10 billion neurons, each with multiple connections to other cells, totaling estimated 500 trillion synapses. Although brain constitutes only 2% of body weight, it receives 15% of body's cardiac output and accounts for 20% of its overall oxygen use. Despite our recognition of **brain's dominant role in determining quality of life**, ability to intervene, reverse neuronal injury remains limited**. Modern brain resuscitation techniques** are focused on restoring cerebral homeostasis and mitigating the effects of secondary brain injuries. Hypoxic-ischemic injury following cardiac arrest can be seen as model of global ischemic disease, and recent advances in understanding its pathophysiologic mechanisms have led to improvements in neurologic outcomes. Although hypoxic-ischemic injury represents so-called pure form of brain ischemia, its underlying pathology has significant overlap with other cerebral injuries, such as stroke and traumatic brain injury. Thus, many of physiologic principles of brain resuscitation following cardiac arrest apply to these conditionswhen brain is deprived of adequate blood flow, resulting ischemia is characterized by bewildering array of interrelated physiologic and cellular responses that ultimately result in neuronal cell death. Although this complex-cascade of events can be triggered by periods of ischemia lasting only few minutes, resulting neuronal death is usually delayed by hours or days. Biology of cerebral cell death after global cerebral ischemia follows pattern of delayed cerebral cell death after stroke, TBI, and other forms of hypoxic or toxic brain injury, with slight variations.

ICP is an essential consideration in ischemic brain injury because cerebral ischemia can directly result in elevation. Failure of oxidative phosphorylation depletes ATP stores, resulting in inability to actively maintain osmotic gradients. Increased intracellular osmolarity leads to water-influx and development of cytotoxic edema, which usually peaks 48to72hours after injury. By decreasing CPP, elevated ICP is also important contributor to secondary brain injury. To understand the pathophysiology of elevated ICP, note that the skull is rigid container whose relatively non-compressible contents include the brain (~80%), blood (~10%), and cerebrospinal fluid (CSF; ~10%). According to Monro- Kellie doctrine, any addition to the volume of one of these components—for example, increased brain volume due to cerebral edema—must be offset by reducing volume of other contents or ICP will rise. *CPP is equal to the mean arterial pressure (MAP) minus ICP*. As ICP increases, CPP decreases, which is compensated for by cerebral arteriolar vasodilation. Unfortunately, this vasodilation may increase cerebral blood volume, which can additionally increase ICP and further reduce CPP. This vicious cycle is one of the primary inciting factors for the prolonged periods of refractory ICP elevation that can occur after global ischemic injury. *Standard medical management of ischemic brain damage involves restoring CBF and preventing secondary insult*. In the case of ischemic and other secondary brain injuries following cardiac arrest, **American Heart Association(AHA), European Resuscitation Council(ERC), and European Society of Intensive Care Medicine(ESICM)** published guide lines for post-cardiac arrest care based on **International Consensus on CPR and Emergency Cardiovascular Care Science with Treatment Recommendations(CoSTR) from International Liaison Committee on Resuscitation(ILCOR)**. Improvements in post–cardiac arrest care, through an inclusive multisystem approach, can increase the likelihood of meaningful recovery in these patients. In US overall survival to hospital discharge following out-of-hospital cardiac arrest is 12% with three-fourth of those survivors having favorable neurological outcome, while for in-hospital cardiac arrest, 25% survive to discharge. However, some single-center registries suggest that nearly 50% of patients who are successfully resuscitated from cardiac arrest and receive TTM may achieve favorable neurological outcome. Guidelines recommend waiting at-least 72hours to perform neurological prognostication.

We recommend titrated doses of opioid medication, such as fentanyl 25to50mcg every 5minutes. This is best accomplished by achieving adequate sedation and analgesia to permit mechanical ventilation. ***Propofol*** *is our*

sedative agent of choice for this purpose. **Alternatively, Dexmedetomidine** also control agitation and pro mote endotracheal tube tolerance while facilitating frequent neurological examinations. In refractorycases of ICH, induced coma with barbiturate will further decrease CBF and lower ICP. Pentobarbital is started with 10mg/kg loading dose over 30minutes, followed by a continuous infusion of 1to4mg/kg/h, titrated to achieve EEG burst-suppression. *Acute ICP spike or cerebral herniation syndromes* can sometimes be rapidly reversed via Osmolar-Therapy with mannitol or hypertonic saline. **Mannitol, 0.25to1g/kg is given every 6hours, up to serum osmolality of 320mOsm/kg**. Treating with 30 mL of 23.4% sodium chloride appears to be effective as mannitol at rapidly lowering ICP and reversing herniation, and 30to60mL can be given every 6hours, **up to max. serum sodium level of 160mEq/L**. *Seizure-activity, increase brain metabolism by 300%to400%*, worsening-mismatch between oxygen delivery and demand, with greater metabolic failure, neuronal loss and worsened neurologic outcome. Non-convulsive status epilepticus has been reported in 12%to24% of survivors after cardiac arrest;EEG monitoring is frequently used in comatose survivors. In-future, EEG monitoring will be the core component in prognostication algorithms. *Lorazepam, up to 0.1 mg/kg, with a maximum dose of 4mg, is thepreferred first-line agent to abort seizures and should be followed by continued treatment with antiepileptic drug. Recent RCT suggested that IV loads of Fosphenytoin at 20mg phenytoin equivalents (PE)/kg (max1500mgPE), Levetiracetam at 60mg/kg (max 4500mg), or Valproic acid at 40mg/kg(max3000mg) are equally efficacious second-line options*. In TBI prophylaxis with phenytoin *reduces early seizures* during first 7days, not beyond. *Limited data suggest prophylaxis with phenytoin can worsen neurocognitive outcomes, so-in prophylaxis, 7days of levetiracetam 500mgbid, adjustedfor renal function,preferred regimen.*

Modern Brain Resuscitation techniques focus: Avoiding further *secondary cerebral injury*. Cardiac output during *optimal standard closed-chest CPR* was previously estimated to be only 20%to30% of normal. However, more recent studies have suggested that higher cardiac outputs are possible, unquestionably, *effective CPR* is essential to neurologic recovery after cardiac arrest. Reperfusion with cerebrovascular insults due to embolic or thrombotic mechanisms, RCT's have shown benefit of revascularization.*Maintaining cerebral oxygen delivery is mainstay of therapy after ischemic brain injury. Oxygen delivery requires sufficiently high CPP, sufficiently low cerebrovascular resistance (CVR), and adequate blood oxygen saturation*. Normally, Change in systemic blood pressure triggers corresponding changes in CVR, mediated by

cerebral arterial vasodilation or vasoconstriction. This capacity, termed **cerebral autoregulation**, Autoregulation is often lost in the injured brain, resulted, perfusion of ischemic tissue becomes passively dependent on CPP. Consequently, hypotension can compromise CBF and result in significant additional brain damage. *In the absence of prospective clinical trial, current recommendations are to maintain MAP >65mmHg and SBP >90mmHg for cardiac arrest patients*. Hypertension is known risk factor for hematoma expansion, yet the targeted blood pressure goal in these patients remains controversial due to uncertainty regarding perfusion to the brain tissue surrounding the hematoma (ischemic penumbra). *A-Large multicenter RCT has demonstrated that rapid lowering of the systolic SBP to <140mmHg is safe and may have small but meaningful benefit on neurologic outcome.* Targeting an SBP <140mm is reasonable choice, though <160 may be preferred in patients with history of chronic poorly controlled hypertension who are severely hypertensive on presentation. CVR is critical determinant of CBF and may be affected by hyper ventilation and microvascular patency. Carbon dioxide is potent vasoactive agent, and lowering Paco2 by hyperventilation results in rapid reduction of CBF of 2% for every 1mmHg decrease in the Paco2. We recommend restricting use of induced hyperventilation to short-term treatment of immediately life-threatening cerebral herniation and severe intracranial hypertension that is not responsive to other measures. In general, ventilation to maintain Paco2 of 35to40mmHg is safe and appropriate, and inadvertent hyperventilation should be avoided. *Normal arterial oxygen saturation following resuscitation from ischemic brain injury is primary goal*. The injured brain may not be able to compensate for hypoxemia by augmenting CBF, and cerebral oxygen delivery may diminish rapidly as the oxygen content of blood decreases. *Normal oxygen or mild hyperoxemia Pao2, of 80to120mmHg with oxyhemoglobin saturation percentage maintained in the high 90s should be maintained through use of the lowest fraction of Fio2 possible.* The presence of ICH is suggested by relevant CT findings include *compressed basal cisterns,*

diffuse sulcal effacement, and diffuse loss of differentiation between the gray and white matter, although ICP can be elevated without any of these findings. Suggestive clinical features include papilledema, bilateral sixth nerve palsies, and new third nerve palsy in comatose patient. Definitive diagnosis requires invasive ICP monitoring placement. **The Brain Trauma Foundation** has published guidelines for ICP monitor placement, which we recommend in TBI patients whenever possible. The most recent guidelines reaffirm earlier recommendations that ICP monitors be placed in all TBI patients with an abnormal head CT and severe brain injury, defined as a GCS of 3to8. When cytotoxic edema severe enough to cause ICP elevation develops, it portends very poor prognosis and is generally refractory to medical treatments. To ensure adequate cerebral perfusion, the MAP should be maintained above 65 mmHg in all patients at risk for ICP elevation, and CPP of 60 mmHg should be targeted when ICP monitoring is available. An ICP over 22 mmHg has been associated with worse neurologic outcomes and should trigger treatment. **Based-on Published-Guidelines, Expert-Opinion; Interventions-Recommended: 1.** Position patient with head-up, elevating upper half of bed or gurney to 30degrees. **2.** Maintain neutral head and neck position, avoid jugular venous compression. **3.** Treat fever. **4.** Minimize triggers of ICP increases. **5.** Initiate osmolar therapy. **6.** CSF drainage via ventriculostomy. **7**. Treat cases of refractory ICP elevation. [A*. Continuous pentobarbital infusion, titrated to achieve deep levels of encephalographic burst suppression, can dramatically decrease cerebral metabolic rate and further reduce elevated ICP. B. Mild induced hypothermia is additional option in highly refractory cases. Endovascular or surface cooling devices should be used to target temperature of 32°Cto36°C, titrated to achieve ICP control]*

The RescueICP trial randomized severe TBI patients with refractory intracranial hypertension, defined as ICP greater than 25mmHg for at-least 1hour, to decompressive craniectomy or medical management, which typically involved initiation of barbiturate infusions. Because there was such significant mortality reduction in the decompressive craniectomy arm relative to other changes in the *extended Glasgow Outcome Scale (GOS-E)*, the primary hypothesis of ordinal shift in outcome using the GOS-E could not be statistically tested. Six-month mortality was significantly decreased by 22% in decompressive craniectomy group. Elevated body temperature increases cerebral metabolic demand by 8%to13% per°C, escalates glutamate release, increases oxygen free radical production, increases cytoskeletal and blood-brain barrier breakdown, with increased vasogenic edema. In general, Temperatures higher than 38°C should be treated aggressively. *TTM* has emerged as therapy for comatose survivors of hypoxic-ischemic injury following cardiac arrest. *TTM Hypothermia was first noted to have protective effect in global and focal brain ischemia**>50 years ago**.* The neuroprotective mechanism is linked to reduction of glutamate release, metabolic demand, free radical formation, and production of inflammatory cytokines. **In 2002, two prospective, RCT's** of mild hypothermia showed marked improvements in neurologic outcome in comatose survivors of out-of-hospital cardiac arrest. Guidelines recommend use of intranasal, intravascular, surface temperature-modulating devices or coldsaline infusions. NIH is addressing the optimal duration of cooling with target of 33°C. *Therapeutic hypothermia is established standard of care for infants with moderate to severe hypoxic-ischemic injury.* The AHA and ERC, emphasize importanceof takingstepwise, multimodal approach to neuroprognostication, allowing greater time for monitoring in uncertain-cases. Based on available data, bilaterally absent pupillary light reflex at 72hours remains highly predictive of poor outcome with low FPR and narrow CI. Bilateral absence of cortical response to SSEPs after rewarming or 24 to 72hours from cardiac arrest appears similarly predictive. Suggestive of poor-prognosis include absent corneal reflexes, absent reactivity or burst-suppression pattern EEG, myoclonic SE, and DAI on CT or MRI. Higher levels of NSE correlated with worse outcome. *At present, patients should be protected from further brain injury caused by hypotension, hypoperfusion, ICP elevation, hypoxia, hyperthermia, and seizures.*

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OUHS: A BEACON OF MEDICAL EXCELLENCE OF ODISHA.

The Odisha University of Health Sciences (OUHS) is a relatively young institution, yet it has already made significant strides in transforming medical education and healthcare in the state of Odisha. Established in 2023, OUHS has quickly become a hub for innovation, research, and cutting-edge medical practices.

A Vision for Excellence

OUHS was founded with a clear vision: to elevate the standards of medical education and research in Odisha. The university aims to produce highly skilled healthcare professionals who are equipped to address the diverse healthcare needs of the state and beyond. By fostering a culture of innovation and critical thinking, OUHS is empowering its students to become future leaders in the field of medicine.

Key Initiatives and Achievements

Since its inception, OUHS has undertaken several groundbreaking initiatives:

* Modernizing Medical Education: OUHS is committed to providing a world-class medical education experience. The university has implemented state-of-the-art teaching methodologies, including advanced simulation labs and online learning platforms.

* Promoting Research and Innovation: OUHS encourages faculty and students to engage in cutting-edge research. The university has established research centers and collaborations with renowned institutions to foster a culture of innovation.

* Strengthening Healthcare Infrastructure: OUHS is actively working to improve the healthcare infrastructure in Odisha. The university is collaborating with government and private institutions to establish new hospitals and clinics, especially in underserved areas.

* Fostering International Collaborations: OUHS is building strong international partnerships to facilitate student and faculty exchange programs. These collaborations will expose students to global perspectives and enhance their learning experience.

The Future of OUHS

OUHS is poised to become a leading medical university in India. With its focus on innovation, research, and patient care, the university is well-positioned to address the evolving challenges in the healthcare sector. By nurturing a talented pool of healthcare professionals, OUHS is making a significant contribution to the overall well-being of the people of Odisha.

In Conclusion

OUHS is not just an institution; it is a beacon of hope for a healthier future. The university's commitment to excellence, innovation, and social responsibility is inspiring. As OUHS continues to grow and evolve, it will undoubtedly play a pivotal role in shaping the future of healthcare in India.

Dr Suhani Dash
Dr Laxmidhar Dash

CATCHING CANCER BEFORE IT'S CANCER?

Cancer is the second most common cause of death in India and causes death are expected to sharply increase by 2045, according to a new study by ICMR .one of the reasons for this is that most people don't make it to an oncologist till an advanced stage. But what if we could catch cancer when it's still nascent and root it out before it's even called by that name?

STOPPING IT AT STAGE 0 –

But a vast majority tend to ignore such signs indicative of Stage 0 cancer – a precancerous stage also known as carcinoma in situ [CIS]. The US National Cancer Institute calls it '' a condition in which abnormal cells that look like cancer cells under a microscope are found only in place where they first formed and haven't spread to nearby tissues. At some point these cells may become cancerous and spread into nearby normal tissue''. When detected at a right time, a local excision is enough. And since the tumor has not spread yet, the patient may even avoid chemotherapy or radiation which have their own adverse side effects, says Dr. Amit Upadhyay senior oncology at PSRI Hospital, Delhi.

SPOTTING THE SIGNS –

But how does one know if a particular symptom points at Stage 0 cancer?'' There are specific subgroups where someone in the family has some type of cancer which is known to have some genetic predisposition. If something abnormal is detected during routine screening we might take that out and find that it's a Stage 0 cancer. This is applicable for screening of both cervical and breast cancer. For colon cancer screening, we often perform an endoscopy /colonoscopy if we see a polyp during the procedure, we remove it. When that it is CIS. One must also look for recurrent symptoms which may cause cancer. For instance, a small hard lump in the breast or nipple discharge could indicate Stage 0 breast cancer. An abnormal pap smear might mean stage 0 cervical cancer. Very mild and vague symptoms like slight indigestion, occasional stomach discomforts or minor changes in bowel habits may be a precursor to gastrointestinal cancer. Most symptoms are non – specific in nature, which means they are very similar to other diseases. They may be treated by a general physician and not even land up with an oncologist. If there is a suspicious patch in the mouth, an alert dental surgeon or ENT specialist take out the tissue and send it to the lab, where it turns to be CIS.

The most common type of Stage 0 breast cancer is ductal carcinoma in situ [DCIS] A 2019-2020 American Cancer Society [ACS] study found that about 20% of all breast cancers are DCIS However, DCIS can sometimes become an invasive cancer if left unaltered. The ACS study also said that Stage 0 breast cancer has a five-year relative survival rate of 99%which means nearby all women with DCIS can be cured.

PREVENTION KEY TO SURVIVAL-

Survival was better them 90% when diagnosed at Stage -1 and survival for Stage Doctors are urging patients to pay attention to the signs and symptoms that their bodies repeatedly give especially when risk factors are involved in a bid to prevent more cancer cases. A Canadian Cancer Society study has found that for most cancers studied 1 lung cancer was 62%.

Dr Suhani Dash
Dr Laxmidhar Dash

MAKE INDIAN HEALTH CARE INFRASTRUCTURE MORE INNOVATIVE

INTRODUCTION:

Brief Overview of Indian HealthCare :

India's healthcare landscape is a complex and dynamic ecosystem, comprising of:

- A large and diverse population of over 1.4 billion people.

- A mix of public and private healthcare providers, including hospitals, clinics, and diagnostic centers.

- A range of traditional and modern medical practices, including Ayurveda, Unani, and Homeopathy.

- Significant disparities in healthcare access and outcomes across rural and urban areas, and across different social aspects. As currently, in US dollar terms, India is the fifth largest economy with a size of about $3.93 trillion in nominal terms. It is projected that India will be a $ 4 trillion economy in 2024-25 and surpass Japan and Germany to emerge as the world's third-largest economy by 2027.economy, expenditure on social services has increased from 6.7% in 2017-18 to 7.8% in 2023-24. Correspondingly, health expenditure has increased from 1.4% to 1.9% in the same period.

cost of universal health care delivery through the existing mix of public and private health institutions would be INR 1713 (USD 38, 95%CI USD 18–73) per person per annum in India. This cost would be 24% higher, if branded drugs are used. The share of government health expenditure in total health expenditure has increased from 28.6 per cent in FY14 to 40.6 per cent in FY19. Total Health Expenditure in 2021-22: India's Total Health Expenditure rose to Rs 9, 04,461 crores, constituting 3.83% of GDP, with a per capita expenditure of Rs 6,602 in 2021-22.This growth highlights the government's commitment to strengthening public healthcare services, especially in response to the challenges posed by the COVID-19 pandemic.

The Indian government increased the healthcare spending to Rs 90,958 crore for the 2024-25 fiscal year, a 2% rise from the previous year. This budget prioritizes infrastructure improvements, strengthens existing programs, and combines maternal and child health initiatives under the National Health Mission. The government of India's public health expenditure for the 2024-2025 fiscal years (FY) is estimated to be around 2.1-2.2% of GDP. This is below the 2.5% target set by the National Health Policy of 2017. However, the combined effort of the states and the center is expected to reach the target.

Current Challenges in Indian Health Infrastructure:

India's health infrastructure faces numerous challenges, impacting the delivery of quality healthcare services to its vast population. Some of the key challenges include:

Inadequate Healthcare Facilities: India has a shortage of hospitals, clinics, and healthcare professionals, particularly in rural areas. This leads to unequal access to healthcare services.

Shortage of Skilled Healthcare Professionals: India faces a significant shortage of skilled healthcare professionals, including doctors, nurses, and allied health professionals.

Limited Access to Quality Healthcare Services: Many Indians, especially in rural areas, lack access to quality healthcare services, leading to poor health outcomes.

Inefficient Healthcare Delivery Systems: India's healthcare delivery systems are often inefficient, leading to long

waiting times, inadequate care, and poor patient outcomes.

ADDRESSING THE CHALLENGES & LIMITATIONS:

Addressing these challenges requires a multi-faceted approach, including increasing investments in healthcare infrastructure, improving healthcare workforce development, and promoting innovative healthcare delivery models.

To address inadequate healthcare infrastructure:

1. Invest in building new healthcare facilities and upgrading existing ones.
2. Improve access to healthcare in rural and underserved areas.
3. Adopt digital health technologies to enhance infrastructure efficiency.

To address the shortage of skilled healthcare professionals:

1. Increase funding for medical education and training programs.
2. Implement continuing education and skill development initiatives.
3. Encourage public-private partnerships to enhance healthcare workforce capacity.

To address limited access to quality healthcare facilities:

1. Establish telemedicine services to reach remote areas.
2. Implement mobile health clinics and outreach programs.
3. Strengthen public-private partnerships to expand quality healthcare services.

In addition to it we also have to focus on the 3-Ps, which includes prevention, provision and protection. Here's an overview of the importance of prevention, provision, and protection in the Indian healthcare system.

1- PREVENTION

Prevention is crucial in reducing the burden of diseases in India. It involves:

- Promoting healthy lifestyles and behaviors
- Immunization and vaccination programs
- Early detection and screening for diseases
- Reducing risk factors for non-communicable diseases

Prevention helps in reducing healthcare costs, improving quality of life, and increasing productivity.

2-PROVISION

Provision refers to the availability and accessibility of healthcare services in India. It involves:

- Ensuring adequate healthcare infrastructure and facilities
- Providing trained and skilled healthcare professionals
- Making essential medicines and technologies available
- Strengthening healthcare delivery systems

Provision ensures that Indians have access to timely, affordable, and quality healthcare services.

3-PROTECTION

Protection is critical in safeguarding the health and well-being of Indians, particularly the vulnerable populations. It involves:

- Implementing health insurance schemes and social protection programs

- Ensuring financial risk protection for healthcare expenses

- Protecting patients' rights and promoting healthcare ethics

- Strengthening healthcare regulations and quality standards

Protection helps in reducing healthcare-related financial hardships, promoting health equity, and ensuring that Indians receive safe and quality healthcare services.

By focusing on prevention, provision, and protection, India can build a robust and resilient healthcare system that promotes the health and well-being of all its citizens.

Importance of Innovation in Indian Healthcare System:

Innovation is critical to addressing the complex challenges facing India's healthcare system. Some of the key reasons why innovation is important include:

1. **Improving Access**: Innovation can help increase access to healthcare services, particularly in rural and underserved areas, through telemedicine, mobile health clinics, and other digital health solutions.
2. **Enhancing Quality:** Innovation can help improve the quality of healthcare services, through the adoption of evidence-based practices, clinical decision support systems, and other quality improvement initiatives.
3. **Reducing Costs:** Innovation can help reduce healthcare costs, through the adoption of cost-effective treatments, reduction of waste and inefficiency, and improvement of supply chain management.
4. **Addressing Disparities:** Innovation can help address disparities in healthcare access and outcomes, through targeted interventions, community-based programs, and other initiatives that focus on vulnerable populations.
5. **Promoting Sustainability:** Innovation can help promote sustainability in the healthcare sector, through the adoption of environmentally-friendly practices, reduction of energy consumption, and improvement of waste management.

DIFFERENT MODELS OF INNOVATION IN INDIAN HEALTHCARE SYSTEM:-

Here are different models of innovations in Indian healthcare infrastructure:

Public-Private Partnerships (PPPs): Collaborations between government and private sector to develop and manage healthcare infrastructure.

Social Impact Bonds (SIBs): Investment models that focus on specific health outcomes, with returns linked to achievement of those outcomes.

Telemedicine and Digital Health: Leveraging technology to deliver healthcare services remotely, improving access and affordability.

Innovative Financing Models: Models like healthcare crowd funding, health savings accounts, and community-based health insurance.

Low-Cost Healthcare Delivery Models: Models like Narayana Health's low-cost cardiac care and Aravind Eye Hospital's low-cost eye care.

Healthcare Technology Incubators and Accelerators: Supporting startups and entrepreneurs in developing innovative healthcare solutions.

Community-Based Healthcare Models: Models that empower local communities to take ownership of healthcare services, improving access and accountability.

INTRODUCTION OF AI:

India's healthcare infrastructure is on the cusp of a revolution, driven by the increasing adoption of Artificial Intelligence (AI). As the country grapples with the challenges of providing quality healthcare to its vast and diverse population, AI is emerging as a game-changer. From diagnosing diseases more accurately and quickly, to streamlining clinical workflows and improving patient outcomes, AI has the potential to transform India's healthcare landscape. With the government's emphasis on digital health and the growing presence of healthcare startups, the stage is set for AI to play a pivotal role in improving India's healthcare infrastructure.Overall, innovation is essential to transforming India's healthcare system and improving the health and well-being of its citizens.

AREA OF OPPORTUNITY FOR INDIAN HEALTHCARE:-

Here are areas of opportunity for the Indian healthcare system:

Healthcare Infrastructure:

1. Rural healthcare expansion: Developing healthcare infrastructure in rural areas to improve access.
2. Specialty hospitals: Establishing specialty hospitals for cancer, cardiology, and neurology.
3. Healthcare facilities in tier 2 and 3 cities: Expanding healthcare services to smaller cities.

Digital Health:-

1. Telemedicine: Expanding telemedicine services for remote consultations.
2. Electronic Health Records (EHRs): Implementing EHRs for efficient patient data management.
3. Health analytics: Leveraging data analytics for informed decision-making.

Medical Technology:-

1. Medical device manufacturing: Developing indigenous medical device manufacturing capabilities.
2. Artificial Intelligence (AI) in healthcare: Adopting AI for diagnostic accuracy, patient engagement, and personalized medicine.
3. 3D printing in healthcare: Utilizing 3D printing for prosthetics, implants, and surgical models.

Healthcare Workforce:-

1. Nursing workforce development: Strengthening nursing education and training programs.
2. Primary healthcare workforce: Enhancing primary healthcare workforce capacity and training.
3. Healthcare leadership development: Developing leadership programs for healthcare professionals.

Public Health:-

1. Disease surveillance and prevention: Strengthening disease surveillance and prevention mechanisms.
2. Mental health services: Expanding mental health services and awareness programs.
3. Health promotion and education: Implementing health promotion and education programs for preventive care.

Healthcare Financing:-

1. Health insurance expansion: Increasing health insurance coverage and penetration.
2. Innovative financing models: Exploring innovative financing models, such as crowdfunding and social impact bonds.
3. Public-Private Partnerships (PPPs): Fostering PPPs for healthcare infrastructure development and service delivery.

Policy Reforms and Recommendations in Indian Healthcare Innovations:

To faster innovation in Indian healthcare, policy reforms and recommendations are crucial. Some key areas for reform include:

1. **Regulatory Framework:** Streamline regulatory processes to encourage innovation, while ensuring safety and efficacy.
2. **Intellectual Property Protection:** Strengthen IP laws to protect innovators' rights and encourage investment.
3. **Public-Private Partnerships:** Foster collaborations between government, industry, and academia to drive innovation.
4. **Digital Health:** Develop policies to promote digital health, including telemedicine, electronic health records, and health data analytics.
5. **Funding and Incentives:** Provide funding and incentives for startups, research institutions, and innovators to develop and commercialize new healthcare technologies.

Recommendations:

i. Establish a national healthcare innovation authority to coordinate policy efforts.
ii. Create a healthcare innovation fund to support startups and research institutions.
iii. Develop a national digital health strategy to promote interoperability and data sharing.
iv. Encourage public-private partnerships to drive innovation and improve healthcare outcomes.

FUTURE OF INDIAN HEALTHCARE SYSTEM:-

Here's a more concise overview of the future of the Indian healthcare system:

Short-Term (2025-2030)

1. Increased digital health adoption

2. Expanded health insurance coverage

3. Growing focus on preventive care

Mid-Term (2030-2040)

1. Rise of personalized medicine

2. Increased investment in healthcare infrastructure

3. Growing importance of mental health

Long-Term (2040-2050)

1. Transformation through artificial intelligence (AI)

2. Shift towards value-based care

3. Increased focus on healthcare sustainability

KEY DRIVER OF THE CHANGE:-

1. Government initiatives and policies

2. Technological advancements

3. Changing patient expectations

4. Private sector investment

CONCLUSION:-

India's healthcare infrastructure is poised for transformation through innovation. By leveraging technology, promoting public-private partnerships, and encouraging policy reforms, India can improve healthcare access, quality, and affordability. With a focus on sustainability, equity, and patient-centered care, innovative healthcare solutions can help India achieve its health goals and become a model for other developing countries. As India continues to prioritize public health, these estimates highlight the government's efforts to reduce financial barriers, improve healthcare infrastructure, and move towards achieving Universal Health Coverage. The ongoing reforms in the healthcare sector, backed by strong financial commitments, are paving the way for a healthier, more equitable future for all citizens.

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THE GREEN PHARMACEUTICS IMPERATIVE

Introduction

Aristotle, one of the greatest philosophers, once said, *"Every virtue carried to the extreme is a vice."* This quote aptly reflects the reality that while the pharmaceutical industry plays a significant role in global healthcare, its growth—like that of any other industry—has detrimental effects on the environment. Consequently, eco-friendly and green solutions are essential not only for environmental conservation but also for effective waste management and the efficient, cost-effective operation of pharmaceutical industries. This article highlights various innovative and environmentally friendly methods and practices, derived from industry expert insights and real-world examples, that can help pharmaceutical companies reduce their ecological footprint.

Green Chemistry

Green chemistry refers to a set of principles designed to develop products and processes that generate minimal or no hazardous substances. It serves as the foundation for sustainable and eco-friendly drug formulation and should be adopted and followed by pharmaceutical companies to reduce environmental impact while improving safety and efficiency.

The 12 Principles of Green Chemistry are:

1. **Prevention of Waste Formation**: Designing processes to minimize waste generation.
2. **Atom Economy**: Ensuring that all materials used in synthesis are incorporated into the final product.
3. **Less Hazardous Chemical Synthesis**: Using safer reagents and reaction conditions.
4. **Designing Safer Chemicals**: Developing chemicals with minimal toxicity.
5. **Safer Solvents and Auxiliaries**: Avoiding hazardous solvents and auxiliaries.
6. **Design for Energy Efficiency**: Reducing energy consumption by optimizing reaction conditions.
7. **Use of Renewable Feedstocks**: Sourcing raw materials from renewable sources.
8. **Reduction of Derivatives**: Minimizing unnecessary chemical modifications.
9. **Use of Catalysts over Stoichiometric Reagents**: Enhancing reaction efficiency with catalysts.
10. **Design for Degradation**: Ensuring chemical products degrade into non-toxic byproducts.
11. **Real-time Analysis for Pollution Prevention**: Monitoring reactions in real time to prevent pollution.
12. **Inherently Safer Chemistry for Accident Prevention**: Designing processes to minimize risks.

Several pharmaceutical companies, including AstraZeneca, Johnson & Johnson, and Boehringer Ingelheim, have successfully integrated green chemistry principles into their research, development, and production processes.

Solvent-Free Formulation Techniques

Solvent-free formulation is an eco-friendly alternative to conventional solvent-based methods. It not only reduces environmental pollution but also minimizes health hazards, enhances formulation efficiency, and lowers costs. Some commonly used solvent-free formulation techniques include:

- Spray Drying with Supercritical Fluids
- Microwave-Assisted Synthesis
- Hot-Melt Extrusion (HME)
- Electrospinning
- Direct Compression
- Supercritical Fluid Extraction (SFE)

These techniques offer a greener approach to drug formulation by eliminating the need for toxic solvents.

Sustainable Nanomaterial Synthesis

Sustainable nanomaterial synthesis plays a crucial role in reducing the environmental impact of drug production while enhancing pharmaceutical efficiency and safety. This approach contributes to eco-friendly drug formulation through:

- **Reduced Environmental Impact** – Adhering to green chemistry principles reduces energy consumption and emissions.
- **Biodegradability** – Designing nanomaterials to degrade naturally minimizes environmental accumulation and pollution.
- **Enhanced Drug Solubility and Bioavailability** – Improving the solubility of poorly water-soluble drugs reduces required dosages and environmental contamination.
- **Targeted Drug Delivery** – Directing drugs to specific sites minimizes side effects and prevents unnecessary drug dispersion.
- **Resource Conservation** – High surface-area-to-volume ratios allow for lower active ingredient use while maintaining efficacy.
- **Biomimetic Nanomaterials** – Mimicking biological processes enhances biocompatibility and reduces adverse effects.
- **Vaccine Preservation** – Nanoparticles stabilize active ingredients, reducing reliance on cold-chain logistics and lowering energy consumption.

Medication Recycling Programs

Medication recycling programs help reduce the environmental, health, and resource challenges associated with unused or expired medications through eco-friendly disposal and recycling methods. These programs, often promoted by healthcare institutions and pharmaceutical companies, aim to:

- **Minimize Medication Waste** – Recover valuable resources and reduce landfill waste.
- **Promote Public Health** – Educate the public on proper medication disposal methods.
- **Encourage a Circular Economy** – Identify and redistribute certain medications when appropriate.
- **Fulfill Corporate Social Responsibility (CSR) Obligations** – Demonstrate commitment to sustainability.
- **Reduce Carbon Emissions** – Optimize waste management and transportation.

These programs play a vital role in fostering sustainable pharmaceutical practices.

Eco-Friendly Packaging Solutions

Pharmaceutical packaging also contributes to environmental pollution, depending on the materials and methods used. Ideal eco-friendly packaging should minimize waste and use biodegradable, recyclable, or reusable materials such as:

- Bamboo
- Cornstarch-based bioplastics
- Recycled paper and cardboard
- Glass alternatives
- Biodegradable polymers

Eco-friendly packaging provides multiple benefits:

- **Environmental Protection** – Reduces non-degradable waste and carbon emissions.
- **Regulatory Compliance** – Meets government and health organization guidelines.
- **Positive Brand Reputation** – Attracts environmentally conscious consumers and builds customer loyalty.
- **Long-Term Cost Savings** – Initial investments in sustainable packaging pay off through resource efficiency and customer preference.

Despite higher initial costs, eco-friendly packaging offers a sustainable and profitable long-term solution for pharmaceutical companies.

Conclusion

For a sustainable future, eco-friendly drug formulation practices must be regarded as a necessity rather than an option. By adopting green chemistry, solvent-free technologies, medication recycling, and eco-friendly packaging, pharmaceutical companies can lead the industry toward greater environmental responsibility. These sustainable practices not only benefit the planet but also enhance brand reputation, regulatory compliance, and patient safety. A shift towards greener pharmaceutical practices ensures a win-win scenario—promoting both a healthier environment and improved public health.

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THE ROLE OF ARTIFICIAL INTELLIGENCE(AI) IN DRUG DISCOVERY

Artificial Intelligence (AI) has become a pivotal instrument in the pharmaceutical sector, fundamentally altering the methodologies employed in drug discovery, development, and commercialization. The incorporation of AI into the drug discovery framework holds the promise of significantly lowering expenses, expediting timelines, and enhancing the success rates of novel therapeutic agents. This article examines the progress, applications, and ramifications of AI within the realm of drug discovery, emphasizing its transformative influence on the pharmaceutical industry.

Introduction to AI in Drug Discovery

The process of drug discovery is characterized by its complexity and high resource demands, typically extending over a decade and necessitating investments amounting to billions of dollars. This multifaceted process encompasses several critical stages, including target identification, validation, lead compound identification, preclinical testing, and various phases of clinical trials. Despite substantial investments and efforts, the probability of successfully advancing a drug from initial concept to market approval remains below 10%. Artificial intelligence (AI) presents potential solutions to numerous challenges associated with this process by utilizing computational power, machine learning (ML), and big data analytics.

AI-Driven Drug Design

One of the most notable applications of artificial intelligence (AI) in the field of drug discovery is its role in the design of novel molecules. AI algorithms possess the capability to analyze vast chemical databases, enabling the prediction of the properties of prospective drug candidates, the identification of promising compounds, and the suggestion of new chemical structures. For example, generative adversarial networks (GANs) and reinforcement learning algorithms can generate virtual compounds that have not yet been synthesized, significantly diminishing the reliance on labor-intensive trial-and-error methodologies.

Accelerating Target Identification and Validation

The identification and validation of biological targets—molecules implicated in disease processes that can be influenced by pharmacological agents—constitute a fundamental phase in the drug discovery process. Artificial intelligence (AI) has demonstrated significant utility in this domain by examining genomic, proteomic, and transcriptomic datasets to reveal novel drug targets. Machine learning algorithms are capable of analyzing extensive datasets to discern correlations between genetic mutations and disease phenotypes, thereby facilitating the identification of targets that may have been missed through conventional approaches. Additionally, AI can evaluate the drug ability of these targets by forecasting their binding sites and interactions with prospective compounds.

Enhancing High-Throughput Screening

High-throughput screening (HTS) is a technique employed to evaluate the biological activity of thousands of compounds against a specific target. Although HTS is effective, it is characterized by high costs and considerable labor demands. The advent of artificial intelligence (AI) has revolutionized this methodology through the implementation of virtual screening, wherein algorithms are utilized to predict the activity of compounds in silico. This advancement significantly diminishes the number of compounds that require laboratory testing.

Predicting Drug-Drug Interactions and Side Effects

A significant challenge in the field of drug development lies in the ability to anticipate potential side effects and interactions with other medications. Artificial intelligence (AI) can play a crucial role in alleviating these risks by analyzing patient data, electronic health records, and established pharmacological knowledge to discern patterns and forecast adverse outcomes.

Natural language processing (NLP) tools are capable of extracting pertinent information from scientific literature and clinical trial reports, while machine learning algorithms analyze this data to yield insights regarding potential safety issues. By identifying risks at an early stage in the development process, AI contributes to ensuring that only safe and effective drugs advance to clinical trials.

Revolutionizing Clinical Trials

Clinical trials represent a significant investment of time and resources in the drug development process. However, artificial intelligence (AI) offers promising opportunities to enhance efficiency in this area by improving trial design, patient recruitment, and data analysis. For example, AI can evaluate patient datasets to pinpoint ideal candidates for trials, taking into account genetic, demographic, and clinical factors, which helps ensure that trials involve the most relevant populations.

Real-World Applications and Success Stories

Many pharmaceutical companies and start-ups are utilizing AI to achieve remarkable outcomes. For example, Benevolent AI employed AI to discover baricitinib as a possible COVID-19 treatment, greatly reducing the time needed for drug repurposing. Likewise, Atomwise's AI platform has sped up the process of finding lead compounds for different diseases. AI is also being applied to forecast market trends, enhance manufacturing processes, and maintain compliance with regulatory standards.

Several AI Methods Commonly Employed in Drug Discovery

Deep Learning Models: These models are employed to evaluate molecular characteristics, forecast interactions between pharmaceuticals and their targets, and examine potential adverse effects. Notable examples include convolutional neural networks (CNNs) for the analysis of molecular imagery and recurrent neural networks (RNNs) for predicting sequences.

Generative Adversarial Networks (GANs): GANs are applied in the creation of innovative drug-like molecules. They function by generating new chemical structures and refining them to meet specific criteria, such as solubility or binding affinity.

Natural Language Processing (NLP): NLP methodologies are utilized to scrutinize scientific literature, clinical trial data, and patents, thereby uncovering new insights, identifying potential drug targets, and formulating therapeutic strategies.

Bayesian Optimization: This technique is used to enhance drug properties, including bioavailability and potency. It enables researchers to make predictions and iteratively refine compounds.

Reinforcement Learning: This methodology involves AI agents that learn optimal strategies for molecule design or virtual screening experiments by receiving feedback regarding their performance.

Clustering Algorithms: These algorithms categorize similar compounds based on their chemical or biological properties, facilitating a deeper understanding of activity patterns and streamlining the screening process.

Applications in Drug Discovery and Beyond

Artificial Intelligence (AI) has a wide range of applications throughout the drug development pipeline and beyond. In the realm of Precision Medicine, AI facilitates the creation of personalized treatment plans by examining genetic, environmental, and lifestyle factors. This method customizes therapies for individual patients, thereby improving treatment efficacy and reducing the likelihood of adverse effects.

With respect to Drug Repurposing, AI leverages existing data on approved pharmaceuticals to uncover new therapeutic applications for established compounds. This strategy not only shortens development timelines but also lowers costs, as the safety profiles of these drugs are already known. In terms of Supply Chain Optimization, AI enhances the management of pharmaceutical supply chains by forecasting demand, optimizing inventory levels, and ensuring the timely distribution of medications. This contributes to the reliable availability of essential drugs. Lastly, in the context of Regulatory Compliance, AI aids in adhering to regulatory requirements by automating documentation processes and streamlining workflows. This not only alleviates administrative burdens but also expedites the approval process.

Challenges and Ethical Considerations

While the advantages of artificial intelligence (AI) in drug discovery are indisputable, it is imperative to address the associated challenges and ethical concerns. A primary challenge pertains to the quality and potential bias of the data utilized. AI algorithms depend on high-quality, representative datasets to generate accurate predictions; thus, incomplete or biased data can result in erroneous outcomes, which may compromise patient safety. Furthermore, the "black box" characteristic of certain AI models—where the decision-making process is not readily interpretable-raises significant issues regarding transparency and accountability. Regulatory agencies are actively working to formulate guidelines for the application of AI in drug development to ensure that it adheres to the same stringent standards as conventional methodologies. Ethical considerations also encompass the risk of AI exacerbating existing disparities in healthcare. Addressing these challenges necessitates a collaborative effort among researchers, industry leaders, and policymakers.

The Future of AI in Drug Discovery

The incorporation of artificial intelligence (AI) into the drug discovery process remains nascent; however, its potential is substantial. Progress in computational capabilities, algorithmic advancements, and the accessibility of data are expected to propel innovation within this domain. Collaborative initiatives among academic institutions, industry stakeholders, and regulatory bodies will be essential for realizing the comprehensive potential of AI. Looking ahead, AI has the capacity to facilitate the development of genuinely personalized medicine by identifying therapeutic interventions that are customized to an individual's genetic profile, lifestyle, and environmental factors. Furthermore, it may enhance the discovery of treatments for rare diseases that have historically been overlooked due to their limited market viability.

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REGENERATION OF TEETH PROTEIN CSAG 1

INTRODUCTION

Tooth Loss:

A common problem affecting millions worldwide. There is a team of scientists behind the research on tooth regeneration by removing protein CSAG 1. The research was conducted by scientists at Kyoto University and the University of Fukui in Japan. Their findings were published in the journal Science Advances in 2021.The scientists found that by removing the protein CSAG 1, they could stimulate the growth of new teeth in mice with tooth agenesis, a congenital condition that causes missing teeth. This research is promising for the development of new treatments for tooth loss in humans.

Tooth development is a complex process involving intricate signaling pathways. Once key player in this process is a protein called CSAG 1 (uterine sensitization-associated gene 1). CSAG 1 acts as a negative regulator of tooth development by interacting with and inhibiting the activity of other important signaling molecules like BMP (bone morphogenetic protein) and Wnt. BMP and Wnt are crucial for initiating and guiding the formation of tooth structures.

In studies conducted on mice with congenital tooth agenesis (a condition where teeth fail to develop), researchers observed that removing CSAG 1 stimulated the regeneration of teeth. This suggests that by blocking the inhibitory effects of CSAG 1, it might be possible to reactivate the dormant signaling pathways involved in tooth development.

This finding has significant implications for potential therapeutic approaches to tooth regeneration in humans. By targeting CSAG 1, researchers hope to develop strategies that can stimulate the regrowth of missing teeth or repair damaged ones. However, more research is needed to fully understand the role of CSAG 1 in tooth development and to determine the safety and efficacy of targeting this protein for therapeutic purposes.

Current Solutions: Limitations of dental implants, bridges, and dentures.

Regenerative Medicine: A potential solution for tooth replacement.

CSAG1 Protein: A key regulator of tooth development.

THE ROLE OF CSAG1 IN TOOTH DEVELOPMENT

1. Inhibitory Effect: CSAG1 protein suppresses tooth formation.
2. Mechanism: Interacts with BMP and Wnt signaling pathways.
3. Congenital Tooth Agenesis: Mutations in CSAG1 can lead to missing teeth.

REMOVING CSAG1 FOR TOOTH REGENERATION

1. Animal Studies: Successful tooth regeneration in mice by removing CSAG1.
2. Mechanisms: Enhanced BMP signaling.

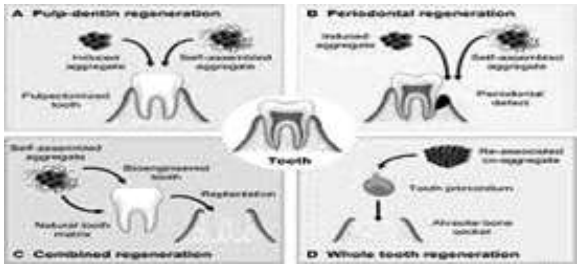
   Activation of stem cells.

   Stimulation of tooth germ formation.
3. Image: Microscopic image of a regenerated tooth in a mouse model.

POTENTIAL CLINICAL APPLICATIONS

1. Congenital Tooth Agenesis: Treatment of missing teeth due to genetic mutations.

2. Acquired Tooth Loss: Potential for regeneration of lost teeth in adults.Personalized Medicine: Tailored treatments based on individual genetic profiles.



CHALLENGES AND FUTURE DIRECTIONS

1. Safety and Efficacy: Further research needed to ensure safety and effectiveness in humans.

2. Ethical Considerations: Addressing ethical concerns related to genetic manipulation.

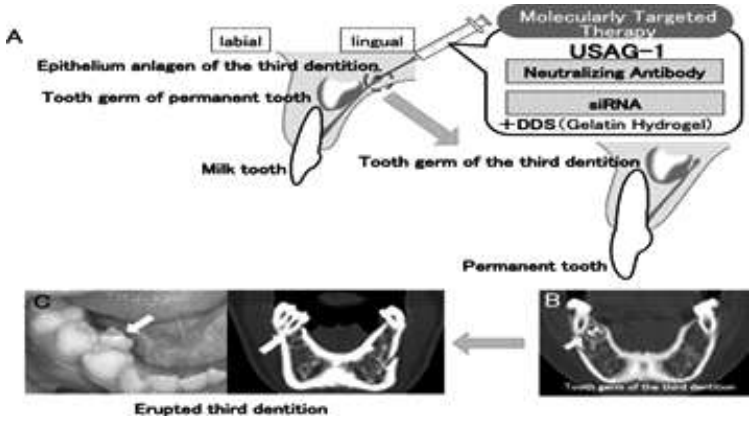
3. Translation to Clinical Practice: Developing effective delivery methods and clinical protocols.

CONCLUSION

1. Promising Future: Removing CSAG1 offers a potential breakthrough in tooth regeneration.

2. Continued Research: Essential for advancing this technology towards clinical application.

A Brighter Smile: The hope of regenerating natural teeth for a healthier future.



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A TREASURE TO BE HUNTED (LIQUORICE)

Nature has blessed us with efficient and potent ingredients in our surrounding in the form of herbs and minerals. A large-scale multinational study based on internet surveys has shown that atleast 40% of people worldwide suffer from gastrointestinal complications, such as diarrhoea, constipation, or irritable bowel syndrome (IBS), with a prevalence of 4.7, 11.7, and 4.1%, respectively. Ayurveda, the ancient Indian system of medicine, emphasises the importance of a healthy gut for maintaining overall health.

Fennel seed, cumin, asafoetida, guduchi, aloe vera, ginger, and nutmeg are among the most commonly used substances for treating gastrointestinal tract disorders. Additionally, liquorice is considered a potent remedy for gut health due to its combination of prebiotic and probiotic properties. The concept of "gut feeling" is often invoked when rational thought processes are insufficient, highlighting the intuitive power associated with the digestive system. The gut is frequently referred to as the body's "second brain". In contemporary medical discourse, functional gastrointestinal disorders are increasingly *conceptualised as Gut-Brain Interactions.*

Gut is a tubelike structure starts after stomach. According to modern anatomy in human being gut starts with duodenum while in Ayurveda the term coined is ***Grahani***, which is known as ***pittadhara kala***. It is the seat of Agni which is responsible for all kind of metabolism in the body.

What are prebiotics?

The scientific definition of a prebiotic is “a substrate that is selectively utilized by host microorganisms conferring a health benefit”. Often, prebiotics are types of undigested carbohydrates and soluble fiber that humans cannot digest but instead serve as 'food' for beneficial microbes that already live in your colon or elsewhere in your body. The word used in place of prebiotic for labeling are galacto-oligosaccharides (GOS), fructo- oligosaccharides (FOS), oligofructose (OF), chicory fiber, inulin etc. Consuming at least 5 grams of prebiotics daily is recommended for improving gut health. The prebiotics are far up in the list than nutrients.

What is probiotic?

The International Scientific Association for Probiotics and Prebiotics defines probiotics as “live microorganisms that, when administered in adequate amounts, confer a health benefit on the host”

Impact of diet on gut microbiota :

Diet is one of the primary modulators of gut microbiota functions and composition. Dietary factors play a crucial role in disease pathogenesis and treatment. Consequently, Ayurveda delineates specific *pathya apathya* (*recommended-Dos and contraindicated practices-Don'ts*) in relation to each disease. The DASH diet has demonstrated significant benefits for gut-related disorders.

Saturated fat, high omega-6 PUFA, and low omega-3 PUFA induce dysbiosis through gut barrier alteration and metabolic disorders. A protein-rich diet increases the production of TMAO from intestinal microbiota, augmenting the risk of cardiovascular diseases by disturbing gut homeostasis. Fibres are essential substrates for gut microbiota, with positive effects on SCFA production and host metabolic function.

Gastric microbiotas differ significantly from gut microbiota. Gut microbiota is one of the main components of the intestinal ecosystem and plays a key role in human health, including a protective effect on the gut barrier, shaping and maturation of the immune system, and the regulation of human metabolism and nutrient absorption. Gut microbiomes are influenced by age, genetics, immune system, diet, lifestyle, BMI, climate, and environment. It is well

established that intestinal microflora indicates functional microorganism status. This microflora produces a substantial number of enzymes.

Glycyrrhiza glabra Linn. (liquorice) belongs to the Fabaceae family and has been recognised since ancient times for its ethnopharmacological values. Its root is utilised for medicinal properties. It contains approximately 300 chemical compounds. It is also known as **YASTIMADHU**. In Ayurveda, it holds special importance as *Medhya rasayan*. This plant contains various phytocompounds, such as glycyrrhizin, 18β-glycyrrhetinic acid, glabrin A and B, and isoflavones. It has demonstrated diverse pharmacological activities. Pharmacological experiments have demonstrated that different extracts and pure compounds from this species exhibit a broad range of biological properties, including antibacterial, anti-inflammatory, antiviral, antioxidant, antidiabetic, demulcent, mild laxative, and wound healing activities.

The prebiotic effect of Liquorice was studied using in vitro batch culture. Nutritionally, liquorice is a source of proteins, amino acids, polysaccharides and simple sugars, mineral salts (such as calcium, phosphorus, sodium, potassium, iron, magnesium, silicon, selenium, manganese, zinc, and copper), pectin, resins, starches, sterols, and gum.

FEW INTERESTING FACTS ABOUT LIQUORICE-

- Flavonoids present in it give its characteristic yellow colour.
- Singers consume it to improve voice quality and sore throat.
- Though it is 30 to 50 times sweeter than sugar it has hypoglycemic property. Research work done with a title "*Antidiabetic property of Glycerrhiza glabra* - in vitro study", it was published in International Journal of Pharmaceutical Sciences Review and Research in May –June 2017 article number 22.
- Pectin is a polysaccharide present in Liquorice, which binds substances in the intestines and adds bulk to the stools which reduces incidence of diarrhoea and improve gut health by promoting frequent and softer stool in individuals by enhancing colonic bacterial fermentation to reduce gut transit time.
- Intravenous glycyrrhizin has been employed for more than 20 years in Japan for the treatment of chronic hepatitis
- Glycyrrhetinic acid has been reported as an anti-inflammatory and hepatoprotective compound.
- The European Medical Agency has added liquorice to their list of herbal medicines, as it is widely utilised in the Netherlands, Italy, Spain and France.
- It enhances calcium absorption through isoflavones, which exhibit oestrogen-like activity in bone metabolism.

Essential oils of liquorice demonstrate efficacy in combating skin diseases and even inhibiting the growth of fungi such as Aspergillus flavus. The use of antibiotics adversely affects beneficial gut microbiota. Identifying alternatives to antibiotics is an important field of research, given the current antibiotic resistance issue.

Prebiotic and probiotic may help reduce the use of antibiotic. Triphala is a proven probiotic. Various research works are ongoing on Liquorice for its prebiotic and probiotic action along with other pharmaceutical actions. Treasure hunt is on by researchers. Liquorice is a boon for us. Hopefully, many other important aspects will be explored in near future.

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ARTIFICIAL INTELLIGENCE AND THE FUTURE OF LIVER TRANSPLANTATION IN S.C.B. MEDICAL COLLEGE

AI continues to evolve, shaping the future of technology and the workplace by executing tasks traditionally requiring human intelligence. From understanding language and making decisions to analysing complex visual data such as images and videos, AI is redefining possibilities in numerous fields like Medicine .

In the realm of surgery, AI-powered robotic systems are transforming outcomes. For instance, the da-Vinci Robotic System enhances the precision and capabilities of surgeons during complex, minimally invasive procedures. These systems are instrumental in reducing recovery times, minimising complications such as bleeding during surgery, and lowering post-operative risks like infections and liver failure. By improving incision and port placement in laparoscopic and robotic surgeries, AI reduces tissue damage, facilitates precise suturing, and aids in vascular anastomosis, thereby mitigating the risk of complications.

AI's role is particularly pronounced in liver surgeries, including major resections and liver transplantation. By improving surgical precision, reducing risks, and optimizing outcomes, AI has become indispensable. It aids in liver allocation by analysing waiting lists, patient urgency, and organ transport logistics in cadaveric transplantation, thereby reducing organ wastage and improving outcomes. In pre-surgical planning, AI analyses X-rays, CT scans, and MRI images to generate detailed 3D models of the liver, enabling accurate detection of tumours, evaluation of hepatic blood flow, and identification of critical structures such as blood vessels. Software like the 3D Slicer facilitates precise liver resections and predicts the post-surgical volume of liver segments, ensuring adequate retained liver function. AI also provides real-time visualization and guidance during tumour ablation and resection.

Moreover, AI algorithms evaluate donor and recipient compatibility by analysing factors such as blood type, liver size, and immunological markers, thus enhancing the success rate of liver transplants. It predicts long-term survival outcomes for transplanted livers based on donor and recipient data. AI is capable of assessing the viability of donor livers, particularly in cases of fatty liver or other conditions, and monitors livers preserved in perfusion machines to ensure only healthy organs are transplanted. Furthermore, AI systems can detect early signs of graft rejection and predict infections, allowing surgeons to intervene before symptoms manifest.

Liver transplantation stands as one of the most revolutionary advancements in the annals of medical science. The commencement of living donor liver transplantation at S.C.B. Medical College and Hospital, Cuttack, a premier institute of Odisha, heralds a new era in healthcare for the state. For the underprivileged, this life-saving procedure has become accessible thanks to the benevolence of the Government of Odisha, which graciously bears the cost under the support of SCB administration. Like a tender sapling, this liver transplantation program requires the nurturing support of all to flourish, ultimately establishing SCB as a Centre of Excellence. The esteemed AIG Hospitals, Hyderabad, has extended its mentorship and unwavering support to this initiative, lending expertise and guidance.

This historic achievement has etched a significant milestone, with the successful discharge of two patients marking SCB's place in history as the first government medical college in Eastern India to accomplish such a rare feat. The success of these transplants is attributed to divine blessings, the tireless dedication of the SCB team, the invaluable contributions of the ancillary departments, and the unwavering support of faculty, staff, patients, and well-wishers. To each of them, we extend our heartfelt gratitude for their role in this monumental journey.

Currently, in India, 95% of liver transplants are conducted in corporate hospitals, leaving the remaining 5% to

government institutions such as SCB, which serves as a beacon of hope for the underprivileged. Through its relentless efforts, SCB has earned its rightful place on the liver transplant map of India and the world. As SCB undergoes its transformation into a world-class facility, the liver transplant program must evolve into a routine endeavour, securing its status as a lifeline for countless lives.

Furthermore, the Odisha University of Health Sciences (OUHS) has already initiated undergraduate chapters on organ donation in the MBBS curriculum, laying a strong foundation for the future. The next ambitious step must focus on expanding the program to include brain stem death protocols and cadaveric liver transplantation, solidifying SCB's enduring legacy in advancing healthcare excellence.

With an unwavering commitment to this noble cause, Team SCB dedicates itself to the seamless continuation of the program, driven by the singular goal of saving precious human lives and ensuring a brighter future for generations to come. In the near future Artificial intelligence will play a pivotal role for continuing smooth and successful Liver Transplants in times to come .

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THE RISE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

Introduction

In recent years, artificial intelligence (AI) has emerged as a transformative force across various industries, with healthcare standing out as one of its most promising applications. By leveraging machine learning, natural language processing, and advanced algorithms, AI is revolutionizing how medical professionals diagnose diseases, develop treatments, and deliver patient care. As we stand on the cusp of a new era in medicine, it is crucial to explore the profound impact of AI on healthcare, its current applications, potential benefits, and the challenges it presents.

Applications of AI in Healthcare

1. Diagnostics and Early Detection

AI algorithms are trained to analyze medical data, such as imaging scans, blood tests, and genetic profiles. These systems can detect diseases like cancer, cardiovascular conditions, and neurological disorders with high accuracy. For instance Medical Imaging: AI-powered tools like Deep Mind's Alpha-Fold or IBM Watson Health analyze X-rays, MRIs, and CT scans to identify anomalies. AI models predict diseases before symptoms appear by analyzing patient histories and genetic predispositions.

2. Personalized Medicine: AI is also driving advancements in personalized medicine, a tailored approach to healthcare that considers an individual's genetic makeup, lifestyle, and medical history. By analyzing genomic data, AI systems can identify genetic predispositions to diseases and recommend customized treatment plans. Pharmacogenomics, a field that studies how genes affect a person's response to drugs, has greatly benefited from AI, allowing for precise drug prescriptions that minimize side effects and maximize efficacy.

For example, AI-powered platforms like Tempus and Foundation Medicine use genomic data to recommend targeted cancer therapies. These tools not only improve treatment outcomes but also pave the way for preventive care by identifying individuals at high risk of developing specific conditions. The integration of AI in personalized medicine signifies a shift from reactive to proactive healthcare, focusing on prevention rather than treatment.

3. Robotics in Surgery: The operating room is another area where AI is making significant strides. Robotic surgical systems, such as the da Vinci Surgical System, combine AI with precision robotics to perform minimally invasive procedures. These systems provide surgeons with enhanced dexterity, allowing for complex surgeries that are less invasive and have quicker recovery times.

AI also aids in preoperative planning and intraoperative guidance. Machine learning models can analyze a patient's medical records, imaging data, and other factors to create a detailed surgical plan. During the procedure, AI-powered systems provide real-time feedback, alerting surgeons to potential risks and improving overall surgical accuracy. This synergy between human expertise and AI technology is transforming surgery into a more precise and efficient domain.

4. Virtual Health Assistants:

Virtual health assistants are reshaping patient interactions and accessibility to healthcare. These AI-driven tools, such as Babylon Health, Ada Health, and Woebot, act as digital health companions, providing personalized advice, symptom checks, and mental health support. Virtual assistants leverage natural language processing to understand patient queries and offer evidence-based recommendations. Beyond individual consultations, virtual health assistants can remind patients to take medications, schedule appointments, and monitor chronic conditions. By reducing the burden on healthcare providers and empowering patients to manage their health, these tools play a critical role in enhancing patient engagement and adherence to treatment plans.

5. Drug Discovery and Development:

AI is revolutionizing the pharmaceutical industry by accelerating the drug discovery and development process. Traditional drug development is often time-consuming and costly, taking an average of 10-15 years and billions of dollars to bring a new drug to market. AI, however, can analyze massive datasets to identify potential drug candidates and predict their efficacy and safety with unprecedented speed.

Companies like Insilco Medicine and Atomize use AI to screen molecular structures and identify promising compounds. In 2020, AI played a pivotal role in the rapid development of COVID-19 vaccines by analyzing viral structures and suggesting potential targets for neutralization. As AI continues to evolve, it holds the promise of making drug development faster, more cost-effective, and accessible to a broader population.

6. Administrative Tasks

AI streamlines tasks like billing, scheduling, and patient record management.

Natural Language Processing (NLP) healthcare providers extract insights from unstructured data in Electronic Health Records (EHRs).

Benefits of AI in Healthcare

Improved Accuracy: AI reduces diagnostic errors, especially in complex cases where human expertise might fall short.

Cost Efficiency: Automating administrative and repetitive tasks saves costs and allows healthcare workers to focus on critical responsibilities.

Accessibility: AI bridges healthcare gaps in remote and underserved regions by enabling telemedicine and virtual consultations.

Faster Drug Development: By expediting drug discovery, AI helps combat global health crises more effectively.

Challenges and Ethical Considerations

Data Privacy and Security: Protecting sensitive patient data from breaches is a significant concern.

Bias in Algorithms: AI models trained on unrepresentative data may produce biased outcomes, affecting healthcare equity.

Regulatory Hurdles: Ensuring AI systems comply with global healthcare standards and regulations can slow their implementation.

Human Oversight: Over-reliance on AI could undermine the critical role of human judgment in medical decisions.

The Future of AI in Healthcare:

As AI continues to mature, its role in healthcare will expand further, driven by advancements in technology and

increasing acceptance among stakeholders. Key trends shaping the future of AI in healthcare include:

Integration of Multi-Omics Data: Combining genomic, proteomic, and metabolomics data will enable even more precise insights and personalized treatments.

AI-Powered Preventive Care: Predictive models will help identify at-risk individuals and implement preventive measures at scale.

Global Collaboration: AI platforms will facilitate cross-border collaborations, sharing knowledge and resources to address global health challenges.

Patient Empowerment: AI tools will continue to empower patients by providing them with greater control over their health and well-being.

Conclusion

The rise of artificial intelligence in healthcare represents a transformative shift toward more efficient, accessible, and precise medical care. By addressing challenges such as data privacy and bias, the healthcare industry can fully harness AI's potential. As this technology evolves, collaboration between technologists, healthcare providers, and policymakers will be vital for ensuring ethical and effective integration.

Bibliography:

1. Topol, Eric J. Deep Medicine. Basic Books, 2019.

2. Jiang, Fei, et al. "AI in Healthcare: Past, Present, and Future." Stroke and Vascular Neurology, 2017.

3. Yu, Kun-Hsing, et al. "AI in Healthcare." Nature Biomedical Engineering, 2018.

4. Russakovsky, Olga, et al. "ImageNet Challenge." International Journal of Computer Vision, 2015.

5. "AI in Healthcare: Transforming Medicine." WHO, 2021.

6. Marcus, Gary, and Ernest Davis. Rebooting AI. Pantheon, 2019.

7 .Topol, Eric J. "High-Performance Medicine." Nature Medicine, 2019.

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NANOTHERAPEUTICS:
A PROMISING TOOL FOR THE TREATMENT OF ALZHEIMER'S DISEASE:

INTRODUCTION

Nanotechnology is one of the most interesting branches of science getting a charge out of the spotlight in recent decades. It has a wide range of employments in differing areas like imaging, commercial businesses, gadgets, and healthcare.

In the healthcare framework, nanotechnology is broadly utilized in the formulation and conveyance of novel medicament to treat or diagnose different infections. Nanotechnology implicates the work of nanoparticles (NPs) characterized as tiny particles of measure extending from 1 nm to 100 nm, possessing distinctive physicochemical properties that can be utilized in diverse ranges of material science, chemistry, and science.

The introduction of nanotechnology and nanoparticles had led to revolutionary changes in various domines of medical science. Protein fibrillation/aggregation has been a significant area of research in biomedical research, particularly in relation to age-related dementia, particularly Alzheimer's disease (AD). AD is the seventh leading cause of death worldwide, and neuropathologists have identified amyloidal plaques and neurofibrillary tangles in the brains of AD patients.

WHAT IS ALZHEIMER DISEASE?

This is a type of dementia (it is a term for several diseases that affects memory, thinking and the ability to perform daily activities) mainly affects older people but not all people will but the most common type. this cause is unknown but most widely discussed and researched disease today. The term Dementia mention in medical community was reported a global issue for older people about 60 to 85 years age. About 10 million cases per year in India were found. Duration is 8 to 20 years.

SYMPTOMS: - Difficulty in remembering newly learned information with advancement mood and behaviour changes may occur.

AMYLOID HYPOTHISIS; -

It was first proposed by JOHN HARDY and DAVID ALLSOP in 1991. He said this deposition of in brain Amyloid β peptide, the main component is causative agent. This hypothesis continues to gain support for genetic study.

WHAT IS AMYLOID β PEPTIDE?

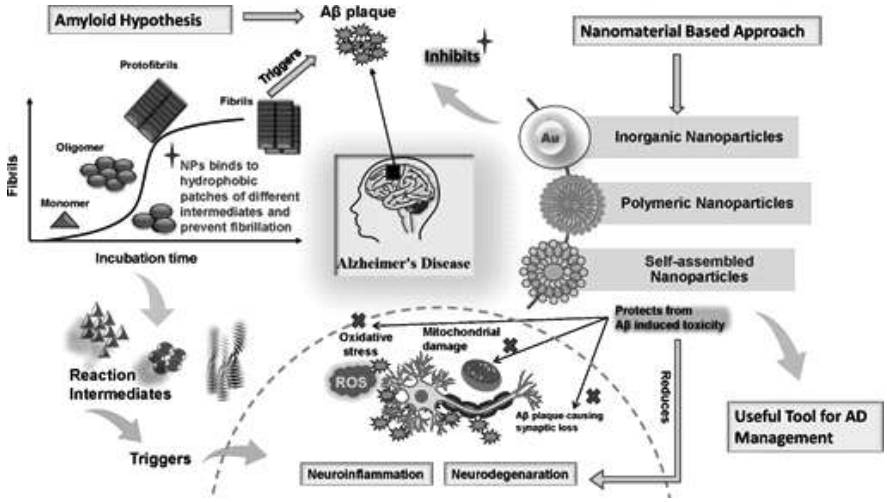
Amyloid β peptide is a peptide composed of 35-42 amino acids , found in coil conformation. This particular peptide is produced by a type I transmembrane amyloid precursor protein (APP).

CAUSE OF AMYLOID β PEPTIDE IN BRAIN:

Amyloid plaques are extracellular deposits of fibrillar aggregates formed by amyloid-β peptide (Aβ), which are the main component of senile plaques in the brain (Amyloid plagues are extracellular deposits of fibrillar aggregates formed by Amyloid β peptide. Aβ peptide aggregation into toxic, prefibrillar oligomers is considered the key pathogenic event in AD onset. Blocking the aggregation/fibrillation process is a preferred method to avoid mechanism-based toxicity.

EXPLORATION OF DIFFERENT NANOPARTICLES FOR EFFECTIVE INHIBITION OF AMYLOID β FIBRILLATION PROCESS: -

Therapeutic candidates face challenges in targeting the brain's BBB, which maintains homeostasis and protects it from toxic substances and microorganisms. Traditional drug delivery systems are insufficient, and nanoparticles are being explored as potential inhibitors of amyloid aggregation. Nanoparticles can cross the BBB at low concentrations and show specificity towards amyloid deposits. Their large surface-to-volume ratio facilitates binding to different forms of Aβ species during fibrillation, preventing the assembly of monomers and oligomers from forming fibrils and plaques. Nanomaterials can also induce conformational changes of monomeric species.



The study illustrates the anti-amyloidogenic and cytoprotective effects of metallic/inorganic, polymeric, and self-assembled nanoparticles against Aβ fibrillation in vitro and in vivo. Both nanoparticles improve Aβ-induced toxicity by binding to fibrillation intermediates and neutralizing their toxic effects.

Polymeric and metallic/inorganic nanoparticles are used in AD therapeutics to efficiently inhibit fibrillation processes, either in bare form or conjugated with drug molecules and phytochemicals.

CLASSES OF NANOPARTICLE USED IN ALZHEIMER THERAPEUTICS: -

Metallic nanoparticles, such as AuNPs, AgNPs, FeONPs, SeNPs, and Ce2O3NPs, are used for targeted therapeutic agents and neurosensing/imaging. They have magnetic behavior, making them biodegradable and biocompatible for diagnosis and treatment. However, potential neurotoxicity issues like oxidative stress, free radical formation, immune response, lysosomal dysfunction, and cell necrosis are concerns. Gold nanoparticles, with unique features like inert behaviour, local surface plasmon resonance absorption, and tuneable structural and chemical properties, are widely used for the treatment of Alzheimer's disease (AD).

Gold nanoparticles coated with citrate, CTAB, PAA, or PAH showed non-toxic properties and the highest inhibition of Aβ1-40 aggregation/fibrillation.

Shi et al. developed NIR-absorbing Au nanocages that entrap a chelator that binds metal ions like Cu2+, causing amyloid fibrillation and oxidative stress. They used human IgG as a pore blocker to create AuNC-PBA, which entraps

clioquinol and releases it to dissolve amyloid-β plaques. This nano formulation increased cell viability of pheochromocytoma cells to 70%. Gold nanoparticles have resonating capabilities, producing heat for photothermal therapy to disintegrate amyloid deposits. Penetratin peptide-modified gold nano stars (AuNS) with ruthenium complex were synthesized, enhancing permeability across the blood-brain barrier

and producing a high NIR absorption-scattering ratio.

Xiong et al. developed a hybrid nanoparticle combining two peptide inhibitors/β-sheet breaker peptides (VVIA and LPFFD) into a single sequence. The hybrid AuNPs significantly inhibited Aβ1-42 fibrillation, increasing cell viability from 48% to 82%. Silver nanoparticles, similar to gold nanoparticles, can cause rapid fibril dissolution, with AgTNPs being more effective than PVP-stabilized silver nanospheres. Selenium nanoparticles, conjugated with targeting peptides (LPFFD and TGN) and chitosan, serve two major functions: inhibition of Aβ aggregation and facilitating penetration through the blood-brain barrier (BBB). L1T1-SeNPs was most effective in inhibiting aggregation and reducing cytotoxicity in PC12 cells. The synergistic effect of peptide and nanoparticle blocks the active site of fibril formation, reducing free monomeric peptide concentration.

Leblanc and colleagues studied the anti-fibrillation potency of dihydrolipoic acid (DHLA) capped CdSe/ZnS quantum dots. When mixed with amyloid β, they form conjugates with peptide, reducing fibrillation. The morphology of fibrils conjugated to the quantum dots was significantly altered. Magnetic nanoparticles have been used for targeted drug delivery, such as encapsulating quercetin, a polyphenolic phytochemical with anti-fibrillation and antioxidant activity. The magnetic behaviour of these nanoparticles inhibits fibrillation and minimizes Aβ-induced reactive oxygen species generation. Surface-modification with polyethylene glycol 3000 improved blood circulation and reduced cytotoxicity. Iron oxide nanoparticles have also been reported for drug delivery in neurodegenerative diseases.

Polymeric nanoparticles, including polysaccharide-based nanogels like chitosan and alginate, polyethylene glycol, and poly-(lactic-coglycolic acid), have significant therapeutic value due to their faster biodegradability, stability in physiological conditions, and diverse surface functionality. They are effective for intranasal administration and encapsulation of hydrophilic therapeutic agents. These nanoparticles can efficiently inhibit the fibrillation process of Aβ, a protein involved in Alzheimer's disease. Copolymeric NiPAM:BAM nanoparticles with varying hydrophobicity have been found to exert anti-fibrillation effects against Aβ, affecting the nucleation step and preventing fibrillation. Fluorinated polymeric nanoparticles, developed by Bresesinski and co-workers, have been shown to delay the oligomerization of Aβ1-40 and reduce peptide-induced cytotoxicity by targeting the caspase-3 in the SH-SY5Y cell line. These nanoparticles have shown promise in treating various diseases, including Alzheimer's disease.

Ubiquinone-10 or coenzyme Q10 loaded nanoparticles have been developed from TMC surface-modified PLGA nanoparticles, offering advantages such as biodegradability, FDA approval, and easy penetration through the blood-brain barrier. These nanoparticles have shown neuroprotective effects, reduced senile plaque staining, and improved memory impairment. Resveratrol, a phytochemical with antioxidant and anti-amyloidogenic properties, has been used to treat Alzheimer's disease. Resveratrol-tagged nanoparticles, prepared with poly-caprolactone and polyethylene glycol, showed better cytoprotective effects when administered to PC12 cells, neutralizing the toxic effect of the amyloid beta peptide.

Researchers have found that polymeric nanoparticles, tagged with phytochemicals and carrier protein ApoE, can enhance cellular uptake and anti-amyloidogenic activity. ApoE3-C-PBCA nanoparticles containing curcumin have shown higher efficacy and increased uptake of curcumin compared to unconjugated curcumin. These nanoparticles also have the potential to inhibit Aβ-induced cytotoxicity, but their hydrophilic nature restricts their ability to cross the

blood-brain barrier. Polymeric nanoparticles are excellent tools for delivering therapeutic molecules that would not have entered the brain. They increase circulation time and protect nanoparticles from opsonization, acting as a steric barrier. However, polymeric nanoparticles sometimes release tagged therapeutic molecules in non-targeted areas. Metallic/inorganic nanoparticles possess anti-aggregation properties and can be tagged with various chemical groups. They can be combined with other treatments for fibril dissolution, such as magnetic hyperthermia treatment and photothermal therapies. However, excessive production of reactive oxygen species (ROS) upon exposure to metallic nanoparticles can cause damage to vital body structures.

Self-assembled nanoparticles, such as click-curcumin liposomes, have been studied for their therapeutic activity against amyloidal aggregation. These liposomes, with a diameter ranging from 52.8 to 218 nm, showed significant fibrillation inhibition potential due to high affinity binding and the protrusion of the curcumin-derivative molecule from the liposome surface.

A study utilizing the amphiphilic nature of the N-terminal peptide fragment pN1-22 of ovalbumin synthesized nanoparticles using a self-assembly process in PBS. These nanoparticles were found to be noncytotoxic and inhibited Aβ1-42 fibrillation. Li et al. developed a two-in-one strategy for real-time assessing and inhibition of Aβ peptide, using Aβ 15-20 peptide (KLVFF) and polyoxometalate (POM) to create hybrid colloidal nanospheres. They also incorporated Congo red, a clinically used amyloid β fibril specific staining dye, to monitor the fibrillation inhibition process. The synthesized nanomaterials showed higher inhibitory potential and targeted inhibition of Aβ aggregation in mice cerebrospinal fluid. Xia and co-workers developed a nano system for selective detection of Aβ oligomers using a fluorescence-signal on strategy, achieving a detection limit of 12.5 nM.

Nanotechnology-based therapeutics are increasingly being considered due to their ability to penetrate the BBB and protect inhibitor molecules' native structures. Dual functional nanoparticles conjugated with inhibitors are used for efficient anti-Aβ activities and treating infectious diseases like tuberculosis and leprosy.

CONCLUSION:

Nanotechnology has revolutionized medical science, with advancements in treating four major diseases: Alzheimer's disease, tuberculosis, leprosy, and cancer. Nanoparticles can penetrate the blood-brain barrier, making them ideal for A.D treatment. However, more systematic research is needed to explore efficient biodegradable nanomaterials with disease-modifying agents. Metallic nanoparticles are more effective for tuberculosis and leprosy due to their ability to enhance cell wall permeability. Multi metallic nanoparticles have better antimycobacterial activity, and inorganic or organic nanoparticles can be used for drug delivery.

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ARTIFICIAL INTELLIGENCE IN DRUG DISCOVERY AND DEVELOPMENT

INTRODUCTION

Artificial intelligence leading to a revolutionary changes in the Pharma industry. The use of artificial intelligence has been increasing in various sectors of society, particularly the pharmaceutical industry including drug discovery and development, drug repurposing, improving pharmaceutical productivity and clinical trials etc. Over the past few years, there has been a significant increase in data digitalisation in the pharmaceutical sector, and artificial intelligence is playing a crucial role in this process.The artificial intelligence can handle large volume of data with enhanced automation.

It is totally technology based system involving various advanced tool and networks that can mimic human intelligence.it can analyze synthetic medical data to identify patterns that humans cannot , which speed the drug discovery process. It can also aid in the prediction of how a drug might affect a person's cells and tissues. The process of drug discovery and development is a complex and time-consuming process wherein AI assists in reducing the time required and expediting the process. AI significantly contributes to identifying new targets for drug discovery and development, which enhances the efficacy of existing treatments, ultimately benefiting patients and improving their quality of life.

ROLE OF ARTIFICIAL INTELLIGENCE IN DRUG DISCOVERY & DEVELOPEMENT

There are various roles AI, at play. in Drug discovery and development:

- AI is used in drug design to predict the 3D structure of target proteins and determine drug activity.
- It is used in polypharmacology for designing biospecific and multi-target drug molecules.
- It has a role in drug screening to predict toxicity, bioactivity**,** and physicochemical properties of drugs.
- AI is used in drug repurposing for identifying therapeutic targets and predicting new therapeutic uses.
- AI was used in drug repurposing during COVID-19, where researchers found many similarities between the COVID-19 virus and the 2003 SARS virus. AI learning models were created to predict drug structures that could potentially treat COVID-19.
- AI-based detection, utilizing Convolutional Neural Networks (CNN), can be beneficial for diagnosis and treatment by dental professionals through the estimation of radiographic RBL (Radiographic Bone Loss) and interproximal alveolar bone levels.
- AI in drug research and discovery can enhance the effectiveness and safety of drugs in both animals and humans by improving their metabolism and excretion. The regulation of metabolism and excretion is crucial to eliminate toxic substances from the body and prevent their accumulation, which can result in metabolic diseases, liver damage, and kidney dysfunction.
- Multidrug resistance in cancer chemotherapy and infectious illnesses is also affected by drug metabolism. AI is used to predict the metabolism and excretion of drug modifications.
- AI is used in local explanatory methods instead of global ones to personalize specific bacterial strains as potential biomarkers for Colorectal Cancer (CRC). This method has also suggested a potential role in future personalized treatments for other conditions.

- AI is used in machine learning models for data analysis in ML training algorithms to develop efficient ML models. These ML tools assist in 3D structure prediction of target proteins, which is crucial in drug discovery.

LIMITATION OF AI IN DRUG DISCOVERY AND DEVELOPMENT

- AI can not replace the expertise and experience of human- this is one of the key drawbacks of AI.
- In numerous instances or cases , the quantity of accessible data may be limited..
- It is subject to interpretation by human researchers- thus, it begins to involve cognitive biases.
- AI approaches large volume of information for training purposes.
- AI in pharmaceutical industry requires careful consideration.
- The key issue is the potential for Artificial Intelligence to be utilised in making decisions that affect individuals' health and well-being.
- The data may be of low quality or inconsistent , which can affect the accuracy and reliability of the drugs.
- It can give wrong or misleading answers.
- It can also omit information by mistake or error.
- It exhibits a lack of transparency, insufficient data availability and biases in data.
- Although drug discovery from medicinal plants continues to provide a significant source of novel drug leads, numerous challenges are encountered, including the procurement of plant materials, the implementation of appropriate high-throughput screening bioassays, and the scale-up of active compounds.

CONCLUSION

The advancement of AI , along with its remarkable tools, continuously aims to reduce challenges faced by pharmaceutical companies, impactingthe drug development process along with the overall lifecycle of the product, which could explain the increase in the number of start-ups in the sectors.With the inclusion of AI in manufacturing of p[harmaceutical products, personalized medication with the desired dose, release parameters, and other required aspects can be manufactured according to individual patient need. The most significant worry regarding the incorporation of these technologies is the job losses what would follow and the strict regulations needed for the implementation of AI. However, these systems are intended only to make work easier but not completely replace the contribution of humans.

TRUPTIMAYEE DAS

ASTHMA AND ITS DAY TO DAY RELATIONSHIP WITH LIFESTYLE

This exposition explores the intricate connection between asthma and lifestyle, delving into various aspects that influence its management and control. From environmental triggers and dietary considerations to the impact of physical activity, stress, and sleep, it will examine how daily choices and habits can significantly impact symptoms of asthma and well-being.

UNDERSTANDING ASTHMA:

Asthma is a chronic respiratory condition characterized by inflammation and narrowing of the airways. It affects millions worldwide and can significantly impact daily life. The exact causes of asthma are complex and not fully understood, but they involve a combination of genetic predisposition and environmental factors. The most common triggers for asthma symptoms include allergens, irritants, and respiratory infections. When a trigger is encountered, the airways become inflamed and constricted, making it difficult to breathe. Common asthma symptoms include wheezing, coughing, shortness of breath, and chest tightness. These symptoms can vary in severity and frequency, and may be triggered by different factors in different individuals. Understanding the causes and symptoms of asthma is crucial for effective management and control.

ENVIRONMENT AND ASTHMA TRIGGERS

Our surroundings play a significant role in triggering asthma symptoms. Exposure to allergens such as pollen, dust mites, pet dander, and mould can precipitate an asthma exacerbation. Environmental irritants, including smoke, fumes, and strong odours, can also exacerbate symptoms. Air pollution constitutes another significant environmental factor that may contribute to asthma exacerbations. Individuals with asthma should be highly aware and cognisant of their specific triggers and implement measures to minimise exposure to the same. This may involve using air purifiers, avoiding smoky areas, and taking precautions during high pollen seasons. Understanding environmental triggers is crucial for living a more asthma-friendly life.

DIET FOR ASTHMA MANAGEMENT

While no specific diet can cure asthma, certain dietary choices can help manage symptoms. Some studies suggest that diets rich in fruits, vegetables, and omega-3 fatty acids may have anti-inflammatory properties that can benefit asthma. Conversely, consuming processed foods, sugary drinks, and certain food additives may contribute to inflammation and worsen asthma symptoms. Individuals with asthma should work with their healthcare providers to develop a personalized dietary plan that aligns with their individual needs and sensitivities. It's also important to note that certain foods, such as peanuts and shellfish, can trigger severe allergic reactions in some people, potentially exacerbating asthma symptoms.

PHYSICAL ACTIVITY AND ASTHMA

While exercise offers significant health benefits, it can sometimes trigger asthma symptoms. Conversely, a sedentary lifestyle can worsen asthma. Finding the right balance between physical activity and rest is crucial for managing your condition. Consult your doctor before beginning any new exercise program. They can help you develop a personalized plan that includes appropriate warm-up and cool-down periods to minimize the risk of triggering an asthma attack. Always pay close attention to how you feel during and after exercise. If your symptoms worsen, stop immediately and

rest. Keep your inhaler readily available. Effectively managing your asthma and integrating regular exercise will significantly improve your overall health and well-being.

EFFECT OF STRESS AND ANXIETY ON ASTHMA SYMPTOMS

Stress and anxiety can have a significant impact on asthma symptoms. When we experience stress, our bodies release hormones that can trigger inflammation in the airways, potentially exacerbating asthma. Stress management techniques such as deep breathing exercises, meditation, and yoga can help regulate the body's stress response and improve asthma control. Seeking professional help from a therapist or counselor can also be beneficial for addressing underlying stress and anxiety. Learning to manage stress effectively is crucial for maintaining asthma-friendly lifestyle.

PROPER MEDICATION MANAGEMENT

Medication is a cornerstone of asthma management. It helps control inflammation, reduce airway narrowing, and prevent asthma attacks. There are two main types of asthma medications: Controller medications are taken daily to prevent symptoms from developing. Reliever medications are used as needed to quickly relieve symptoms during an asthma attack. It's essential to take prescribed medications as directed and to work closely with a healthcare provider to monitor their asthma control, effectiveness, and adjust dosages as needed. Proper medication management is crucial for achieving optimum control of asthma.

SLEEP QUALITY -ITS EFFECT ON ASTHMA

Getting enough quality sleep is essential for good health, and it's particularly important for managing asthma. During sleep, the human body naturally secretes hormones that facilitate tissue repair and regeneration. Sleep deprivation can disrupt this process and induce inflammation, exacerbating asthma symptoms. It is advisable to get 7-8 hours of good quality sleep every night to support the body's natural healing and immune response mechanisms. Having a regular sleep schedule, creating a relaxing bedtime routine, and enhancing your sleep environment can contribute to better sleep as well as improved asthma control.

OCCUPATIONAL FACTORS AND ASTHMA

Certain occupations expose individuals to higher levels of triggers that can worsen asthma symptoms. This includes workplaces with dust, fumes, chemicals, or other irritants. If you have asthma and work in an environment with potential triggers, it's important to discuss your concerns with your employer and healthcare provider. They can help identify potential risks, implement workplace safety measures, and recommend appropriate personal protective equipment. Individuals with asthma should also be aware of their legal rights regarding workplace accommodations and workplace safety.

STRATEGIES FOR MAINTAINING AN ASTHMA-FRIENDLY LIFESTYLE

Maintaining an asthma-friendly lifestyle involves a multi-faceted approach that encompasses the elements discussed throughout this document. It requires proactive awareness of triggers, careful management of environmental factors, adherence to medication regimens, and a focus on healthy habits. Strategies include avoiding known triggers, maintaining a healthy diet, incorporating regular exercise, managing stress levels, prioritizing quality sleep, and seeking professional support. By actively engaging in these strategies, individuals with asthma can improve their quality of life and achieve better control over their condition.

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ROLE OF MAINTAINING DIET IN LIFESTYLE DISORDERS WITH SPECIAL REFERENCE TO OBESITY

INTRODUCTION

Change in diet coupled with increasing inactive lifestyle has sparked off epidemics of obesity in several Asian countries. A notable rise in the consumption of high-calorie foods and fats has occurred, accompanied by a simultaneous decline in physical exercise levels.. With the rapid pace of industrialization and economic progress, today more and more jobs are becoming sedentary and dietary patterns are also changing with a decline in cereal intake and increase in the intake of sugar and fats. This all has resulted in increase in incidenceof obesity along with its associated problems.A study conducted by the Nutrition Foundation of India reveals that in urban areas of the country, 45% of women and 29% of men are overweight. India ranks 7th globally in terms of obesity index. Previously considered a lifestyle issue, obesity has now been categorised as a disease by the World Health Organisation. Ayurveda has given more emphasis on balanced state of body tissues while mentioning definition of health. According to Ayurveda, Obesity is a condition in which Medadhatu (Fatty Tissue) is in a state of Vikrita Vriddhi (Abnormal increase).

Definition of Atisthaulya (Obesity)

A person who due to extensive growth of fat and flesh is unable to work and disfigured with pendulous buttocks, belly and breasts is called Atisthula and condition is termed as Atisthaulya. The term obesity is defined as an excess storage of energy in the body in the form of fat. Obesity is an increase in body weight beyond the limitation of skeletal and physical requirements as the result of excessive accumulation of body fat.It is defined as an increase in body mass that surpasses the limits of skeletal and physical requirements, resulting from the disproportionate accumulation of body fat.

From Ayurvedic perspective, the cause of weight gains is cyclical. It begins with balance reducing choices in diet and lifestyle that weaken the digestive fire, which in turns increases toxins, clogging the communication channels shrotas and thereby disrupting the formation of

tissues. The poorly formed tissue layers increasesmeda dhatu and an imbalance in KaphaDosha. This in turn increases accumulation of toxins (ama), which leads to imbalance in meda dhatu. Accumulation of ama in shrotas causes an imbalance in naturally-flowing Vata energy. Restricted or imbalanced Vata energy ends up increasing agni– the digestive fire – leading to an increase in appetite and thirst. This leads in turn to an increase in KaphaDosha and meda dhatu and the whole cycle starts again. To break the cycle, the Ayurvedic expert (vaidya) determines the unique nature of the individual (Prakriti) and the nature of imbalance (Vikriti). The essence of recommendation is generally comes down to addressing a few core issues: strengthening digestion (balance agni), removing ama, improving dietary habits and adjusting inappropriate daily routines and lowering stress.

Diet

Diet must be nutritionally adequate but must be lower in calories, with vitamins and mineralsupplements. A mixed balanced diet is a sensible approach to long term weight reduction. The protein should be of high quality so that essential amino acid can be utilized to maintain lean body mass. Food, high in fiber should be used liberally because of their low caloric density.

DISCUSSION

Charaka has given detail description of causative factors, etiopathogenesis, sign and symptoms of Obesity. Acharya Susruta has added the complications of the disease & given importance to avoid causative factors of the disease. Out of the commentators, Dalhana has introduced the concept of DhatvagniMandya. The term 'Sthula' (Obese) itself indicates the deposition of Prithvi and ApaMahabhuta dominant factors in the body. Nidana of Sthaulyais divided in four categories Aharatmaka, Viharatmaka, Manasa and Anya. In addition to these Nidanas, contemporary observations reveal that the consumption of highly processed foods, rich in carbohydrates, coupled with the use of advanced machinery, has led to decreased physical activity and an increased susceptibility to obesity amongst individuals.

Conclusion: Obesity is a common problem in North. It is mainly due to improper lifestyle, wrong food choices and lack of exercise.All, people do not have a sense of self awareness. They are taken by external factors, by their senses and do not give importance for their existence

in this universe. They don't have mind, body and spiritual connection, and not even breathing

right. The Ayurvedic system offers a comprehensive set of methods to restore balance and well-being. Ayurvedic approach has age old healing wisdom as its core principles provides , thus it has all the necessary tools to bring back health and harmony in an individual, making life wholesome.

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EXOSOMES: A STRATEGY FOR TREATING OSTEOPOROSIS IN THE FUTURE

Introduction:

Osteoporosis (OP), a metabolic disorder affecting bone health, is characterized by diminished bone mass and alterations in the microarchitecture of bone tissue. This condition frequently results in decreased bone strength among patients. Severe cases may lead to the occurrence of fragility fractures and subsequent disability. As the global population ages, the incidence of osteoporosis continues to rise steadily. It is estimated to impact 200 million women worldwide, with about one-third of women aged 50 and above experiencing fractures related to osteoporosis, in contrast to approximately one-fifth of men in the same age group. In response to the pathogenesis of osteoporosis, various pharmaceuticals targeting osteoporosis are available, such as selective estrogen receptor modulators (e.g., raloxifene), bisphosphonates (e.g., alendronate, risedronate, ibandronate, and zoledronic acid), human monoclonal antibodies against nuclear factor-kb (NF-kb) receptor activator ligands (e.g., dizumab), and parathyroid hormone analogs (e.g., teriparatide). Although the benefits of these medications, such as enhanced bone mineral density and reduced risk of fragility fractures, have been extensively documented, they come with numerous adverse effects.

Exosomes (Exo) exhibit nano-vesicles, ranging from 40 to 160 nm in diameter, mirroring cellular topology. Due to this unique structure, various therapeutic agents like small molecules or nucleic acids can be integrated into exosomes. Consequently, exosomes can transport these therapeutic payloads to specific cells or tissues, enabling targeted therapy. This precision delivery system enhances the localized concentration of therapeutic drugs, minimizing potential side effects. It offers advantages such as low toxicity, reduced immunogenicity, and advanced engineering capabilities.

Overview of exosomes:

The Exosomes derived from cells belong to an extensive family of cell membrane vesicles, typically possessing a diameter of 40–160 nm (average 100 nm). Electron microscopy reveals the characteristic cup-shaped appearance of exosomes, while frozen electron microscopy captures the rounded bilayer membrane shape. Exosomes encompass parent cell components, including proteins, surface receptors, DNA, small RNA, RNA, lipids, and metabolites. Originating from cells, exosomes exhibit heterogeneity in morphology, content, and function.

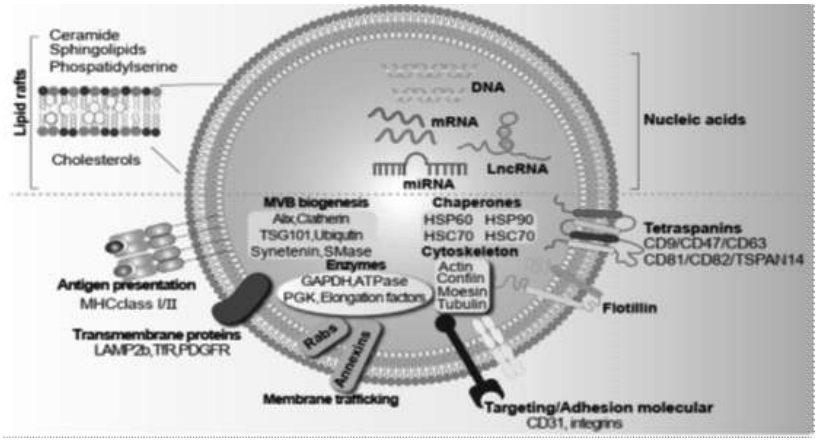
Exosome biogenesis:

Exosome biogenesis involves several sequential steps, initiating with the creation of early endosomes through plasma membrane deformation. Subsequently, late endocytosis vesicles undergo inward sprouting, giving rise to intraluminal vesicles (ILVs). The accumulation of ILVs within the late endosome results in the formation of multivesicular bodies (MVBs).

Ultimately, MVB transportation to fuse with the plasma membrane triggers the release of MVB contents, denoted as exosomes. Responsible for the formation and release of exosomes are the endosome sorting complexes (ESCRT-0, ESCRT-I, ESCRT-II, ESCRT-III, and Vps4), along with their associated proteins (TSG101, Alix, Hsc70, and Hsp90).

The structure and composition of exosomes:

Exosomes carry an abundance of bioactive cargo, encompassing diverse proteins, nucleic acids, and various lipids. With the rapid advancement of high-throughput technologies in transcriptomics, proteomics, and lipidomics, a wealth of information has emerged for characterizing the molecular composition of exosomes. Presently, the Vesiclepedia exosome database houses 349,988 protein entries, 27, 646 messenger RNAs (mRNAs), 10,520 microRNAs, and 639 lipids gathered from 1254 studies across 41 species. Exosomes distinguish themselves through



(diagram of the mechanism of exosomes)

their distinct protein and lipid content. Integral to exosome function, proteins can bind to the membrane or hydrophilic core, predominantly comprising fusion and transfer proteins, heat shock proteins (HSP) (HSP70), CDIS proteins (CD9, CD81), along with phospholipases and other lipid-associated proteins. These lipids play roles in diverse biological processes within exosomes, such as immune surveillance, tumor microenvironmental activity, and inflammatory regulation. Given the diverse components of exosomes, they can reflect the metabolic state of the organism and the function of parental cells under varying pathological conditions. Consequently, exosomes hold potential as clinical diagnostic and therapeutic tools.

Exosome as intercellular communication mediator in bone microenvironment: -

Bone, a crucial component of the musculoskeletal system, functions not only as a mineral reservoir but also as a mechanical scaffold facilitating body movement. The bone microenvironment primarily involves osteoblasts, osteoclasts, and endothelial cells, orchestrating cell differentiation, proliferation, and cell death through intricate interactions facilitated by cell-secreted growth factors (e.g., cytokines) and direct cell-cell communication. Exosomes from various sources play a vital role in the bone environment, engaging in intercellular communication that influences various physiological processes of bone cells. Through paracrine delivery of various cargoes (proteins, nucleic acids, lipids, etc.), exosomes contribute to mediating bone tissue metabolism, Consequently, the growing recognition of exosomes in orthopedics is evident. These exosomes, derived from different bone cell types such as mesenchymal stem cells, osteoblasts, osteoclasts, and osteocytes, are believed to be integral in bone metabolism, encompassing osteogenesis, osteoclastogenesis, and angiogenesis.

The therapeutic effects of stem cell-derived exosomes on OP: -

MSCs exhibit self-renewal and plasticity features, possessing both the intrinsic capability to differentiate into osteoblasts and a high cell yield when isolated from diverse tissues. This makes MSCs extensively utilized in osteoporosis and skeletal diseases research, positioning them as an optimal cell source for cell replacement therapy in skeletal disorders. Furthermore, the immunoprotective and immunosuppressive qualities of MSCs enhance their suitability for allogeneic cell replacement therapy. Regarding osteoporosis treatment mechanisms, MSCs contribute to bone formation through two potential pathways: (1) MSCs migrate to damaged sites or pathological areas, differentiating into bone-forming cells to restore degenerated tissue; (2) MSCs release specific growth factors in a paracrine manner, modifying the environment and attracting resident cells for tissue repair.

Exosomes-loaded biomaterials for bone tissue engineering: -

Exosomes, functioning as biological carriers, exhibit bioactive properties and can perform cell-like functions without inducing specific immune rejection reactions, unlike cells. They facilitate the transport of natural or artificially loaded

biomolecules or chemical drugs betwee cells and accurately deliver them to the pathological site of the receptor, thereby achieving cell-free therapy. Consequently, exosomes have found widespread applications in bone tissue engineering in recent years. The construction of bone tissue engineering primarily involves seed cells, growth factors, scaffold materials, among other components. The selection of scaffold materials plays a crucial role in bone tissue engineering construction since cell adhesion and growth are contingent on the scaffold. Exosomes from diverse sources can interact with biomaterial scaffolds in various ways. This not only creates a conducive environment for exosome functionality but also addresses the limitations of bone tissue engineering materials. They impact osteogenic cells, endothelial cells, and macrophage polarization in vivo, fostering bone regeneration and repair. To date, biomaterials employed in exosome-based bone tissue engineering can be categorized into two groups: inorganic materials and organic materials.

Inorganic materials commonly employed in bone tissue engineering encompass metal materials, tricalcium phosphate (TCP), hydroxyapatite (HAP), and bioactive glass (BAG), demonstrating favorable characteristics such as toughness (the ability of materials to withstand mechanical stress without fracturing), biocompatibility (the ability to interact favorably with biological systems without causing harm)and diversity characteristics (the wide range of properties or attributes exhibited by the materials). Organic materials employed in bone tissue engineering encompass natural polymers, synthetic polymers, and hydrogels. Liposomes, spherical artificial vesicles crafted from cholesterol and naturally non- toxic phospholipids, are deemed promising drug delivery systems due to their hydrophobic and hydrophilic characteristics, facilitating the conveyance of active molecules to the target site. Nevertheless, exosomes, due to their short half-life, cannot exert sustained effects. Therefore, their combination with liposomes is warranted to complement each other.

Engineering exosomes as drug delivery systems for targeted OP therapy: -

Exosomes play a crucial role in mediating intercellular communication and participating in the transport of materials between cells. They possess the ability to carry nucleic acid drugs or small molecules, enabling targeted delivery to specific cell types or tissue. Despite being naturally derived carriers, exosomes are susceptible to surface engineering and modification. Therapeutic agents or drugs can passively load into isolated exosomes without the necessity for active substances. Research indicates that engineered exosomes can enhance the local concentration at the diseased site, thereby minimizing toxicity and side effects while maximizing therapeutic efficacy. In recent years, as research on engineered exosomes deepened, these systems have found applications in orthopedic diseases such as osteoarthritis, non-union fractures, and osteoporosis. Engineered exosomes administration suppressed the expression of TNF-α, IL-18, and IL-1β, leading to inflammasome inactivation, ultimately reducing bone resorption and restoring bone loss. This approach effectively inhibited the production of pro-inflammatory cytokines in osteoclasts treated with high glucose, suppressed bone resorption, and restored bone loss.

Conclusions and perspectives: -

- Conventional Treatment of osteoporosis has severe side effects. Thus, there is a critical need to develop medications with heightened specificity for targeting bone and reduced toxicity.
- Compared with liposomes, nanopatrticle, microspheres, microemulsions and other synthetic drug loading systems, the endogeneity of exosomes is a natural advantage.
- Exosomes possess inherent advantages, offering enhanced safety compared to traditional cell therapy, avoiding complications like embolism and tumor formation caused by cell transplantation.
- This evidence suggests that exosomes could transform the treatment of osteoporosis in future, while further research is needed to elucidate their mechanism and optimize their use fully.

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HEALTHY LIFESTYLE, HEALTHY AGEING

Health is Wealth . Getting old is natural . The regenerative capacity of the body declines , making more prone to old age related health issues . One's physical agility diminishes with age, and the body exhibits signs of deterioration. However, the ageing process can be approached positively if one comprehends the physiological changes occurring within the body and implements appropriate measures to maintain optimal health. Certain changes are common like:

- gray hairs , wrinkled thin skin
- Decline in vision and cataract
- Hearing loss
- Loss of teeth
- Weakness in muscles and stiffness in joints
- Decline in memory and speed of learning
- Decline in cardio-respiratory fitness
- Sub optimal functioning of internal organs ..etc...

HEALTH PROBLEMS IN OLD AGE

Aliments that arise from age related changes in old age may seem unavoidable , keep our body healthy for longer duration .

The common health issues are :

- high blood pressure and heart disease
- diabetes
- stroke and Parkinson's diseases
- Alzheimer's diseases
- depression
- Empty nest syndrome

HEALTHY DIET

Elderly individuals possess diminished energy and strength compared to their younger counterparts. However, inadequate nutrition may lead to further weakening. Conversely, proper nutrition is likely to promote better health, prolonged activity, and enhanced resistance to illness.

A balanced diet comprising diverse nutrients, including adequate calories, carbohydrates, fats, vitamins, minerals, and water, is essential for maintaining health in old age. Sharing meals with family members enhances the enjoyment of food consumption.

DO'S AND DON'TS

- Eat in small quantities . There is no specific food that one must consume or should avoid consuming.
- Chewing foods slowly and thoroughly.
- Vegetarian food is as better as non vegetarian food .
- Including fruits , vegetables and fibers in all meals to avoid constipation .
- Good sources of protein are pulses , milk , egg , fishes .
- Drinking 1.5 to 2 liters of fluids daily .
- Avoid excess of salt , sugar , oil.
- Avoid excess of processed foods .
- Older persons with diabetes , heart , kidney diseases need to follow the diet chart advice of concern physician

SOUND SLEEP

Inadequate sleep at night is a prevalent issue among the elderly population. Sleep disturbances may manifest as delayed sleep onset, frequent nocturnal awakenings, or early morning awakening. Adequate sleep quality significantly impacts overall quality of life. ·

Following tips can help for good sound sleep :

- follow a regular schedule of going to sleep and getting up at the same time every day .
- getting exposure to natural sun light during day time .
- bedroom should have soothing environment , well ventilated , less cluttering of articles and disturbing elements
- avoid tea , coffee , alcohol , tobacco before sleep
- avoid watching TV or stop using mobile phones 1 hr. before sleep .
- do not watch the clock again and again .
- warm bath may help getting sleep .

FITNESS AND EXERCISE

- Some lifestyle changes may be taken up to improve strength and to remain fit .
- maintaining ideal body weight .
- exercise regularly min. 30 min.
- simple walking improve fitness .
- adding yoga and gentle stretching .
- making engage in simple household activities .
- developing one new hobby or interest in life .
- developing a positive mental attitude .
- stop alcohol and other substance use in any form .
- connect with family , neighbor's , and younger generations and participate in community activities .
- use technologye.g. mobile phones , computer to connect to the larger world .
- try reading something spiritual books or any other books of choice .
- play and enjoy with kids and feel energetic .

SAFETY AND SECURITY

- Make your home as safe as possible.
- place hand rails in staircase , bathroom , toilet .
- ensure enough natural or artificial light in the house for well visualization and free movements .
- use security gadgets at home and bathroom .
- ensure clean environment outside the home .

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ILLUSTRIOUS PAST AND FORTHCOMING CHALLENGES

History dates back to 1969, when Department of Nephrology started as a small subunit under department of Medicine of SCB Medical College and hospital. Subsequently with the tireless efforts of our predecessors, it got separated from the parent Department and established as an independent department in the year 1975. As there were only handful of institutes providing care for kidney related ailments, SCB stood as a beacon of hope and served indiscriminately to the inhabitants of this state. With the growing burden of kidney diseases and rapidly evolving therapeutic approach, Department of Nephrology displayed its excellence since its inception.

In initial days, due to lack of infrastructure and affordability, Hemodialysis facility was confined to only patients with acute kidney injury (AKI). Subsequently a Hemodialysis unit was created with 6 beds and later on increased to 21 to cater the enormous patient load of this region. With the initiative of one nation one Dialysis scheme, PMNDP under the flagship of Central Government is providing Dialysis care free of cost and thereby becoming accessible to the poor and underprivileged people. As we all know, Odisha is one of the CKD Hot spots in our country, it is challenging to make dialysis facility available at remote and inaccessible areas. Therefore Government is opening Dialysis centers in Sub division and CHC levels and Department of Nephrology is playing a pivotal role in training, educating and creating awareness among doctors, paramedics and public at a large. For Critically ill patients who are not ambulatory, we are providing dialysis facilities at the bedside in different intensive care units (ICUs) such as Medicine, Respiratory Medicine, Central, Trauma, CTVS and Transplant ICUs. In this fast changing arena, keeping pace with the time, we have started providing newer modalities like sustained low efficiency dialysis (SLED) and continuous renal replacement therapy (CRRT) to the patients with hemodynamic instability and AKI patients.

Similarly in 2013, CAPD program was initiated with an objective of providing all modalities of RRT at SCB Medical college and Hospital and subsequently in 2014, PDCC (peritoneal dialysis care center) was established with a focus to provide dedicated care. Thereafter SOCPD (standards of care in peritoneal dialysis) was published by the Dept. of Nephrology to set our own protocol and treatment regimen. At present we are providing free CAPD facility at our center to around 53 beneficiaries across all regions of the state. We are also working diligently to increase awareness and to opt for this modality of treatment at a large scale.

Kidney biopsy is a key procedure in Nephrology to diagnose different glomerular and tubular diseases. We are performing around 200 kidney biopsies in a year free of cost and providing treatment to people of odisha as well as neighboring states. Timely diagnosis and prompt treatment can minimize the morbidity and mortality of the patients and delays the time to reach end stage kidney disease (ESKD).

As we go back to the history, the first kidney transplantation was performed in 1985 at VSS Medical college, Burla. After that there was a long hiatus in Government sector to carry this forward. But in 19th March, 2012 SCB achieved a major milestone by performing its first live related kidney transplantation. Thereafter we are doing kidney

transplantation ceaselessly and had successfully conducted more than 200 transplantations at our center independently.

Our relentless pursuit to deliver best possible care to the people of the state continued and as a result SCB Medical college along with Apollo Hospital, Bhubaneswar performed first ever cadaveric kidney transplantation on 4th February, 2020 in Odisha which was possible by the exemplary generosity of the family of Deceased organ donor. After this breakthrough Government of Odisha constituted the SURAJ award to honour the kin of the deceased donor and to encourage this noble act. Department of Nephrology, urology and a robust Brain death declaration team consisting of different members along with the support from SOTTO are playing a key role in this endeavour. Till today, we have performed 14 deceased donor transplantation at our institute. All the expenses including expensive medications and investigation are borne by the Govt. of Odisha. We and SOTTO are organizing seminars, awareness programs, street plays to encourage organ donation and to remove the myths and misconceptions from the mind of the public.

At this juncture, we are making all efforts to open an immunology and molecular laboratory for doing all high end investigations in future and I am confident we will continue to deliver best care in the field of nephrology and renal transplantation as before.

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PERSONALIZED MEDICINE: WILL YOUR DNA DETERMINE YOUR MEDICATION?

Introduction

We are entering into a world where our medications will be tailored precisely to our genetic makeup, ensuring maximum effectiveness with minimal side effects. This is not science fiction—it is the emerging reality of personalized medicine. Also known as precision medicine, this approach is transforming healthcare by moving away from the traditional "one-size-fits-all" model toward treatments designed for individual patients based on their DNA. But how does this work, and what does it mean for the future of medicine?

What is Personalized Medicine?

Personalized medicine is a medical approach that uses genetic, environmental, and lifestyle information to guide decisions about prevention, diagnosis, and treatment. Instead of prescribing the same medication to everyone with a particular condition, doctors analyze an individual's genetic profile to predict how they will respond to specific drugs. This allows for more effective treatments with fewer side effects. Doctors decide individually what medicine will best suit that patient depending upon efficacy, safety, suitability and cost.

One of the key drivers of personalized medicine is pharmacogenomics—the study of how genes affect a person's response to drugs. By understanding genetic variations, one can determine the best medication and dosage for each patient so that right patient gets the right treatment at the right time.

How does DNA influence medication?

Every person has a unique genetic code, which means their body processes medications differently. Several factors influence drug metabolism, including:

1. Enzyme Activity: The liver contains enzymes that break down or metabolize drugs. Variations in genes that code for these enzymes can make some people metabolize drugs too quickly or too slowly.
2. Drug Transporters: Some proteins in the body act as transporters, moving drugs into or out of cells. Genetic differences can impact how much of a drug reaches the intended target, influencing its effectiveness.
3. Receptor Sensitivity: Medications work by binding to receptors in the body. Genetic mutations can affect the number and sensitivity of these receptors, altering the drug's effects.

How Personalised Medicine works

- **Genetic Testing:**Genetic testing is the backbone of personalized medicine. It identifies variations in genes that affect drug metabolism (e.g., Cytochrome P450 enzymes). Centres like DNA Labs India,NeubergCenter for Genomic Medicine (NCGM), MedGenome, MedPowerX have made genetic testing more accessible, These tests analyze DNA to identify variations that may influence drug response.
- **Biomarkers:** Specific molecules that indicate disease presence or drug response.
- **Targeted Therapy:** Medications designed to interact with specific genetic profiles (e.g. Trastuzumab (Herceptin) is a monoclonal antibody that specifically targets the human epidermal growth factor receptor 2 (HER2/ErbB2), which is overexpressed in approximately 20-30% of breast cancers. HER2 overexpression leads to uncontrolled cell growth and aggressive tumorbehavior.

Applications of Personalized Medicine

Personalized medicine is already making a significant impact in several areas:

1. Cancer treatment

Cancer treatment has seen some of the most remarkable advances in personalized medicine. Traditional chemotherapy targets all rapidly dividing cells, which often leads to severe side effects. Precision medicine, however, allows doctors to tailor cancer treatment based on genetic mutations in a patient's tumor.

For example:

· HER2-positive breast cancer: Patients with this genetic mutation respond well to targeted therapies like trastuzumab (Herceptin).

· Lung cancer: Certain mutations in the EGFR gene make patients more responsive to targeted drugs like gefitinib (Iressa) or osimertinib (Tagrisso).

2. Cardiovascular disease

Genetic testing can help determine the best medications for heart disease patients. Some people have genetic variations that make them resistant to standard blood thinners like clopidogrel (Plavix), requiring alternative medications such as ticagrelor (Brilinta).

3. Mental Health treatments

Medications for depression, anxiety, and schizophrenia often work differently in different people. Genetic testing helps psychiatrists determine which drugs, such as selective serotonin reuptake inhibitors (SSRIs) or antipsychotics, will be most effective for a particular patient, minimizing trial-and-error prescribing.

4. Pain Management and Anesthesia

Some patients have genetic mutations that make them highly sensitive or resistant to opioid painkillers. Personalized medicine helps doctors choose the safest and most effective pain management strategies for individual patients, reducing the risk of addiction and overdose.

Ethical and practical challenges

While personalized medicine holds immense promise, it also comes with challenges:

- Cost and accessibility: Genetic testing and targeted therapies can be expensive, making access limited in some regions.
- Privacy concerns: Storing and using genetic data raises ethical concerns about patient privacy and data security.
- Regulatory hurdles: The rapid advancement of genetic medicine requires new regulations to ensure safety and efficacy.

The future of Personalized Medicine

As research progresses, personalized medicine is expected to become more widespread. Advances in artificial intelligence (AI) and big data will help analyze genetic information more efficiently, leading to even more precise treatments. Scientists are also exploring gene therapy, which could potentially correct genetic disorders at their source rather than just treating symptoms.

To conclude on a pragmatic yet prophetic note, Personalized medicine is here to stay and will continue revolutionizing healthcare by helping in making treatments safer, more effective, and genetically tailored to each individual. While there are challenges to overcome, the future is promising. Soon, your DNA will play a key role in determining not only which medications you take but also how you prevent and manage diseases. As personalized medicine continues to evolve, it holds the potential to significantly improve patient outcomes and redefine the way we approach healthcare.

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AN INTEGRAL PHILOSOPHY OF LIFE: A VEDIC PERSPECTIVE, ITS ROLE IN POSITIVE MENTAL HEALTH


The World Health Organisation defines “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. So mere absence of any disease doesn't make an individual healthy. A healthy balance in one's personal, familial, social and professional life is very essential.

The Vedic tradition, originating in the ancient spiritual and philosophical texts of India, offers a profound understanding of life and existence. The integral philosophy of life in the Vedic perspective is a holistic vision that seeks to harmonize all aspects of human existence—spiritual, mental, emotional, and physical. Rooted in the principles of unity, interconnectedness, and the pursuit of higher knowledge, this perspective presents a comprehensive framework for understanding life's purpose and navigating its complexities.

Core Principles of the Vedic Philosophy of Life

The Vedic worldview is shaped by the foundational texts of the Vedas, Upanishads, and other related scriptures. These works articulate a cosmology, metaphysics, and ethics that emphasize the interplay between the microcosm (individual self) and the macrocosm (universal consciousness). The following are key principles underlying this integral philosophy:

1. Unity in Diversity (Ekatva and Anekatva) At the heart of the Vedic perspective is the idea that all existence emerges from a singular, unchanging reality, often referred to as Brahman. Despite the diversity in forms and appearances, the Vedas teach that everything is fundamentally interconnected. This realization fosters an attitude of reverence for all life and a recognition of the shared essence underlying apparent differences.
2. Dharma: The Law of Righteousness Dharma, the principle of cosmic order and individual duty, is a cornerstone of the Vedic philosophy. It guides individuals to live harmoniously with the universal laws, fulfilling their roles in society and nature while upholding ethical values. Dharma is not rigid but context-sensitive, accommodating the diverse circumstances of individuals.
3. The Four Purusharthas: Goals of Life The Vedic tradition outlines four aims of life—Dharma (righteousness), Artha (prosperity), Kama (pleasure), and Moksha (liberation). Together, these constitute a balanced approach to living, integrating material and spiritual pursuits.
    - Dharma ensures ethical living.
    - Artha addresses material needs and economic stability.
    - Kama emphasizes emotional fulfilment and enjoyment.
    - Moksha represents ultimate freedom.
4. Interdependence of the Individual and the Cosmos The Vedic texts emphasize the interconnectedness of the individual (Atman) and the universe (Brahman). The Upanishads famously declare, "Tat Tvam Asi" ("Thou art that"), asserting that the essence of the individual is identical to the universal spirit. This philosophy inspires a sense of cosmic responsibility and encourages individuals to align their lives with universal principles.
5. Yoga as Integration The term yoga, derived from the root "yuj," means union or integration. Attachment to

one or concentrated inclination is called as 'Yoga', It encompasses a wide range of practices aimed at harmonizing body, mind, and spirit. The Bhagavad Gita elaborates on various paths of yoga—Karma Yoga (selfless action), Bhakti Yoga (devotion), Jnana Yoga (knowledge), and Raja Yoga (meditation)—all contributing to the realization of an integral life.

An Integral Philosophy of Life: Practical Implications

The Vedic perspective on life is not merely theoretical; it offers a practical roadmap for leading a meaningful existence. Here, we explore its implications for different dimensions of life:

1. Spiritual Growth and Self-Realization The ultimate goal of the Vedic philosophy is self-realization, the awakening to one's true nature as Atman and its unity with Brahman. Practices such as meditation, contemplation, and ritual worship help individuals transcend the limitations of the ego and achieve a state of inner peace and enlightenment.
2. Ethics and Social Harmony The principle of dharma ensures that individual actions contribute to the well-being of society and the environment. This fosters a sense of collective responsibility, discourages exploitation, and promotes cooperation.
3. Sustainable Living and Environmental Consciousness The Vedic world view regards nature as sacred, viewing the Earth as Bhumi Devi, a divine mother. This fosters an ecological ethic that values sustainability, non-violence (ahimsa), and respect for all forms of life.
4. Health and Wellness The Vedic tradition emphasizes holistic health through systems like Ayurveda, which integrates physical, mental, and spiritual well-being. Practices such as yoga and pranayama (breath control) are designed to maintain balance and harmony within the body and mind.
5. Education and Knowledge Education in the Vedic tradition is not limited to acquiring skills but extends to self-discovery and the pursuit of wisdom. The Upanishadic method of inquiry encourages deep questioning and dialogue between teacher and student, fostering a comprehensive understanding of life.
6. Understanding meaning of Dharma

   That by which one's life and growth, along with that of others is upheld is called Dharma. God is one, Dharma is one, Prophets are the messengers of the same truth.
7. Understanding importance of Ideal in one's life

   He in whom Dharma finds a living embodiment is called the Ideal. He is also called Guru (spiritual guide), Acharya (spiritual preceptor), Ista (Superior beloved) etc. Anyway, to understand the manifest form, essence and characteristic of Dharma, we are first to understand what is meant by Ideal. “Ideal means a living man who, out of an irresistible love and abnormally normal urge for his superior beloved, establishes Him in his environment through his own life, service, contact, and sympathy, exalting the environment's life and growth with the aid of his varied experience, without caring for sufferings; and it is in him that man finds his path- by which he can normally and un-totteringly embrace life and growth”. Like an iron piece gaining magnetic property after coming near to a magnet.

Modern Relevance of the Vedic Integral Philosophy

In an era marked by materialism, ecological crises, and social discord, the Vedic integral philosophy offers timeless

wisdom that can address contemporary challenges:

1. Harmony in Diversity The Vedic emphasis on unity amidst diversity provides a framework for addressing cultural and ideological differences. By recognizing the underlying unity of all beings, it becomes possible to foster mutual respect and global harmony.
2. Balance between Material and Spiritual The four purusharthas encourage a balanced approach to life, avoiding the extremes of hedonism and asceticism. This balance is crucial in a world where the relentless pursuit of material success often leads to burnout and disconnection.
3. Sustainable Development The Vedic respect for nature inspires sustainable practices and a deeper commitment to environmental stewardship. By acknowledging the interdependence of humans and the ecosystem, this philosophy can guide efforts to combat climate change and ecological degradation.
4. Mental and Emotional Resilience Meditation, mindfulness, and other Vedic practices have been widely adopted in modern wellness programs, demonstrating their efficacy in reducing stress, enhancing focus, and promoting mental health.

Challenges and Critiques

While the Vedic integral philosophy offers profound insights, its interpretation and application face challenges:

1. Cultural and Historical Context The Vedic texts emerged in specific socio-cultural contexts that may not always align with contemporary realities. For example, some interpretations of dharma may reinforce hierarchical structures that conflict with modern egalitarian values. But if one really want to understand, there is no conflict. Its just the same water in a different cup.
2. Complexity of Texts The philosophical depth and symbolic language of the Vedic scriptures can make them difficult to interpret. Misunderstandings or oversimplifications may dilute their essence.
3. Integration with Modern Science Bridging the metaphysical concepts of the Vedic tradition with the empirical focus of modern science remains a challenge. However, emerging fields like consciousness studies and quantum physics are beginning to explore common ground.

Conclusion

The integral philosophy of life in the Vedic perspective offers a rich, multidimensional understanding of existence that harmonizes spiritual and material pursuits. Its principles of unity, dharma, and self-realization provide a roadmap for navigating life's challenges while fostering inner growth and collective well-being.

In an increasingly fragmented world, the Vedic vision serves as a reminder of the interconnectedness of all life and the importance of living in alignment with universal principles. By embracing this philosophy, individuals and societies can strive for a holistic, sustainable, and meaningful existence.

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DR. TAPENDRA KUMAR SATPATHY

SEX CHANGE IN DIAGNOSTICS

With modern advancements such as artificial intelligence tools and liquid biopsies is very much possible. In January, US researchers announced that they had diagnosed a test that analyses proteins in the blood and can pick up 18 early-stage cancers representing all main organs in the human body. Their gender specific liquid biopsy test was able to successfully detect Stage-1 cancer 93%of time among men and 84% of time among women.

According to the Chief Pathologist at Apollo Diagnostics, Mumbai said that India too has diagnostic and treatment options that can improve the prognosis of the disease .AI can help check imaging scans with utmost accuracy. Non invasive liquids biopsies can scan for circulating tumor DNA and helps to find out the risk of cancer before the symptoms appear. These are vital tools for cancer detection.

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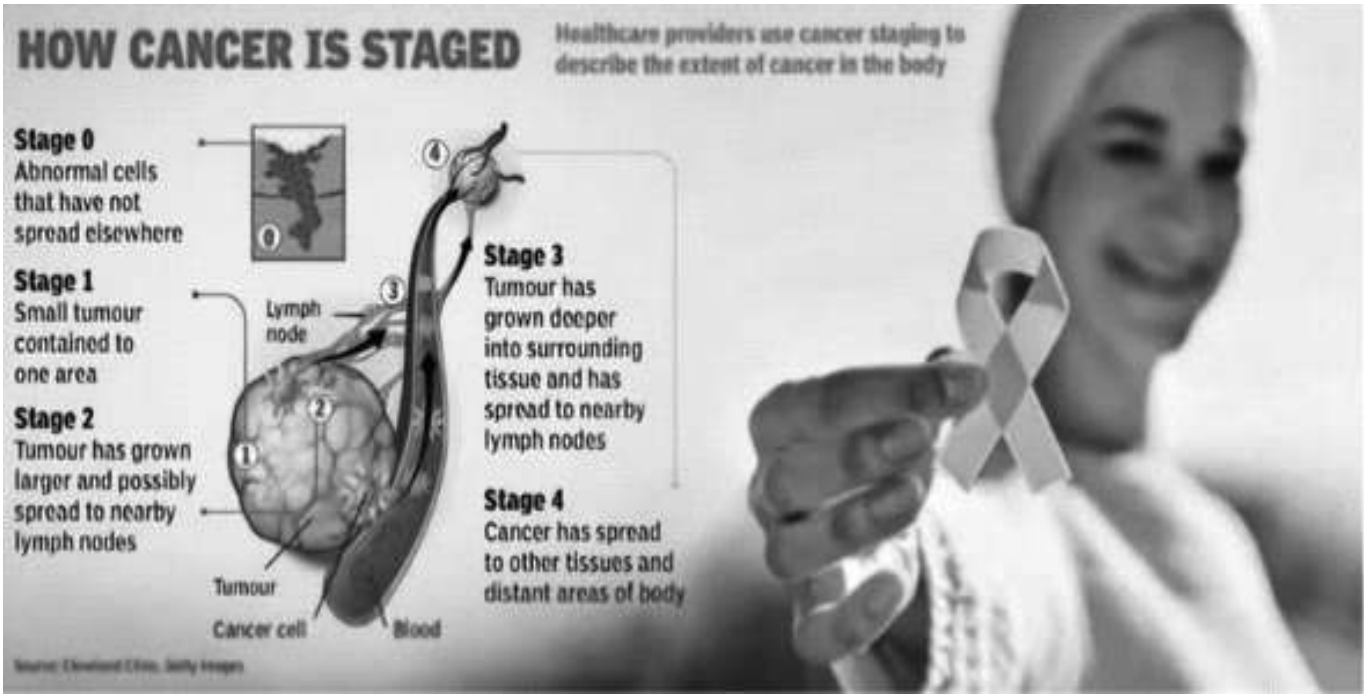

REVUMENIB, A SUCCESSFUL ANSWER TO ACUTE MYELOID LEUKEMIA

In this developing era, the world's 2nd leading cause of death is cancer after cardiovascular diseases for which prevention and treatment is a challenge because it is not a reportable disease. According to GBD [Global Burden of Disease] study of 29 years from 1990 to 2019 there are about 30 types of cancer which are analyzed in India. Due to low cancer awareness, late detection and unequal access to affordable treatment options many people are suffering from cancer.

Among all type of cancer Leukemia which is a blood related cancer characterized by transformed hematopoietic progenitors [immature cells that develop from hematopoietic stem cells] and by diffuse infiltration of bone marrow.

Leukemia is the 11th leading cause of cancer related mortality worldwide in 2018. It accounted for approximately 3.4 percent of all new cancer cases and 3.8 percent of all cancer death in 2020 according to SEER [Survelliance Epidemiology and End Result] programme. A total of 474,519 new cases of leukemia and 311,594 deaths were reported globally.

India has heterogenous distribution of leukemia due to varying level of growth and genetic variation in population. In India cases of leukemia is 6th among all cancers from 1990 to 2019, accounting for 4.83 of total cancers. Males are more likely to have leukemia then females with 2.24 percent of higher incidence in males. Leukemia ranked 9th in terms of death among all cancers from 1990 to 2019, accounting for approximately 4.6 percent of all cancers. Males are more likely to die from leukemia than females with 0.5 percent high incidence in males.

Among all cases of Leukemia, a new drug named Revumenib [Revuforj]/SNDX- 5613, which was approved by U.S Food and Drug Administration[FDA] on November 15, 2024 for patients who are 1 year old and older who have Acute Myeloid Leukemia that has come back after treatment and whose cancer carries a molecular change called as KMT2A Translocation.

KMT2A [Lysine Methyl Transferase 2a] is a member of epigenetic machinery [a network of biological process that regulates gene expression without changing DNA sequence] encoding a lysine methyltransferase responsible for transcriptional activation [a process that regulates geneexpression by controlling when and how genes are transcribed] through lysine 4 of histone 3 [H3k4] methylation. KMT2A play a major role in gene expression.

Revumenib[Revuforj] is a menin inhibitor for replaced and refactory acute myeloid leukemia with a lysine methyltransferase 2a gene [KMT2A] .

Revumenib [Revuforj] is a type of targeted therapy called as menin the active ingredient in drug is Revumenib Citrate which is in the form of tablet and is taken orally. Inhibitor which prevent menin from binding with Mll-1 protein produced by KMT2A gene. When menin binds with the Mll-1 protein then this menin and Mll-1 complex binds to chromatin which then activate aberrant communication pathway. This complex is considered as the key that starts the production of cells which act like stem cells and divide rapidly which results in leukemia.

So, this menin inhibitor will prevent the formation of menin and mll-1 complex and their binding to chromatin, then the cells which acted like a haywire stem cell either turns back to normal cell or die.

CLINICAL TRIALS OF REVUMENIB

Clinical trials are the research studies that involve people. Now clinical trials are taken to know about the working and efficiency of the drug Revumenib. All these trials are NCI supported. Clinical trials are taken in different phases.

- The phase-1 clinical trial [Augment-101] of Revumenib studies the safety, side effects, best dose and effectiveness of Revumenib in the patients having Acute Myeloid Leukemia. The phase-1 trial was conducted across nine sites in the U.S. this study involves 2 parallel dose-escalation cohorts, one without and one with strong CYP3A4 inhibitors.In this phase 1 trial positive results are found but many patients show 'differentiation syndrome'. This is caused by an immune system reaction when leukemia cells change to normal cells. They are treated by giving anti-inflammatory treatments.
- The phase-2 trial is taken to see the side effects and best dose of Revumenib in combination with Decitabine / Cedazuride and Venetoclax. Decitabine is in a class of medication called hypo-methylation agents. It works by helping the bone marrow to produce normal blood cells and by killing abnormal cells in the bone marrow. Cedazuridine is in a class of medication called cytidine deaminase inhibitors which prevent breakdown of decitabine and making it more available in body. Venetoclax is in a class of medication called B-cell lymphoma-2 [Bcl-2] inhibitors which stop the growth of cancer cells by blocking Bcl-2, protein needed for cancer cell survival.

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TAP TO TEETH : GOOGLE SEARCHES AND DENTISTRY

In the 21st century answer to every question lies just a tap away in our very hands. The invention of smartphones has enabled almost everyone to have access to information to anything and everything.

Looking from the perspective of future dentists, the patients now are much more aware of the severity of dental problems but also tend to misinterpret most solutions. As dentists we often come across questions , “Why is the RCT so expensive? The materials used are relatively cheap , we googled it.” ; “ This is not the way we saw the procedure on you tube, you are doing it wrong.” And so on, what patients fail to understand is that dentistry is a rather lucrative and vast field , the treatment modalities differ from patient to patient and also depends on the clinician. The general public fails to understand this.

Now the internet is a double edged sword, it makes the life of a dentist both easy and tough. The first thing people google when experiencing a toothache is “Which dentist to visit?” so the reviews and websites online become a large patient pool too.

Another big problem dentists face daily is managing patient who believe they have complete knowledge of their problem, more than the doctor specifically trained a minimum of 5 years who is supposed to treat it. In such a situation we simply need to remain calm and handle the situation as maturely as possible and work for the benefit of the patient.

As a dental student when being taught about patient management , this something which also need to be addressed vigorously. The budding dentists ought to know how to handle situations like these in their clinicians without losing their calm and without letting others' opinions cloud their judgement.

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ACCIDENTAL OVERDOSE OF MEDICINE

Drug Overdose / Overdose of Medicine is a fatal issue that is revolving among the people nowadays. A doctor will prescribe the required medicine to the patient and the pharmacist will dispense the medicine to the patient but it is the responsibility of the patient and the guardian to administer on take the medicine properly as advised.

In today's generation many hospital /clinic have digital prescription as it aids to improve public health and beings efficient health service system. Electronic prescription is basically a digital version of a paper prescription which doctors use to prescribe medicine. These steps have been taken to further reduce the inconvenience a patient had to go, so it is the responsibility of a patient to take their medicine properly on time. The reason why there is an Overdose of medicine is because some patients tend to forget the pills they have to take or in another scenario they might have taken their pills but they forget about it and once again take the pill which leads to overdose of Medicine.

In some cases a patient lives far away from the hospital and he is somehow unable to follow the instructions by the doctor / pharmacist so he comes up with his own idea on how to make the medicine, this might cause a serious problem because the medicine will only work if it's taken on proper time and quantity, the later will be lead to toxic adverse reaction. These cases are usually seen in Out-patients rather than In-patients. In-patients have nurses who tends to every administration of drugs whether orally topically or parenteral at proper time.

Some common symptoms of Overdose of Medicine are nausea, vomiting, stomach pain, abdominal cramps, diarrhoea, chest pain and limp body. Other complications include loss of balance and coordination due to unresponsiveness of neuro-chemical transmitters in our body, sometimes patients also go through severe hallucinations and seizures. Every drug is produces to do a particular activity, misuses of Drug can lead to acute poisoning which is one of the most leading emergency throughout the world. Though not all overdoses of drugs are life threatening but we should be aware that taking wrong number of drugs can also lead to death.

Let's imagine a scenario where a person has fever and he took unprescribed medicine for himself like paracetamol, his fever didn't come down so he again started taking another drug , like this he took multiple drugs in a short span. The adverse effect of this exposure to multiple drugs is toxic in nature which is also chronic if not treated and life threatening.

The only treatment to this is earliest visit to doctor when the symptoms are seen in the body . The patient should be advised to tell the doctor what drugs did they take and in how much quantity. They have to also mention what other things they have taken with the drug. The patient must be immediately taken to emergency ward and have their blood test , observation and psychological review done . Let's take for example a person is suffering from acute paracetamol poisoning then he/she must take these antidotes; Acetylcysteine IV (N-acetylcysteine, Parvolex®, NAC). The patient should also have a follow up appointment with their respective doctor so that they can monitor the healing and advice further treatment if required.

As I have mentioned earlier overdose of Medicine is a very common and serious problem which will further become fatal if people are not aware of it.

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PREVENTIVE MEDICINE

From the earliest period of history of medicines until most recent times, the search for absolute preventives of diseases has always occupied a large share of the attention of those who occupied themselves with the medical art, Homoeopathy is not an exception.

Preventive medicine aims at arresting the progress of the disease by intercepting or opposing the “cause” of disease. Disease and disability are affected by environmental factors, genetic predisposition, disease agents, and lifestyle choices and are dynamic processes that begin before individuals realize they are affected. Preventing care relies on anticipatory actions that can be categorized as primary, secondary, and tertiary prevention. The modern era in preventive medicine opened in the mid-19th century with Louis Pasture's discovery of the role of living microbes as the cause of infections.

In Fact Hahnemann- The father of homoeopathy has dreamt the scope of prevention long before the modern medical science as expressed in Organon of medicine Aphorism- 4- *He is likewise a preserver of health if he knows the things that derange health and cause disease, and how to remove them from persons in health.* This aphorism summarises the need of the medical subject 'Preventive and Social Medicine', which is now taught in all medical schools. But Hahnemann thought about the larger picture much before the subject got introduced in medical schools.

Hahnemann published a famous book “The Friend of Health” in two volumes in 1792 and 1795 respectively where he discussed regarding prevention and prophylaxis. A group of more or less popular discussion of medical topics is found in it. “*Protection against infectio*n” is common sense advice to those meeting contagious disease; keep well, eat well, and avoid fatigue. The fumigation of the sick room is of no value but frequent changes of air are all important.

The concept of prevention has also played a vital role in popularization or acceptance of this system of therapeutics in the very earlier days and the use of phosphorus for the prevention of plague in 1994 epidemic, and Belladonna, Calcarea carb and Tuberculinum in the prevention of encephalitis in present era has finally proved the efficacy of homoeopathy in the field of preventive medicine.

Homoeopathy plays an important preventive role where there are children. What do people do without Arnica in the house? From the time that a child begins to move about it is prone to bruises, bumps and minor injuries in all these cases Arnica can safely be called a household remedy to relieve pain, swelling and laceration. It is also very useful in helping fractures to heal. Many surgeons have acknowledged its use in preventing post-operative complications and its help in restoring normal sleep. Its other great use is in the prevention of tissue damage after an operation and it speeds up the healing processes. For people who have to travel a great deal, especially by air and over great distances, Arnica will prevent mental and physical fatigue and exhaustion.

Homoeopathy in many cases and at all ages can delay or prevent surgery. All homoeopaths recognize the need for surgery and recommend it when absolutely necessary, as all doctors do. However, the homoeopath with the right remedy can prevent certain things and have surgical interference. Berberis vulgaris can save a patient from being operated on for a kidney stone. Causticum is to prevent retention of urine after an operation.

Homoeopathy is used a great deal is in gastro-intestinal troubles, where it can prevent so many problems. With so much travelling abroad nowadays people can pick up exotic germs which usually upset the bowel. In investigating diarrhoea the experts so often cannot find any of the dysenteries or traces of parasites. Here our homoeopathic bowel

nosodes remedies come in: Dysentery Co., Morgan or one of the other nosodes can prevent and clear the gastro intestinal infections. In most of these cases the Nosode is required before they will finally clear up.

Another important realm in preventive medicine is in avoiding the after effects of some infections. We commonly see patients who have never been well since their infectious disease either in childhood or as adults. The wide spread use of the newly discovered antibiotics has been followed by an increased evidence of immunological deficiency problems in babies and young children. The health of future generations has already been jeopardized by the use of hormone therapy and X-rays in expectant mothers. Homoeopathy has a large part to play in gynecology and obstetrics. Many patients have an unexpectedly easy confinement after taking Caulophyllum for a month before delivery. Virus infections in early pregnancy can generally be harmful, but homoeopathic medicine can prevent complication both in mother and infant. In post-partum complaints the homoeopathic remedies are often very useful. The new mother run a temperature and generally feel very unwell we might prescribe Lachesis or patients constitutional drug to prevent hemorrhage or some other complication.

The onset of bronchitis can frequently be prevented. One can be given the constitutional remedy to prevent the patient from getting his usual bronchitis. Of these Calcarea carb in the autumn will often give a patient a winter free of colds. Sulphur can be another great cold preventive in the typical hot, untidy Sulphur patient. In the thin, narrow chested, very bright young adult Phosphorus is a remedy to think often preventing the usual cold.

Though the efficacy of homoeopathic preventive medicine for various conditions has not been proved by controlled studies and statistical records, yet generations of homoeopaths have used these remedies to prevent these conditions and they claim to have done successfully. So their efficacy may be accepted on the basis of experience even if it is not proved experimentally. All that is needed is enough doctors who are willing to train in the concept of healing, who will accept the challenge to apply what has been put into the world to alleviate human suffering.

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'TOTALITY OF SYMPTOMS': BASIS OF THE HOMOEOPATHIC PRESCRIPTION

Homoeopathy has achieved many marvelous cures guided by the Law of Similars. What are the symptoms which should guide the prescriber in the application of this Law has been specified by Hahnemann in a number of Aphorisms of the Organon of Medicine. In Aph. 210 he has said that “in all cases of disease we are called on to cure, the state of the patient's disposition is to be particularly noted, along with the totality of symptoms.” In Aph. 211 he emphasizes that “the state of the disposition of the patient often chiefly determines the selection of the homoeopathic remedy.”

As every homoeopathic physician knows, eliciting the characteristic “physical” symptoms is comparatively easy, and at any rate, it is not as difficult as understanding the state of mind and disposition. The result is that physicians who make an earnest attempt to understand the mental state of the patient are very few. This is due to the simple reason that they not cared to train themselves in this art, probably excusing themselves that it is time-consuming. Consequently, patients are deprived of the best benefit which Homoeopathy as a science is capable of giving.

According to Stuart Close, the purpose of homoeopathic examination is to bring out the symptoms of the patient in such a way as to permit their comparison with the symptoms of the Materia medica for the purpose of selecting the similar or Homoeopathic remedy.

Luc De Schepper states that to the homoeopath the patient's symptoms become a living portrait of the symptoms of a remedy. The success of your first prescription depends largely on how you take the case.

Good communication skills are necessary to facilitate better management of the case. The doctor should use a language with patients which they can clearly understand thus cementing the doctor-patient relationship which is built on the patients trust and confidence on his doctor. The patient should be allowed to narrate his symptoms with minimal interruptions and keen attention, infusing confidence in the patient which can be of a therapeutic character psychologically.

A way of looking at the mind and body of a patient as two important systems that are interlinked, i.e., the working of the body can affect the mind and the working of the mind can affect the body. The bio-psycho-social model of health and illness is a framework developed by George I. Engel that states that 'the interactions between biological, psychological and social factors determine the cause, manifestations and outcome of wellness.

In the selection of similimum for any case, the supremacy of the mental symptoms over the physical ones has unanimously been confirmed by the experiences of homoeopaths from Hahnemann down to today's established stalwarts. But in spite of its supremacy it is said that finding the mental state in every patient is difficult. Now even allopaths are realizing that mental symptoms are not limited to mental cases alone, Homoeopathy has recognized this fact from the very beginning.

The greatest asset of homoeopathy is that homoeopathy is a holistic method of treatment. Materia medica in homoeopathy is holistic in which, we get all the phenomenon-mind, body and even the relationship with the environment. For example, Phosphorus gets aggravated when the atmosphere pressure decreases. Rhododendron gets aggravated when a storm arrives.

The modern doctor tends less and less to divide the illnesses with which he has to deal into cases of physical illness and cases of psychological illness. He looks instead of the illness as a process in which are mingled physical and psychological events, both of which have to be dealt with. But homoeopathy studies man in his wholeness. It does not distinguish between mental and bodily symptoms and takes into account the whole personality (mental and physical) for therapeutic purpose.

Hahnemann so strongly insisted, that the entire organism of the patient should be examined in every possible way, and that the 'totality of symptoms' should be made the basis of the homoeopathic prescription; may, that the constitutional, general symptoms are often more conclusive as to the proper treatment than the more obvious local symptoms.

References:

1. Gunvante, S.M., Probing the mind and other guiding symptoms, B.Jain Publishers (P), Ltd., 2nd edition, 2004
2. Close, Stuart., The Genius of Homoeopathy Lectures and essays Homoeopathic Philosophy, B.Jain Publishers (P), Ltd., 1998
3. Munir, A.R., Handbook for Advanced Teaching of Fundamentals of Homoeopathy, Rajiv Gandhi University of Health Sciences, Karnataka,2017
4. Sarkar, B.K., Essay on Homoeopathy, Birla Publications PVT. LTD., fifth edition, 2005
5. Hughes, Richard., The Knowledge of the Physician, Indian Books & Periodicals Publishers, New Delhi, 1884
6. Sehgal, Dr. M.L., Dr. Sehgal's Rediscovery of Homoeopathy, Third edition,Indian Books & Periodicals Publications, 2019

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THE EFFICACY OF HOMOEOPATHY IN MANAGEMENT OF TINEA

Abstract:

Tinea infections are fungal infections of the skin caused by Dermatophytes. It is estimated that 10% to 20% of the world population is affected by fungal skin infection. Site of infection vary according to geographical location and environmental and cultural differences. It mainly results in a red, itchy, scaly, circular rash. Multiple areas can be affected at a given time.So Homoeopathy is having a wider and better scope in giving gentle and permanent results in cases of Tinea.

KEYWORDS: Tinea (Ring worm); Homoeopathy; Management.

INTRODUCTION

The skin is the largest organ of the body and is also the most varied organ, since it adapts itself as the occasion requires. Skin is man's front-line protective barrier between internal structures and external environment. Because it interfaces with the environment, skin plays a key role in protecting the body against pathogens and thus it is also prone to various diseases. Tinea is one among them which is commonly seen in population. The term Tinea originated from *Latin*, word '*worm'.*

Tinea infections are the most important superficial infections worldwide, and are the prevailing causes of fungal infection of the skin, hair and nails. These infections lead to a variety of clinical manifestations, such as Tinea pedis, Tinea corporis, Tinea cruris, Tinea capitis (infection of scalp hair), Tinea unguium (dermatophyte onychomycosis), and Tinea barbae (beard hair) etc.

Today physicians have a fascination of using extensively topical medicaments in crude form for such skin diseases and suppress the same. Due to continuous use of antifungal treatments patients have become drug resistant or suffer from severe side effects like hepatotoxicity. Such treatments not only kill the microbes but also healthy cells of the body, covering the resistance of the organism. Treatment with antifungal and topical application merely suppresses the Tinea (resulting condition) which may occur again and again. In some cases, suppressed Tinea may lead to some systemic diseases.

Homoeopathy holds that every individual is unique and thus needs unique treatment when he is sick. Homoeopathy has a wide scope for proper management and treatment of Tinea infection and body as a whole.

According to Richard Hughes: TINEA is a generic name, applicable to all parasitic affections, whether they be of animal or of vegetable origin. The “TINEA TONSURANS” is the ringworm of the scalp, whose consideration I have deferred. “TINEA FAVOSA” is now commonly called FAVUS. Teste curiously enough says that the treatment of this disease is one of the triumphs of Homoeopathy recommending Sulphur, Dulcamara, Viola tricolor, Oleander, and Hepar sulphuris according to the symptoms. “TINEA CIRCINATA,” or RINGWORM OF THE SURFACE (which must not be confounded with Herpes circinatus, which is a constitutional affection) must be similarly” treated (without epilation), as also “TINEA” or “PITYRIASIS VERSICOLOR.” * Sulphurous acid makes an excellent lotion for these affections. RINGWORM, or, as it is called. “TINEA TRICOPHYTINA TONSURANS.”

J. Compton Burnett Mentions: RINGWORM IS AN INTERNAL DISEASE *of the organism having for its outward sign the ringworm consisting of fungi thriving in a certain order*: the fungi are the guests of the diseased host; cure the host's diseased state, and the fungus – the ringworm- dies off from lack of a proper medium.

HOMOEOPATHIC THERAPEUTICS

1. **Arsenicumiod:** Tinea dry, rough and covered with dry scales and scabs, extend to forehead, face and ears, intense itching and burning.
2. **Bacillinum**: It is an important remedy for ringworm. Lesions: the typical appearance is of many fine white scales, location scalp, beard, and trunk.Falling of hair in spots on scalp and face. Ringworm, pitryiasis, tendency to ringworm.
3. **Baryta carb**: Ringworm in children subject to glandular swellings on various parts of the body, face exception; yellowish scaly eruptions; tingling and burning pricking not relieved by scratching.
4. **Dulcamara***:* Ringworm on scalp, glands about throat swollen; thick crust on scalp, causing hair to fall out. Tinea oozing a watery fluid, bleeding after scratching. Thick brown yellow crusts on face, forehead, temples and chin.
5. **Hydrocotyle:** Tinea favosa; painful constriction of the posterior and superior integuments of the skull; general lassitude and prostration.
6. **Medorrhinum**: Tinea capitis, eyelids involved. Copper- coloured spots (syphilitic) remaining after eruptions, thin yellow- brown and detach in scales, leaving skin clear and free.
7. **Natrum sulph**: Barber's itch; vesicular eruption around mouth, chin and various parts of body; with bakers the finger itch.
8. **Psorinum:** In children the eruption especially noticeable about in the head, it may involve the whole scalp, but it spreads characteristically from the scalp down either side of the face involving the cheeks and ear. This eruption is at times moist and oozes a matter which is very offensive.
9. **Sepia:** Ringworm like eruption every spring. Urticaria on going in open air; better in warm room. Sweat on feet, worse on toes; intolerable odour. Itching is not relived by scratching worse in bends of elbow and knee.
10. **Sulphur**: Ringworm. Itching in skin, even of whole body, worse at night, or in morning, in bed, and often with pain as of excoriation, heat, soreness, bright scarlet redness over whole body. Nettle rash. Burning itching of the eruption.
11. **Tellurium***:* Ringworms: on face; barber's itch; whole body, sever itching day and night, aggravated at night after going to bed. Circular vesicular spots appeared.
12. **Tuberculinum:** This remedy was first brought into prominence in the treatment of ringworm by Dr. Burnett, of England. It is indicated in light complexed persons with blue eyes, suffering from a tubercular diathesis.it becomes a valuable remedy in ring-worm by virtue of its striking, not only at the ringworm, but at the miasmatic basis. “The fungus is only the guest of the disease,” says Burnett. The symptoms are ever changing, takes cold easily, loses flesh while living well, melancholy, despondent, morose; white, bran-like, scales cover the lesion; itching worse undressing, after bathing.

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NEVER SHAKE YOUR BABY

SHAKEN BABY SYNDROME: Understanding the Risks and Consequences

Shaken Baby Syndrome (SBS), also known as Abusive Head Trauma (AHT), is a severe form of child abuse that occurs when a baby or young child is violently shaken. This action can cause significant brain damage, leading to lifelong disabilities or even death. The syndrome is particularly concerning because it often leaves no visible signs of trauma, making diagnosis challenging. SBS typically occurs when a caregiver becomes frustrated, often due to a baby's crying, and shakes the child vigorously. The shaking motion causes the baby's brain to bounce back and forth inside the skull, leading to bruising, swelling, and bleeding.

Symptoms and Signs

Symptoms of SBS may appear immediately or develop over time. Common signs include lethargy, extreme irritability, poor feeding or vomiting, seizures, bulging or tense fontanelles, difficulty breathing, dilated pupils, and retinal hemorrhages. These injuries may not be immediately noticeable, and sometimes there are no obvious external signs of physical violence or injury. Children with SBS often show symptoms of prior child abuse, and in mild cases, children may appear okay after being shaken but may develop health or behavioral problems over time.

Statistical Data

The incidence of SBS varies globally. In the U.S., between 600 and 1,400 cases are reported annually, with over 300 babies dying each year due to this abuse1. In France, approximately 180 to 200 children per year are victims of this type of abuse. In Germany, an estimated 100 to 200 cases occur annually. In India, while specific national statistics are scarce, there have been reported cases, such as the death of a one-and-half-year-old girl in Bengaluru attributed to SBS3. Additionally, a case study from Chennai highlighted the underdiagnosis of SBS in India.

Complications and Prevention

Complications of SBS can be severe and include brain damage, cerebral palsy, epilepsy, visual and hearing impairments, cognitive disabilities, and death. Preventing SBS involves educating caregivers about the dangers of shaking babies. Strategies include counseling new parents on managing infant crying and stress, promoting safe handling practices for babies, and encouraging support networks for caregivers to reduce stress and frustration. In India, raising awareness about SBS is essential to prevent such tragic incidents and ensure better care for children.

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HYDROCELE-CURED CASE PRESENTATION

A case of 2 and ½ yrs male child came to my GHD with complaint of right sided Hydrocele. Chid father narrated the case that my child is suffering from right sided scrotal swelling since last 4 month. I went to SISHU BHAVAN, CUTTACK for treatment. There doctor advised for surgery. But I was not agree with doctor for surgery of my small child.One of my relatives recommended your name. So I consulted you for homoeopathic treatment.

CASE HISTORY: Name: Hariansh Sahu, Age: 2 and ½ yrs, Sex: Male

P/C:

-Right sided swelling of scrotum since 4 months.

-Discomfort feeling, narrated by parents.

-Redness of scrotum.

P/G: Thermal-Hot, not tolerate any covering even in winter day.

Appetite- Decreased

Thirst-Thirstless

Stool-Constipated

Urine-Normal

Desire-Sweet, ice-cream

Aversion-Nothing suggestive

Sweat-Normal

Sleep-Disturbed

P/H: Nothing suggestive

Vaccinated

Normal full term delivery

F/H:

Father- Hypertension

Mother-Haemorrhoids

Grandfather-Diabetes mellitus type 2, hypertension

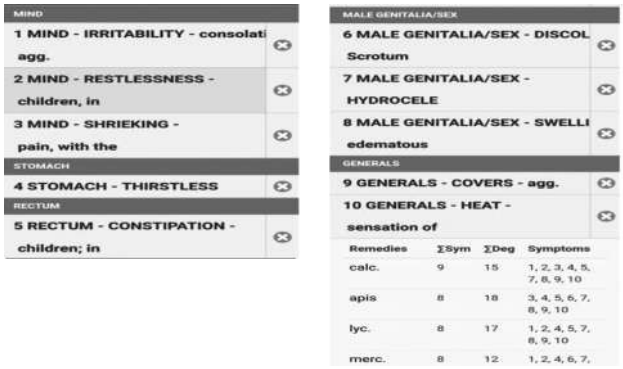
Grandmother-Osteoarthritis, hypertension

Medicinal History: Not taking any medicine for hydrocele treatment.

Mental Generals:

Irritable in nature not consoled by any means, restlessness, sudden cries with sharp noise and feeling of discomfort marked by child.

REPERTORISATION



PRESCRIPTION

On the basis of repertorisation and totality of the child Apis mellificia was prescribed.

IST VISIT- 22/10/2024

RX. Apis mel 30/ 3 globules BID, For 7 Days, followed by placebo

2ND VISIT- 03/11/2024

Follow up: 50% of the symptoms decrease.

Observation: Child was calm quite, no restlessness.

Rx. Repetition of same.

3RD VISIT-9/12/2024

Observation: No swelling, redness, no discomfort .no restlessness

Child is completely free of symptoms, seems to be very cheerful

No medicine given only placebo for prescribed in subsequent visits. Child is completely cured.

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CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Abstract:

Chronic Obstructive pulmonary disease (COPD) is a group of disease in which the respiratory airway passage obstructs which results in the termination of gaseous exchange. Currently, it is the fourth leading cause of death worldwide. As COPD is a poorly reversible disease, it is a major cause of morbidity and mortality globally. The primary factors contributing to COPD are emphysema, chronic bronchitis, and to some extent, asthma. This review summarises the diagnosis and treatment mismanagement in COPD.

ETIOLOGY:

The primary causes of COPD are emphysema, chronic bronchitis, but somehow asthma is also responsible. The secondary cause of COPD is Alpha-1 Antitrypsin deficiency, which is responsible for the inhibition of elastase and is synthesised in the liver. Emphysema results in the narrowing of alveoli, whereas chronic bronchitis results in long-term inflammation of the bronchi.

Emphysema and chronic bronchitis arise from cigarette smoking, exposure to particulate matter, and occupational hazards. Individuals working in textile industries, cement manufacturing, and mining environments have an elevated risk of developing COPD.

COMPLICATIONS:

Patients suffering from COPD undergoes hypoxia, hypercapnia (leads to metabolic acidosis), Difficulty in breathing, bradycardia,Pulmonary vasoconstriction, right ventricular hypertrophy and hence right ventricular failure.

Early complications in COPD patients are shortness of breath, cough, wheezing, chest tightness or heaviness, fatigue or extreme tiredness, recurrent lung infection, losing weight, swelling in ankles, feet or legs, mucus production increases, mucus plug formation.

Generally, COPD symptoms do not appear until a lot of lung damage occur.

DIAGNOSIS:

There are several ways to detect COPD, some are - spirometry, 6-minute walk test, laboratory testing, Radiographic imaging, pulmonary function testing (PFT), alpha 1 Antitrypsin level, COPD assessment test, Radiographic imaging like chest X Ray and CT, FEV1/FVC (<0.7).

TREATMENT MANAGEMENT:

Some articles claim that COPD is irreversible whereas some claim it as reversible disease1 and some categorize it under poorly reversible disease.

Patients diagnosed under COPD are treated by providing Oxygen therapy, annual influenza vaccination, medicationsclasses such as Beta-2 agonist, antimuscarinics, methylxanthines, inhaled corticosteroid (ICS), Systemic glucocorticoids, phosphodiesterases-4 (PDE4) Inhibitors, antibiotics, Breathing devices.

In severe cases - pulmonary rehabilitation, Bullectomy, lung transplantation.

Non pharmacologic intervention from exacerbations prevention includes pulmonary rehabilitation, long term o2 therapy and home noninvasive ventilator support.

TREATMENT MISMANAGEMENT IN COPD:

The most common challenges in clinical management include the identification of new comorbidities. Comorbidities are frequently under-recognised and under-treated, such as cardiovascular diseases, neoplasms, metabolic disorders, gastrointestinal diseases, anaemia, neuropsychiatric conditions, endocrine disorders, and systemic inflammation. Numerous hospitals lack sufficient resources, resulting in inadequate treatment and diagnosis of patients suffering from COPD.

There is a high burden of disease (3.78 million cases in India contributing to 17.8% of the global burden). Some of the primary factors contributing to treatment mismanagement are the absence of holistic assessment, insufficient recognition of high-risk patients, treatment-related problems (TRP), inadequate attention to smoking cessation, unavailability of diagnostic tools, poor palliative care, and inconsistent adherence to guidelines.

Delayed diagnosis and under-treatment of COPD result in a significantly higher risk of exacerbations and hospitalisation.

COPD AFTER COVID SCENARIO:

SARS-COV-2 virus infection is one of the likely causes of acute COPD exacerbation. The pathophysiology of COPD can be worsened by COVID-19. COVID-19 hypoxemia arises due to widespread pulmonary intravascular clots and alveolar oedema which reduces perfusion and ventilation (V/Q= 0.8). The mismatching of V/Q ratio results in hypoxic pulmonary vasoconstriction, which leads to right ventricular failure. COPD patients experience poorer outcomes from COVID-19. There exist biological mechanisms that render COPD patients more susceptible to viral and bacterial infections. A review of numerous articles and online sources reveals that COPD patients with COVID-19 exhibited higher rates of hospitalisation and mortality, primarily associated with pneumonia.

CONCLUSION

Upon reviewing 79 articles and various online platforms regarding diagnosis and treatment mismanagement, we concluded that the mortality rate of COPD has been second only to coronary heart disease since 2014, and this non-communicable disease is approaching the status of leading cause of death. Comorbidities should not be disregarded, and appropriate equipment should be implemented for early detection of COPD. It is also imperative to educate citizens about the deleterious effects of cigarette smoke.

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DEVELOPMENT OF NOVEL DRUG DELIVERY SYSTEM TO ENHANCE USES OF NATURAL PRODUCTS

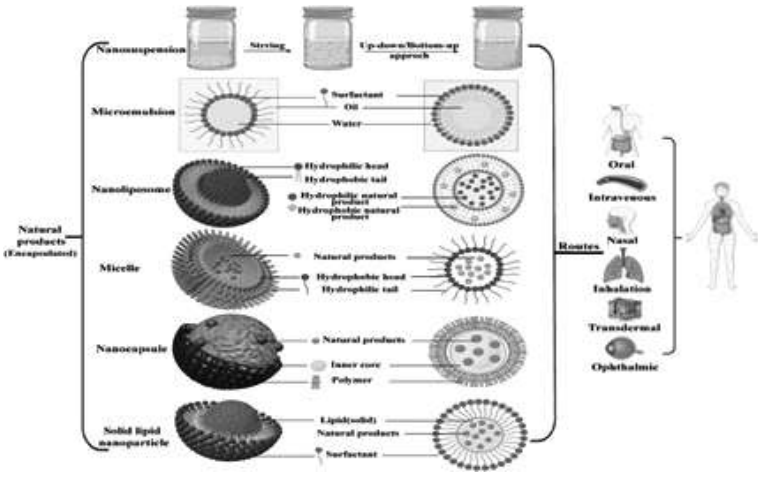
Abstract

The development of natural products for potential new drugs faces obstacles such as unknown mechanism, poor solubility and limited bioavailability. Therefore, there is a need for advanced pharmaceutical formulations of active compounds or natural products. In recent years, novel nano-drug delivery system (NDDS) for natural products, including nanosuspensions, nanoliposomes, micelle, microemulsion / self-microemulsion, nano capsules and solid lipid nanoparticles, have been developed to improve solubility bioavailability, and tissue distribution as well as for prolonged retention and enhanced permeation. Here, we updated the NDDS delivery system used for natural products with the potential enhancement in therapeutic efficiency observed nano-delivery system.

Keywords : *natural products, novel nano-drug delivery system, bioavailability, therapeutic effects.*

Introduction

Natural products have been effectively treating numerous diseases with multifaceted therapeutic effects and a higher safety profile. Today, natural products play a vital role in global rehabilitation and healthcare, serving as a valuable source of new drug. Nevertheless, challenges such as poor solubility and low bioavailability hinder their absorption and limit overall effectiveness. Moreover, the limited amounts reaching the target tissues in vivo result inconsistent therapeutic effects. These characteristics have been the major barriers to the successful development of natural products into new drug candidates.

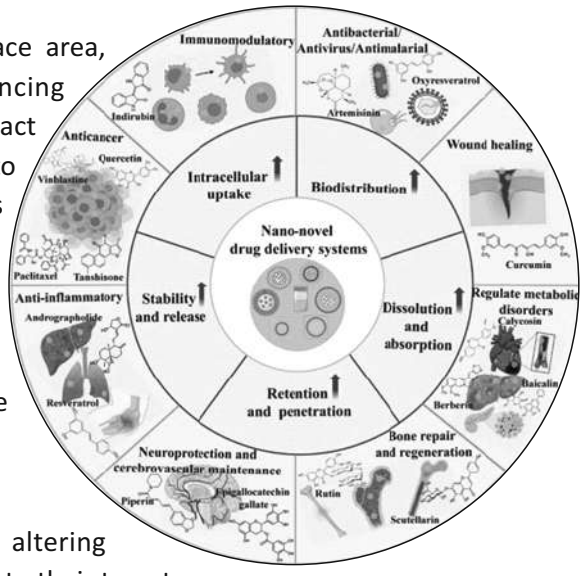


Novel nano-drug delivery system (NDDS) refers to a novel approach in the pharmaceutical field, harnessing the potential of nano technology for drug delivery. Depending on the carrier materials and structures used, NDDS fails into distinct categories, including nanosuspension, nanoliposomes, micelle, microemulsions / self-microemulsions, nano capsules and solid lipid nanoparticles. These NDDS, typically ranging from 1-100 nm in size, effectively address conventional limitations such as poor solubility, instability, thereby improving the stability, solubility and absorption of natural product.

Nanosuspension

Nanosuspension have gained widespread acceptance as an effective approach to enhancing the solubility of poorly soluble natural products. It is stable submicron colloidal dispersion that utilise minimal surfactant and/or high molecular weight polymers as stabilizers to improve particle agglomerations and ensures stability. This enables the dispersion of particles with sizes below 1000 nm through process like ultra crushing or controlled crystallizations.

1. ***Increased dissolution and absorption***



Smaller particle sizes in nanosuspension offers increased surface area, promoting efficient interactions with solvents and enhancing dissolution. This enhanced surface area allows for better contact between the natural product particles and the solvent, leading to improved dissolution rates. Nanoscale natural product particles often transition from crystalline to amorphous states, resulting in increased solubility due to there less ordered molecular arrangement. For example, natural products like resveratrol, myricetin and vitexin have been delivered in nanosuspension to achieve higher solubility and dissolution rates, making them more readily available for absorption in the body.

2. ***Enhanced biodistribution***

Nanosuspension further enhances therapeutic efficacy by altering biodistribution and pharmacokinetics, delivering natural products to their target sites. For example, honokiol delivered in nanosuspension should varied biodistribution, resulting in elevated drug levels and enhanced tissue bioavailability in critical areas such as the blood, heart and brain. This increased distribution of drug to specific organs and tissues for achieving significant therapeutic effect. Special modification, such as the use of folic acid conjugated biodegradable polymers, have been reported to effectively enhance the cellular uptake and cytotoxicity of various anticancer drugs.

Nano liposome

Nanoliposomes are nanoscale lipid carriers characterized by bilayer structure comprised of phospholipids. These tiny spherical structures typically have diameters ranging from 5-200 nm, which include one or more layer of phospholipid molecules encapsulating an aqueous solution. This distinctive structural arrangement enables nanoliposome to act as a carrier for both hydrophobic and hydrophilic amphoteric natural products, distinguishing them from other NDDS. In addition to their structural benefits, nanoliposomes offers a high surface area that facilitates interactions between solvent molecules and natural products. This property promotes the dissolution of these compounds, which is crucial for ensuring that the natural products are readily available for absorption and exerting their therapeutic effects.

1. Increased stability

Nanoliposomes act as a protective barrier, encapsulating natural products and shielding them from adverse interaction with the external environment. This protective encapsulation effectively reduces the degradation, oxidation and photosensitivity of natural products, thereby extending their stability both in vivo and in vitro. Since nanoliposome is structurally stable at acidic pH rice bran phospholipids have been utilised to encapsulate quercetin within nanoliposome, which ensures quercetin`s structural stability from digestive degradation and enhances its biological activity.

2. Improved biodistribution

The small particle size of nanoliposome facilitates their preferential accumulation in specific organs, primarily within the liver, spleen and lungs. By altering their surface properties, nanoliposome can be selectively enriched in specific diseased tissues or organs in vivo. This targeted delivery increases the concentration of natural products in the desired

area while minimizing the impact on healthy tissue. The charge of nanoliposome not only influences natural product stability but also affect its intracellular uptake. Cationic nanoliposomes enhance the cellular uptake of andrographolide through electrostatic interactions with negatively charged cell membranes.

3. Extended retention and penetration

For transdermal delivery nanoliposome is highly effective in promoting the penetration of natural products into the skin, thereby increasing the local drug concentration at the site of action. Psoralen Nanoliposome formulation has an enhancement in skin penetration, facilitating dermal deposition while maintaining excellent compatibility with the skin tissues. In conclusion, nanoliposomes effectively encapsulates both hydrophilic and hydrophobic natural products at the nanoscale, enhancing their solubility and promoting absorption.

Microemulsion

Microemulsion is an optically transparent and thermodynamically stable solution system composed of water, oil and amphiphiles. It features uniformly sized spherical droplets typically ranging from 10-100 nm particle size. Microemulsion act as a small, evenly dispersed emulsified particle, ensuring a more even distribution of natural products during use. This property, combined with improved solubility makes microemulsion a preferred choice for formulating oily or lipophilic natural products as oil-in-water or oil-in-water-in-oil emulsion.

1. Enhanced stability

Distinguished from other NDDS, microemulsion can be prepared using advanced emulsification technology, ensuring a more uniform dispersion of emulsified particles within the liquid. This characteristic makes microemulsion less susceptible to particle aggregation or precipitation, consequently prolonging its stability and self-life.

2. Enhanced permeability

The smaller particle size and larger specific surface area of the microemulsion facilitate better contact with the skin, promoting the penetration of natural products. For instance, aconitine-microemulsion formulation mediated by diethylene glycol mono ethyl ether in an oil-in-water system showed an enhanced solubility and in vitro permeability of aconitine.

Solid lipid nanoparticle

Solid lipid nanoparticles represent an innovative drug delivery system consisting of natural or synthetic solid lipids used as carrier materials for encapsulating natural products, with particle size ranging from 50-1000 nm. The carrier materials comprising physiological relevant lipids or waxes are not only biocompatible but also readily degrade, ensuring safety with minimal toxicity and side effects.

1. Enhanced stability

The solid lipid layer of solid lipid nanoparticles provides physical and chemical protection for natural products, shielding the natural products from external factors and thwarting degradation and oxidative reaction. This safeguarding effect has been notably observed in solid lipid nanoparticle preparations containing compounds like epigallocatechin gallate and curcumin.

3. Controlled release

The distinct backbone structure of solid lipid nanoparticle facilitates controlled release profiles. For instance, certain carriers, such as cholesterol, form hydrogen bonds with curcumin, leading to an extended release of the encapsulated natural products.

Conclusion

Nano natural product delivery system offers numerous advantages, they also present several complex challenges. Currently, research on natural products NDDS predominantly concentrates on single natural products, with limited studies exploring the function of co-encapsulating two or more natural products within NDDS. In future investigations, greater attention should be directed towards compound drugs, aiming to achieve a rational combination of different natural products to enhance therapeutic efficacy.

References:

1. V.B. Junyaprasert, B. Morakul Nanocrystals for enhancement of oral bioavailability of poorly water-soluble drugs.
2. J. Hao, et al.Preparation and optimization of resveratrol nanosuspensions by antisolvent precipitation using Box-Behnken design.
3. M. Han, *et al.* Preparation, characterization, biodistribution and antitumor efficacy of hydroxycamptothecin nanosuspensions.
4. Zhang H, Hollis CP, Zhang Q, Li T. Preparation and antitumor study of camptothecin nanocrystals. *Int J Pharm*. 2011;415(1–2):293–300.
5. Pi J, Liu Z, Wang H, et al. Ursolic acid nanocrystals for dissolution rate and bioavailability enhancement: influence of different particle size. *Curr Drug Deliv*. 2016;13(8)
6. El-Menshawe SF, Ali AA, Rabeh MA, Khalil NM. Nanosized soy phytosome-based thermogel as topical anti-obesity formulation: an approach for acceptable level of evidence of an effective novel herbal weight loss product. *Int J Nanomed*. 2018;13:307–318.

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MALARIA VACCINE:
A STEP TOWARDS ERADICATION WITH R21/MATRIX-M

Introduction: -

Malaria is one of the deadliest diseases in the world, responsible for hundreds of thousands of deaths each year, primarily in sub-Saharan Africa. Malaria is caused by the Plasmodium parasite (a genus of unicellular eukaryotes that are obligate parasites of vertebrates and insects) and is transmitted to humans through the bites of infected mosquitoes (female Anopheles mosquitoes). Despite significant progress in controlling malaria through measures such as insecticide-treated bed nets and antimalarial drugs (including Quinine, Chloroquine, Proguanil, etc.), the disease remains a major global health concern.

One of the most promising advancements in the fight against malaria is the development of a malaria vaccine. Malaria vaccines could be a game-changer in preventing the disease and eventually eradicating it. Among the most exciting recent developments is the R21/Matrix-M malaria vaccine. This vaccine, developed by the University of Oxford and manufactured by the Serum Institute of India (SII), is showing great promise and has captured the attention of both scientists and health organizations worldwide.

What is the R21/Matrix-M malaria vaccine?

The R21/Matrix-M vaccine is a new malaria vaccine that has recently shown remarkable results in clinical trials. It's the result of decades of research aimed at finding a safe and effective way to prevent malaria. The vaccine is based on the R21 antigen (a substance that causes the body to produce antibodies against it, it can be a protein, polysaccharide, lipids, or nucleic acid), a protein found on the surface of the Plasmodium falciparum parasite, the deadliest malaria parasite species.

What makes R21/Matrix-M stand out is its combination of the R21 antigen with an adjuvant called Matrix-M. An adjuvant is a substance that enhances the body's immune response to a vaccine, making it more effective. The Matrix-M adjuvant, developed by Novavax(a biotech company developing lifesavingvaccines to fight infectious diseases), has been shown to significantly boost the immune system's response to the vaccine.

In short, R21/Matrix-M is not just another malaria vaccine—it's a combination of cutting-edge science that could have a huge impact on global malaria prevention.

How does the R21/Matrix-M vaccine work?

The primary goal of any malaria vaccine is to prime the body's immune system to recognize and fight off the malaria parasite. The R21/Matrix-M vaccine does this by training the immune system to recognize the R21 antigen, a protein found on the surface of the Plasmodium falciparum parasite. When someone is vaccinated with R21, their immune system learns to identify and attack the parasite if they are exposed to it in the future.

But what makes the R21/Matrix-M vaccine particularly effective is the Matrix-M adjuvant. This adjuvant works by stimulating immune cells and enhancing the body's immune response, ensuring that the vaccine generates a stronger and longer-lasting immunity. Essentially, Matrix-M acts like a turbocharger for the

immune system, boosting its ability to fight off the malaria parasite.

CLINICAL TRIALS AND RESULTS: -

The R21/Matrix-M vaccine has gone through several phases of clinical testing. In 2021, results from a Phase 2b trial conducted in BurkinaFaso (West Africa) revealed that the vaccine had an impressive 77% efficacy in preventing malaria. This is a significant milestone, as it is higher than the effectiveness of the world's previous leading malaria vaccine, RTS, S (also a malaria vaccine), which has shown around 30-40% efficacy in similar trials.

The R21/Matrix-M vaccine's high efficacy in this trial made headlines in the global health community. This result means that the vaccine is capable of preventing malaria in a large percentage of those who receive it. The trials also showed that the vaccine was well-tolerated, with only mild side effects, such as fever or soreness at the injection site, which are typical of vaccines in general.

Additionally, the vaccine has demonstrated effectiveness across different age groups, with a particular focus on young children, who are the most vulnerable to severe malaria. This is an encouraging sign that R21/Matrix-M could be an important tool in the fight against malaria, especially in regions where the disease burden is highest.

THE POTENTIAL IMPACT OF R21/MATRIX-M ON MALARIA CONTROL: -

The R21/Matrix-M vaccine represents a significant leap forward in the global fight against malaria. If it becomes widely available, it could drastically reduce the number of malaria cases and deaths, especially in Africa, where the disease is most prevalent.

One of the key advantages of the R21/Matrix-M vaccine is its high efficacy. At 77%, it offers a level of protection that is much higher than previous malaria vaccines. If this level of effectiveness can be sustained in real-world conditions, the vaccine could have a transformative impact, providing long-lasting protection for individuals and communities.

Especially, the R21/Matrix-M vaccine is designed to be cost-effective, which is crucial for its widespread use in malaria-endemic countries. The cost of vaccines is often a major barrier to their distribution in low-income regions. By keeping the price low, R21/Matrix-M has the potential to be accessible to millions of people who are at risk of malaria.

CHALLENGES AND FUTURE: -

While the R21/Matrix-M vaccine represents a promising advancement towards malaria eradication, several challenges remain to be addressed. A significant obstacle is ensuring the availability of sufficient quantities for global distribution. Manufacturing capabilities and logistical considerations will significantly influence the rapidity with which the vaccine can reach populations in greatest need.

An additional challenge lies in ensuring the vaccine's ability to confer long-term immunity. Malaria is a complex disease, and immune responses can exhibit considerable inter-individual variability. Further research is requisite to elucidate the duration of immunity provided by R21/Matrix-M and to determine the potential necessity for booster immunisations.

Additionally, malaria is a disease that is influenced by multiple factors, including climate, poverty, and healthcare infrastructure. While a vaccine can significantly reduce the burden of malaria, it will need to be used in combination with other measures, such as insecticide-treated bed nets, indoor spraying (which is also known as Indoor Residual Spraying), and antimalarial drugs, to be truly effective.

Conclusion: -

The R21/Matrix-M malaria vaccine now is a hope in the global fight against one of the world's deadliest diseases. With its high efficacy, safety profile, and potential for widespread use, it could be a game-changer for millions of people living in malaria-endemic regions.

While challenges remain, the vaccine's success in clinical trials is a major milestone. It brings us one step closer to a world where malaria is no longer a threat to public health. With continued research, innovation, and global cooperation, the dream of a malaria-free world may one day become a reality.

References: -

1. World Health Organization. "Malaria Vaccine: WHO Recommends Widespread Use of RTS, S Vaccine." World Health Organization, 2022, (link unavailable).
2. University of Oxford. "Oxford Malaria Vaccine." University of Oxford, 2022, (link unavailable).
3. Serum Institute of India. "Malaria Vaccine." Serum Institute of India, 2022, (link unavailable).
4. National centre for Biotechnology Information. "Malaria Vaccine." National centre for Biotechnology Information, 2022, (link unavailable).
5. ISTOCKPHOTO. "Malaria Vaccine Illustration." ISTOCK PHOTO.COM 2023, (link unavailable).

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ACHIEVING WELL-BEING THROUGH PRANAYAMA

Pranayama, often referred to as the science of breath control, is an essential component of Satvic yoga. It has its roots in ancient yogic traditions, hence *pranayama* involves conscious regulation of the breath to harmonize the body, mind, and spirit.

The connection between breath and life force

In yogic philosophy, *prana* is the vital energy that sustains life. It flows through the body via energy channels known as *nadis*, and its balance is crucial for physical and mental health. Pranayama techniques help regulate this flow, ensuring that the body functions optimally. When practiced in alignment with Satvic principles, pranayama enhances the purity of the mind and body, promoting a state of inner harmony.

The breath is a bridge between the physical and subtle aspects of existence. By mastering breath control, practitioners can influence their mental and emotional states, moving closer to a Satvic state of calmness, focus, and self-awareness.

Benefits of Pranayama in Satvic Yoga

1. **Mental Clarity and Emotional Balance**

Pranayama calms the mind by reducing stress and anxiety. Techniques such as *Nadi Shodhana* (alternate nostril breathing) help clear mental clutter and balance the brain's hemispheres, fostering a sense of peace. A calm mind aligns with the Satvic ideal of inner purity and detachment from distractions.

2. **Enhanced Vitality**

Regular practice of pranayama improves oxygenation, boosting energy levels and promoting physical vitality. Techniques like *Bhastrika* (bellows breath) stimulate the nervous system and rejuvenate the body, allowing practitioners to approach daily tasks with renewed vigor.

3. **Detoxification**

Pranayama assists in detoxifying the body by expelling stale air and toxins from the lungs. *Kapalabhati* (skull-shining breath) is particularly effective for cleansing and invigorating the respiratory system, aligning with the Satvic principle of maintaining bodily purity.

4. **Improved Focus and Meditation**

Breath control prepares the mind for deeper meditative states, an integral part of Satvic yoga. Techniques like *Ujjayi* (victorious breath) and *Anulom-Vilom* (alternate nostril breathing) enhance concentration, making it easier to achieve mental stillness and spiritual growth.

Integrating Pranayama into daily life

Incorporating pranayama into a daily routine can enhance overall health and well-being. Practicing early in the morning, when the mind is naturally calm, maximizes its benefits. Combining pranayama with Satvic yoga and a Satvic diet creates a holistic lifestyle that nurtures the body, mind, and spirit.

Pranayama is a cornerstone of Satvic yoga, offering profound benefits for physical, mental, and spiritual health. By mastering the breath, practitioners can align with the principles of purity, balance, and harmony that define Satvic living. It is not just a practice but a pathway to a more conscious and fulfilling life.

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STUDY OF DIARRHOEA PREDOMINANT IBS & ITS ASSOCIATION WITH ENTAMOEBA HISTOLYTICA CYST.

Abstract

Background -

Irritable bowel syndrome is a functional gastrointestinal disorder in which abdominal pain is associated with changes in bowel habits. Gut inflammation and irritation might be one of the mechanisms of pathogenesis. However the cause of IBS isn't clearly understood. Post infectionsIBS (PI – IBS) is mostly associated with an episode of infectious gastroenteritis. On stool routine and microscopic examination Entamoeba Histolytica cyst form is detected. This is a common finding in diarrhoea predominant IBS.

Our study will address the association of IBS and Eh cyst. This study also aimed at knowing the prevalence of cyst of Eh in IBS.

Methods :

We conducted the study on IBS pts attending SOPD at SLNMCH , Koraput. Stool examination and anti protozoal cystic drugs therapy was offered at SLNMCH, Koraput from 2017-2023.

Results:

Our study included 180 patients with IBS of which 122 patients were found to be infected with Eh cyst. A past history of diarrhoea and dysentery was taken and stools were examined.

Conclusion:

We found widespread infection with Eh cyst in many cases of diarrhoea predominant IBS. Eh cyst cause colonic mucosal irritation and diarrhoea (amoebic dysentery).

Key words :

Post infection IBS, Protozoa, Entamoeba Histolytica, IBS, trophozoite and cyst.

INTRODUCTION :

Irritable bowel syndrome can be defined as a functional GIT disorder in which abdominal pain is associated with changes in bowel habits [1,2] . Gut inflammation might be one of the mechanisms of pathogenesis. However, the cause of IBS isn't clearly understood. Symptoms often form the basis for diagnosis, and IBS frequently emerges following a severe episode of diarrhoea and dysentery. IBS can be categorised into several types: IBS C, characterised by predominant constipation; IBS D, marked by predominant diarrhoea; IBS M, a mixed variant; and IBS A, which alternates between diarrhoea and constipation [3]. The condition is associated with abdominal discomfort and a recurrent need to defecate. There may be colonic cramps, diarrhoea, splashing sounds. The stool during the attack may or may not have mucus. IBS patients experience colonic cramps, abdominal pain, constipation or diarrhoea, frequent urge for defecation.

The cause of IBS is not well established. However, protozoan parasite Eh cyst form is one of the

predominant GI parasite in developing world. Therefore we conducted the stool analysis of IBS patients to detect GI parasite.

MATERIALS & METHODS

We conducted stool examination of IBS D patients between the age group of 15-60 years presenting to SLN MCH Surgery Out-patient Department.

INCLUSION & EXCLUSION CRITERIA-The study excluded patients with IBD and HIV.

RESULTS

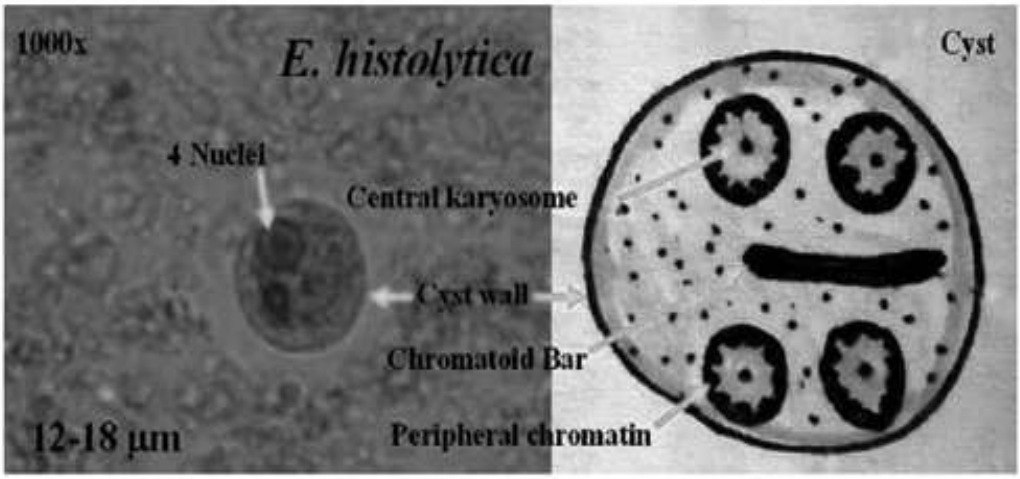
A total of 180 patients of whom 122 were infected with the Eh cyst and other GI parasites.

Table I – prevalence of GI parasites in IBS patients.

Patients	Features
122	Eh cyst
2	G.lamblia
61	Mucus present

Table II – symptoms of IBS patients

Patients	Symptoms
152	Diarrhoea/dysentery
160	Past history of diarrhoea
126	Colonic cramps
153	Frequent urge for defecation



An Eh cyst is a microscopic spherical cyst i.e. part of the life cycle of the pathogenic amoeba –Entamoeba histolytica

DISCUSSION–

Our investigation into the stool samples of patients with diarrhoea-predominant irritable bowel syndrome (IBS-D) revealed a strong correlation with Entamoeba histolytica (Eh) cysts. The majority of patients were prescribed diloxanide furoate (METRON DF), with a dosage of one tablet three times daily for a week.

A small group of fewer than 10 patients received a combination of tinidazole and diloxanide furoate.

Additionally, 30 patients were administered diiodohydroxyquinoline, taking two tablets thrice daily for five days. Following treatment, 132 patients with IBS-D experienced resolution of their symptoms.

Eh cysts cause mucosal irritation, secrete mucus from colonic mucosa, cause colonic spasms,

splashing sounds, and frequent urge for defecation. It is a prominent finding in IBS D patients.

While the cause of IBS D isn't understood fully, Eh cyst is a strong association.

CONCLUSION

The objective of this research was to ascertain the frequency of Eh cysts and additional gastrointestinal parasites in irritable bowel syndrome (IBS) cases characterised by diarrhoea.

Eh cysts were identified in numerous instances. The cyst form of Eh can induce IBS with diarrhoea and resemble genuine IBS.

We advise that each IBS patient undergo stool analysis, including routine examination and microscopy, conducted by a microbiologist on three separate occasions.

REFERENCES

1. Mertz HR. New concepts of irritable bowel syndrome. Current Gastroenterology Reports. 1999 Oct;1(5):433-40.
2. Saito YA, Schoenfeld P, Locke III RG. The epidemiology of irritable bowel syndrome in North America: a systematic review. Official journal of the American College of Gastroenterology| ACG. 2002 Aug 1;97(8):1910-5.
3. Chey WD, Kurlander J, Eswaran S. Irritable bowel syndrome: a clinical review. Jama. 2015 Mar 3;313(9):949-58.
4. Rhodes DY, Wallace M. Post-infectious irritable bowel syndrome. Current Gastroenterology Reports. 2006 Jul;8(4):327-32.
5. Marshall JK, Thabane M, Garg AX, Clark WF, Salvadori M, Collins SM, Walkerton Health Study Investigators. Incidence and epidemiology of irritable bowel syndrome after

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SUICIDE AMONG YOUTH IN INDIA

Recently I was going through the newspaper when one of the articles captured my attention. The heading read **"India's student suicide rate has surpassed overall trend, population growth rate".** The news report reveals an alarming rise in student suicides in India, highlighting an urgent need for mental health support. National Crime Records Bureau (NCRB) data updated in August 2024 states that the overall suicide numbers increased by 2% annually, and student suicide cases surged by 4% despite a likely underreporting of the cases. Maharashtra, Tamil Nadu and Madhya Pradesh are identified as the states with the highest number of student suicides, together accounting for one-third of the national total. Southern states and union territories collectively contribute 29% of these cases, while Rajasthan which is known for its high-stake academic environment ranks tenth, highlighting the intense pressure associated with coaching hubs like Kota.

The data compiled by NCRB is based on police FIRs. However, it is essential to acknowledge that the actual number of student suicides is likely underreported. This underreporting can be attributed to several factors, including the social stigma surrounding suicide and the criminalisation of attempted and assisted suicide under section 309 of the IPC. Although the 2017 Mental Healthcare Act decriminalises suicide attempts for individuals with mental illness, the legacy of criminalisation continues to impact reporting practices. Moreover, due to the absence of a robust data collection system, particularly in rural areas, there can be significant data discrepancies. Going through this report, I felt the need to address mental health challenges within our learning institutions. "Our educational focus must shift to fostering the competencies of our learners such that it supports their overall wellbeing, versus pushing them to compete amongst each other." It is imperative that we build a systematic, comprehensive and robust career and college counseling system within each institution and integrate the same within the learning curriculum.

World Suicide Prevention Day marked each year on 10th of September is organized by International Association for Suicide Prevention in conjunction with WHO. The purpose of this day is to raise awareness around the globe that suicide can be prevented. The triennial theme for World Suicide Prevention Day for 2024-2026 is "Changing the Narrative on Suicide" with the call to action "Start the Conversation". This theme aims to raise awareness about the importance of reducing stigma and encouraging open conversations to prevent suicide. Changing the narrative on suicide is about transforming how we perceive this complex issue and shifting from a culture of silence and stigma to one of openness, understanding and support.

WHY IN NEWS?

In 2022, 1.71 lakh suicides were recorded, in which 41% were committed by the young adults below the age of 30, making a significant 27% jump from 2018. A young Indian dies by suicide every 8 minutes which is a loss to family, society and country at large. This data points out the graveness of situation of mental health of students in India.

Suicide is a common human phenomenon which has no single factor, but multiple factors like biological, psychological and socio-cultural factors. Common issues found are- mental health problems, family issues, academic stress,

domestic violence, economic distress, physical and sexual abuse, exam failures, intergenerational issues and caste issues.

THE PROBLEMS WITH OUR EDUCATION SYSTEM AND ITS IMPACTS

Our education system only focuses on marks, often through rote learning and focuses less on the overall development of the child. The Indian education system possesses immense pressure on students which severely affects the mental well-being of students. The cut throat competition in some of the competitive exams like IIT-JEE, NEET for the students coming from lower middle class families creates immense pressure. These exams are a way to alleviate their socio-economic status. But because of the scant number of seats in these exams only a fraction of students are able to clear them. Others who fail become prey to societal and peer pressure often leading students to commit suicide.

SOCIAL MEDIA AS A BANE:

Last decade has seen a proliferation of internet users in India. A meta analysis revealed that almost 20% of college students are net addicts, one-third are cyber bullied and one-third of all these are suicidal. Studies show that teens that use social media for two hours daily are more suicidal. Sensational reporting of suicides of popular celebrities has an impact on the psychology of people. After the sensational reporting of death of a famous actor there was an increase in searches on Google related to "How to commit suicide".

What could be done?-the Way Ahead

- Imparting emotional intelligence like problem solving, impulse control and emotional regulation.
- Early identification and care of depression and anxiety issues.
- Healthy lifestyle with good sleep habits, exercise, yoga and meditation.
- Improving family environment by reducing domestic violence, patriarchal norms and substance abuse.
- Providing economic assistance.
- Educational reforms
- Societal changes to reduce stigma on the basis of caste, gender and sexuality of a person.

In this capitalistic, materialistic world where lifestyles are based on showoff culture, there is a need of implementing educational, societal and behavioral changes among citizens to cope with the mental health pressures and suicidal thoughts. Let all have a fruitful and prosperous life.

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SUSTAINABILITY IN PHARMACEUTICAL INDUSTRY PRACTICES: MAKING INDIA ATMANIRBHAR

Life without *Liberalization, Privatization, and Globalization* (LPG) is becoming even more painful than change, as the economic health of India is today living on borrowed resources, which is a painful proposition for any self-respecting individual. It is well known that from the moment we are born, almost all change is difficult. Nobody really enjoys change, and we would be misleading if we said that LPG is easy. Changing the habits of a lifetime always entails some uncertainty and discomfort. But once embarked upon, it is usually less difficult than was feared.

In relation to this, sustainability is an important precondition for the development and growth of the industry, which can contribute directly to social well-being. For effective healthcare strategies, pharmaceutical companies need to be ethical and transparent in the development of their products. Sustainability is transforming regulatory compliance, drug discovery, and potent targeting. Companies are exploring various Artificial Intelligence (AI) tools for optimizing clinical trial design along with improving drug target selection. Moreover, challenges like ethical considerations and regulatory affairs persist.

In this competitive world, pharmaceutical industries need to be flexible and innovative in their approach to dealing with the unfamiliar situations they often find themselves in. They are in a period of great change. The steadily increasing complexity of the world is demanding too much from the pharmaceutical industry. The reality of yesterday proves wrong today, and nobody really knows what will be the truth tomorrow.'

In relation to this, sustainability creates its own future by focusing on certain emerging roles of the Indian Pharmaceutical industry that companies have understood and reaped benefits from. Governments across the world are realizing the need to be self-reliant in the pharma sector, and India is no different. Now, it is a time for unprecedented scientific opportunities in pharmaceutical research, as the pharmaceutical industry is undergoing revolutionary technological improvements and profound scientific insights, leading to the reinvention of the drug discovery and development process. With advancements in molecular science, information technology, and many other areas, collective platforms are being created, which are expected to drive innovations in drug discovery.

Given the significant benefits for their business, more and more pharma companies are beginning to take part in the emerging role in a big way. However, companies that follow the right approach will be the winners in the race, and they can carve out a differentiated market position ahead of their rivals. It can be said that India has come a long way in terms of growth, productivity, and global credibility and can surely become the **"***Knowledge Led Economy***"** if it takes due care in planning its long-term and short-term gains correctly.

In contemporary society, sustainability is a critical consideration for any operating sector. In this context, sustainability in pharmaceutical industry practices is an important consideration for the environment and its impact on pharmaceutical production. The pharmaceutical industry is a significant supplier of affordable and quality medicines. To achieve true self-reliance while ensuring long-term environmental and economic stability, it is crucial for the industry to adopt sustainable practices. Sustainability can be enhanced through green manufacturing practices, digital and smart technologies, regulatory and policy support, skilling and workforce development, and localized Active Pharmaceutical Ingredients (API) production.

As we know, sustainability is nothing but meeting the needs of the present without compromising the needs of the future. Therefore, more needs to be done to manage the way pharmaceuticals are produced without causing harm to

the environment or human health. Sustainability in the pharmaceutical industry includes minimizing environmental impact, ensuring economic viability, and promoting social responsibility.

There are various key areas where sustainability is practiced, such as green chemistry, eco-friendly manufacturing, sustainable sourcing, ethical supply chain management, sustainable packaging, ensuring that unused medications are disposed of safely to prevent contamination, community and global health initiatives, and reporting environmental and social impact. By focusing on these key areas, pharmaceutical companies can reduce their environmental hazards, increase social responsibility, and remain competitive in this dynamic market, which is increasingly influenced by sustainability concerns.

The Indian pharmaceutical industry needs a strong approach to investing in making India a pharma research hub for the country as well as for the world. In 2021, the budget addressed the gaps in rural and urban healthcare that the pandemic exposed with the ***"PM Atmanirbhar Swasth Bharat Yojana"*** in addition to the National Health Mission. For this, the pharmaceutical industry is ready to contribute towards fortifying the health of the nation, which is the cornerstone of development.

Furthermore, there is a clear link between sustainability and the pharmaceutical industry, as both have direct ties to human health. This makes the advancement of various strategies for healthcare a priority. After COVID-19, India needs to achieve the objectives of *Atmanirbhar Bharat* to attain a higher rate of GDP growth and manufacture in India for the world. In this context, pharma is one such key sector that can strengthen the economic position of the country.

By integrating sustainability, the Indian pharmaceutical industry can lead the way toward a healthier and environmentally conscious future, making India a global leader in sustainable healthcare. The pharmaceutical sector has played a pivotal role in handling unprecedented crises. In the current dynamic environment, pharmaceutical science acts as an immunity booster or an antibody for the economy. It is essential to gear up and become self-reliant for such unprecedented times in the future—truly making "India Atmanirbhar" in the health domain.

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THE FUTURE OF ANESTHESIA IN INDIA: CHALLENGES AND OPPORTUNITIES



As India's healthcare system continues to evolve, the specialty of anesthesia finds itself at the crossroads of significant challenges and emerging opportunities. The rapid expansion of surgical procedures, increasing medical complexities, and an ever-growing focus on improved patient outcomes are driving the transformation of anesthesia practices in the country. The role of anesthesiologists in India is becoming more critical than ever, demanding them to innovate, adapt, and take the lead in shaping the future of this essential healthcare field.

WORKFORCE SHORTAGE: A MAJOR HURDLE

One of the most pressing challenges facing anesthesia in India is the shortage of trained anesthesiologists. The Indian Society of Anesthesiologists (ISA) has highlighted a severe shortage, with estimates suggesting that the country needs at least 50,000 additional anesthesiologists to meet the rising demand. This shortage is a major concern, as it can lead to delays in surgeries, prolonged waiting times for patients, and reduced access to necessary care.

The shortage of anesthesiologists has a direct impact on patient care, creating a strain on hospitals and healthcare systems. In many regions, anesthesiologists are overburdened, which can compromise the quality of care provided during critical surgical procedures. As the demand for surgeries, both elective and emergency, continues to grow, this gap in the workforce is expected to widen, making it harder for patients to receive timely treatment.

To address this issue, there has been a concerted push for increasing the number of anesthesiologists by expanding medical school enrollment and residency training programs across the country. This approach would facilitate the training of a larger number of medical professionals in anaesthesia, thereby addressing the increasing demand. Moreover, the incorporation of certified registered nurse anaesthetists (CRNAs) and anaesthesiologist assistants (AAs) is emerging as a prevalent solution. These advanced practice professionals can fulfil a critical function in the provision of anaesthesia care, contributing to the alleviation of pressure resulting from the shortage of anaesthesiologists while maintaining the quality of service.

LACK OF STANDARDIZATION IN ANESTHESIA CARE

Another significant challenge is the lack of standardization in anesthesia practices across the country. With the majority of healthcare facilities in India being privately owned, there is no uniformity in anesthesia care, which can lead to considerable variation in patient outcomes. In some cases, this lack of standardization may even result in avoidable complications, highlighting the need for consistent practices across the sector.

To address this issue, the Indian Society of Anaesthesiologists has been actively engaged in developing comprehensive guidelines and protocols for anaesthesia care. These guidelines aim to provide a framework for anaesthesiologists to adhere to, ensuring that patients receive high-quality care irrespective of the location of the procedure. Through the implementation of these protocols, the ISA endeavours to reduce complications, enhance patient safety, and improve the overall quality of anaesthesia care.

A key challenge is also the disparity in the infrastructure of private and public hospitals. Public healthcare facilities in rural areas often struggle with outdated equipment, insufficient staff, and suboptimal working conditions, making it more difficult to maintain high standards of anesthesia care. Bridging this gap between urban and rural healthcare systems is vital for ensuring equitable access to quality anesthesia services.

THE GROWING COMPLEXITY OF SURGICAL PROCEDURES

As medical science advances, surgical procedures are becoming increasingly sophisticated and complex. The integration of new technologies and techniques in surgery has led to more intricate procedures, often requiring specialized anesthesia techniques. This heightened complexity presents a unique challenge to anesthesiologists, as they must stay abreast of the latest developments in medical technology, surgical techniques, and anesthesia practices.

Anaesthesiologists are entrusted with the provision of safe and efficacious anaesthesia care for these high-risk surgical procedures. This necessitates extensive training, advanced competencies, and the capacity to swiftly adapt to the specific requirements of each case. The increasing complexity of surgical interventions also elevates the risk of complications, rendering it imperative for anaesthesiologists to be equipped with the requisite knowledge and expertise to manage these situations effectively.

To meet this challenge, anesthesiologists in India are encouraged to pursue continuous professional development. This includes attending workshops, conferences, and specialized training programs to keep their skills and knowledge current. Simulation-based training has also gained traction as a valuable tool for improving the competence of anesthesiologists. Through simulation, anesthesiologists can practice handling a variety of clinical scenarios in a risk-free, controlled environment, enhancing their decision-making abilities and reducing the likelihood of errors in real-world situations.

THE OPIOID CRISIS AND PAIN MANAGEMENT

The opioid epidemic presents a significant challenge to the future of anesthesia in India. The overuse and misuse of opioids have become a major public health issue, leading to widespread addiction and overdose deaths. Anesthesiologists, as primary prescribers of opioids for postoperative pain management, play a pivotal role in mitigating this crisis.

In India, a significant proportion of the population is affected by opioid addiction, necessitating proactive measures from anaesthesiologists to manage pain without exacerbating the ongoing epidemic. This situation requires the implementation of novel pain management strategies that minimise reliance on opioids. Alternative approaches, such as regional anaesthesia, acupuncture, and physical therapy, are gaining prominence as efficacious options for pain management with reduced adverse effects. Furthermore, opioid-sparing techniques are being advocated, including the utilisation of non-opioid analgesics and enhanced recovery after surgery (ERAS) protocols, which emphasise optimising pain management and expediting recovery without excessive dependence on narcotic medications.

Anesthesiologists must also educate patients about the risks associated with opioid use and explore non-pharmacological methods for pain management whenever possible. This shift towards more holistic and sustainable pain management strategies is critical in addressing both patient needs and public health concerns related to opioid misuse.

EMERGING OPPORTUNITIES FOR INNOVATION IN ANESTHESIA

While the challenges in anesthesia care are significant, they also present numerous opportunities for innovation and growth. The integration of advanced technologies is one such opportunity that has the potential to revolutionize anesthesia practice in India.

Artificial Intelligence (AI) and Machine Learning (ML): One of the most promising developments in the field of anesthesia is the use of AI and ML. These technologies can help analyze vast amounts of patient data, identify patterns, and make predictions about patient outcomes. AI-driven algorithms can assist anesthesiologists in making more informed decisions, enabling them to tailor anesthesia plans to individual patients, thereby improving safety and outcomes. The potential for AI to enhance precision in anesthesia delivery is particularly relevant in high-risk surgeries where accurate predictions can mitigate the chances of complications.

Advanced pain management technologies: Another area of innovation is the development of new technologies for pain management. Non-invasive techniques like transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS) are showing promise in reducing postoperative pain. These technologies offer viable alternatives to opioids, providing effective pain relief without the associated risks of addiction. The adoption of these novel pain management strategies can significantly reduce the burden of opioid misuse and enhance recovery after surgery.

Virtual Reality (VR) and Augmented Reality (AR): The use of virtual and augmented reality in anesthesia is another exciting development. VR and AR technologies can be used to create immersive, interactive environments for patients, helping to reduce anxiety and stress before and during surgical procedures. By calming patients and providing a sense of control, VR and AR can improve overall patient experience and contribute to faster recovery times and fewer complications. This innovation also holds potential for training anesthesiologists, allowing them to practice complex scenarios in a virtual setting.

EMBRACING THE FUTURE OF ANESTHESIA

The future of anesthesia in India presents both significant challenges and promising opportunities. The growing demand for surgical procedures, the shortage of anesthesiologists, and the increasing complexity of medical cases are key obstacles that the field must overcome. However, these challenges also present opportunities for innovation, particularly with the introduction of AI, new pain management technologies, and VR/AR applications.

Anesthesiologists in India must embrace these advancements, continuously improve their skills, and adapt to the changing landscape of healthcare. By addressing the challenges of workforce shortages, inconsistent care standards, and the opioid crisis, while capitalizing on the potential of emerging technologies, the field of anesthesia can ensure improved patient outcomes and shape a bright future for both patients and healthcare professionals in India.

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THE MIND-GUT CONNECTION

Stress is a ubiquitous term in every person's daily life now. Percolating our daily routine from getting up in the morning to reaching school, college, work place at time to keep up with the fast-pacing world and performing better, stress is everywhere. Disorders such as depression, Parkinson's disease, Alzheimer's are amongst the most agonizing challenges afflicting us. Unlike other chronic diseases like diabetes, obesity, metabolic syndrome, and cardiovascular disease, the rise of these disorders hasn't followed a straightforward trajectory and their diagnosis is never easy and they are often underreported. Nevertheless, research has found that a common factor in metabolic, cognitive, psychiatric and neurological diseases is the gut microbiome. In simple terms microbiota refers to assemblage of microbes in a defined ecosystem, hence if living within the gut are called gut microbiota and microbiome refers to collection of all genomes of microbes including bacteria, viruses, fungi, archaea, protozoa. The Human Microbiome project was initiated by the U.S National Institutes of Health launched in October 2007 with the goal of identifying and characterizing the microorganisms living in coexistence with the humans. It was designed to understand how microbes contribute to our normal physiology and disease predisposition.

Not all microorganisms are bad...

Every organ system in a human body has its own microbiome. A healthy Digestive tract or Gut has microbiota strains of lactobacillus, streptococcus, staphylococcus, Enterobacteriaceae, bifidobacterium, bacterioids and Peptostreptococcus to name only a few. The current understanding of the gut microbiome is that it differs from one person to another by virtue of population, geography and time zone. Important features of a healthy gut microbiome are its richness, diversity, stability and resilience in one person. Richness in this context refers to the total number of bacterial species present, while diversity is a measure of how evenly these species are distributed. If a gut microbiome can remain stable and can resist perturbation by pathogens, antibiotics or a transient change to an unhealthy diet and is resilient enough to quickly return to its normal state afterward, it is generally considered healthy. The symbiosis between the microbes and their hosts that developed in its simplest form millions of years ago continues in our bodies today. Microbes gain by being able to live a privileged life in our intestines which comes with constant supply of food, moderate temperatures, and unlimited free travel. In exchange, the microbes provide us with essential vitamins, metabolize digestive compounds known as bile acids, detoxify foreign chemicals that our bodies have never experienced- so-called Xenobiotics. More importantly they assist in digestion by breaking complex sugar molecules and dietary fibre and providing us with substantial additional calories that would otherwise be lost in stool.

The Gut-Brain nexus-

The brain or mind responds to various psychological influences, whereas the gut and its microbiome respond to what we eat, the medications we take, to infectious organisms. The entire system functions like a supercomputer which integrates vast information from the environment and from within our body to generate optimal digestive and brain functions. The gut and the brain are closely linked through bidirectional signalling pathways that include nerves, hormones and inflammatory molecules. Rich sensory information generated in the gut reaches the brain (gut sensations) and the brain sends signals back to the gut to adjust its functions (gut reactions). The close interactions of these pathways play a crucial role in the generation of emotions and in optimal gut function. The two are intricately linked. Our gut is a mirror of our emotions. As emotions as closely reflected in facial expressions, similar patterns can

be observed in our digestive tract under influence of nerve signals generated from the limbic system, commonly called the “emotion centre” of the brain. In response to any perturbation of an individual's normal mental balanced state such as stress, the brain mounts a coordinated response aimed at optimizing the individual's well-being and survival. Stress-induced corticotropin releasing factor (CRF), secreted by the hypothalamus is the master switch which sets the stress response in motion and is associated with release of stress hormones like cortisol, norepinephrine from the adrenals. This process also stimulates a stress-induced gut reaction that impacts the composition and activity of gut microbiota. Stress changes frequency of contractions and peristalsis throughout the gut, influencing the time it takes for the contents to travel through different regions and in turn affecting the habitat and food supply of the microbes. When we feel depressed and everything in the gut slows down, microbes sense these changes and activate genes that help them adapt to those shifting conditions. Diarrhoea ensues anxiety as it causes the gut to contract more forcefully and propel ingested food faster throughout its length. Stress-induced secretion of various digestive juices disturbs the normal flora of the gut, leading to drop in lactobacilli (a protective genus) and proliferation of pathogenic microbes like Shigella, E. coli. Norepinephrine makes such invaders more aggressive and persistent. On the contrary, a content and gleeful state of mind releases happy hormones like oxytocin, endorphins. These hormones have their own characteristic patterns of gut contractions, secretions and blood flow. They have a positive gut-to-microbe signals and signals associated with happiness or affection leads to increase gut microbial diversity, improve gut health, and protect us from gut infections and other diseases.

How to target the microbes for a holistic well-being …

Musing over the pivotal role of these minuscule beings in our overall health we should adapt small changes in our lifestyle to preserve them for our betterment.

-aim to maximise gut microbial diversity by regular intake of naturally fermented foods and probiotics. (E.g. Curd)

-avoid animal fat in regular diet and processed food, this reduces the inflammatory potential of the gut microbiota.

-eat smaller servings at meals

-be mindful of prenatal nutrition

-practicing meditation and mindfulness and seeking professional help when needed

-Avoiding eating when stressed, angry or sad

-Enjoying the secret pleasures of eating together and social aspects of food.

-Finally, becoming an expert in listening to our gut feelings.

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THE RACE AGAINST CANCER

Very firstly when a patient visits the Hospital due to some abnormal symptoms in his body and he hears the word "BIOPSY" and "TUMOR" from the health professional the amount of fear he gathers in his eyes and heart, is undoubtedly inexpressible. Slowly and steadily, he turns into a Cancer Patient. The innocent person almost loses the battle there itself, not only affecting him personally rather his whole family. He starts counting his days and remembering the cheerful moments of his life. So basically, that is the fear what becomes the major cause of the person's death. In the Bollywood classic blockbuster "Anand," it shows how the protagonist Superstar Rajesh Khanna even after knowing he has just some few months left in his life, he lives his to the fullest. He starts interacting with a greater number of people he meets; he shares happiness and laughs at his death. Very easily he gave the way to fight with the disease and that is to keep ourself happy at every worst situation.

Each year in the country there are innumerable of cases coming to the spotlight not just common faces even big personalities could not keep themselves safe from this upcoming pandemic. Well, it is true that in the coming years it would replace cardiovascular diseases which is the currently the major life taking cause. Cancer is alive. It is a normal cell, mutated and changed, and it continues to change in the body. Unfortunately, a Cancer drug does not mutate or change. A Drug may poison or starve the Cancer for a time, but whatever Cancer cells remain will continue to mutate. It only takes one. The Drug dances with Cancer, but Cancer dances away. As a result, these types of drugs are unlikely to ever truly cure Cancer. But we have killers in our body and scouts and soldiers, a dynamic network of cells nimbler than any Cancer. This is our Immune System, a living defence as old as life itself. This system mutates. It adapts. It learns and remembers and matches an innovating disease step by step. Its our best tool to cure Cancer. Why does not the Immune system fight Cancer already? The answer is, it does, or tries to. But Cancer uses tricks to hide from the Immune System, shut down our defences, and avoid the fight. We do not stand a chance, unless we change the rules. Cancer Immunotherapy is the approach that works to defeat the tricks, unmask Cancer, unleash the Immune system, and restart the battle. It differs fundamentally from the other approaches we have to Cancer, because it does not act upon Cancer at all, not directly. Instead, it unlocks the killer cells in our own natural immune system and allows them to do the job they are made for. Cancer is us. It is the mistake that works. Cells in the body regularly go rogue, their chromosomes knocked out by particles of sunlight or toxins, mutated by viruses or genetic, age or sheer randomness. Most of these mutations are fatal to the cell, but a few survive and divide. Cancer is different. It does not announce itself like the Flu or any other disease, or even a splinter. It does not seem to sound as an alarm in the house of the body, or provoke an immune response, or show symptoms of immune battle: no Fever or Inflammation or Swollen Lymph Glands, not even a sniffle. Instead, the Tumor is suddenly discovered, ana unwelcome guest that has been growing and spreading out, sometimes for years. Often by then its too late. Until very recently we have had three main methods for treating Cancer. We have had Surgery for at least three thousand years. We added Radiation Therapy in 1896. Then in 1946, Chemical Warfare Research led to the use of Mustard gas derivative to kill Cancer cells. Those poisons were the foundation for Chemotherapy. Our Immune System has evolved over 500 million years ago into a personalised and effective natural defence against disease. It is a complex biology with a seemingly simple mission: to find out and destroy anything that is not a part of our body. Cells of the Immune system are on constant patrol, hundreds of millions of them circulating throughout the body, slipping in and out of the organs, searching out and destroying invaders that make us sick and body cells that have become infected, mutated, or defective cells like Cancer. But throughout history, Physicians had recorded rare cases of patients whose cancers apparently cured

themselves. For more than a hundred years researchers tried and failed to replicate those miracles through medicine, to vaccinate or spark an immune response to cancer like those against other formerly devastating diseases like Polio, Smallpox, or the Flu. There were glimmers of hope, but no reliable treatments. But there seems a ray of hope now. Various pharmaceutical companies are now working day and night to have a solution to knock out this evil from mankind. One such weapon is CAR-T Cell Therapy. As their name implies, T cells—which help orchestrate the immune response and directly kill cells infected by pathogens—are the backbone of CAR T-cell therapy. CAR T cells are the equivalent of "giving patients a living drug," explained Renier J. Brentjens, M.D., Ph.D., of Memorial Sloan Kettering Cancer Center in New York, another early leader in the CAR T-cell field. However the CAR T cell therapy is not that cost worthy in other words it is highly expensive and not that available. Currently available CAR T-cell therapies are customized for each individual patient. They are made by collecting T cells from the patient and re-engineering them in the laboratory to produce proteins on their surface called chimeric antigen receptors, or CARs. The CARs recognize and bind to specific proteins, or antigens, on the surface of cancer cells. However, the side effects are Allergic reactions, Weakened Immune System, increased risk of getting another Blood Cancer. Another treatment procedure as mentioned above is Immunotherapy which uses substances made from living organisms to treat Cancer. It helps the Immune system to act better against Cancer. Immunotherapy can cause side effects, many of which happen when the immune system that has been revved-up to act against the cancer also acts against healthy cells and tissues in your body. Another most common treatment lies with Chemotherapy which is mostly used to battle against Cancer. Chemotherapy is a drug treatment that uses powerful chemicals to kill fast-growing cells in your body. Chemotherapy is most often used to treat cancer, since cancer cells grow and multiply much more quickly than most cells in the body. Many different chemotherapy drugs are available. Chemotherapy drugs can be used alone or in combination to treat a wide variety of cancers. Though chemotherapy is an effective way to treat many types of cancer, chemotherapy treatment also carries a risk of side effects. Some chemotherapy side effects are mild and treatable, while others can cause serious complications. Photodynamic therapy is another treatment to destroy the growth of abnormal cells. When cells that have absorbed photosensitizers are exposed to a specific wavelength of light, the photosensitizer produces a form of oxygen, called an oxygen radical, that kills them. Photodynamic therapy may also damage blood vessels in the tumor, which prevents it from receiving the blood it needs to keep growing. And, it may trigger the immune system to attack tumor cells, even in other areas of the body. And Surgery lies the most common treatment to defeat or stop Cancer cells from Metastasis.

So, there are various ways to control Cancer or to defeat it. It all requires is lack of fear to fight this battle and the support of our kith and kins. Its not a personal battle anymore it is the global battle against an evil whose main moto is to eradicate the humanity, it is the battle of billion lives which needs cooperation. And last but not the least is to never hide any sort of signs from our beloved ones. The more you hide the fiercer it will grow. Ultimately you will have to lose yourself, it is up to you choose life or privacy.

“Cancer is just a chapter in our lives and not the whole story.”

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UNLOCKING VITAMIN C'S ANALGESIC POTENTIAL IN PAIN MANAGEMENT

Vitamin C is a potent antioxidant and has demonstrated numerous health benefits, ranging from enhancing immune function to protecting against oxidative stress. It has solidified its position as an essential nutrient in maintaining overall health and wellbeing. This groundbreaking discovery has sparked interest in vitamin C's potential as a natural pain reliever, offering new hope for individuals seeking alternatives to traditional and conventional pain management methods. Through a comprehensive review of existing studies and expert perspectives, this micro-review aims to shed light on the therapeutic potential of vitamin C in alleviating pain and transforming pain management.

The science behind vitamin C's analgesic effects

By influencing the body's pain-processing pathways and reducing inflammation, vitamin C has been shown to effectively mitigate pain intensity and duration, offering a promising adjunct to conventional pain therapies. By modulating neurotransmitter activity and reducing oxidative stress, vitamin C may help to break the cycle of chronic pain, providing relief for individuals suffering from debilitating conditions such as fibromyalgia, arthritis, and neuropathic pain.

The benefits of Vitamin C in Pain management

These findings suggest that vitamin C may be a valuable adjunctive therapy for managing chronic pain, offering a safe and effective alternative to traditional pain medications.By reducing pain intensity, modulating neurotransmitter activity, and mitigating oxidative stress, vitamin C offers a multifaceted approach to pain management, providing a natural and complementary therapy for individuals suffering from chronic pain like:

- Reduced pain intensity: Vitamin C has been shown to decrease pain intensity in individuals with chronic pain.

- Improved quality of life: Vitamin C supplementation has been linked to improved quality of life, reduced disability, and enhanced overall well-being.

- Antioxidant effects: Vitamin C's antioxidant properties help mitigate oxidative stress, a key contributor to chronic pain.

Implications for Pain Management

As a natural, non-invasive, and cost-effective alternative to conventional pain medications, vitamin C has the potential to revolutionize the treatment of chronic pain and improve the quality of life for millions of people worldwide. By incorporating vitamin C into a comprehensive pain management plan, individuals can potentially minimize their exposure to opioids and other habit-forming medications, while also addressing the underlying inflammatory and oxidative stress components of chronic pain.

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UNRAVELING BONE LOSS FROM A MULTIDIMENSIONAL PERSPECTIVE

ABSTRACT

Bone is a hard tissue that forms the structural framework of the human body. In the oral cavity, alveolar bone exhibits a high turnover rate and complex associations with the teeth and periodontium. It is susceptible to oral pathogenic insults and mechanical stress, which contribute to its involvement in host defense and bone remodeling processes. Osteoblasts are responsible for bone formation, while osteoclasts are specialized cells involved in bone resorption and are derived from progenitor cells. Proper communication among different bone cells is essential for the coordinated bone formation and resorption required for normal physiological bone remodeling.

To compile this paper, a comprehensive search of articles and research papers was conducted utilising databases such as PubMed and Google Scholar. Keywords including bone loss, periodontitis, and pathological bone remodelling were employed to gather relevant literature. Dysregulation of bone remodelling, resulting in an imbalance with excessive osteoclastic activity compared to osteoblastic processes, is a common aetiology of bone loss. In addition to periodontitis, other factors such as metastatic lesions can also contribute to tooth mobility. Identification of systemic diseases can be inferred from osseous destruction in the primary dentition in the absence of local factors.

Advancements in the utilisation of oral fluids as biological samples for objective assessment of disease state, treatment monitoring, and prognostic indicators have propelled saliva and other oral-based fluids to the forefront of technology. Machine learning techniques have demonstrated promise in accurately assessing bone loss. Periodontal health is influenced by various factors including oral hygiene, genetic and epigenetic factors, systemic health, and nutrition. Balanced nutrition plays a crucial role in maintaining periodontal health.

The utilisation of laser technology, either as an adjunct to surgical therapy or as a standalone treatment, has yielded mixed results in the literature. Nanoparticles, with their small size and large surface area, can serve as carriers for drug delivery, growth factors, and genetic material, thereby holding potential in oral healthcare. Artificial intelligence can also be harnessed in tissue regeneration, including bone regeneration. As technology continues to advance, it is imperative to explore efficient, sustainable, and feasible approaches for the diagnosis, treatment, and preservation of teeth.

INTRODUCTION

Bone serves as the robust framework that shapes the skeletal structure of the human body. Its vital functions encompass providing support, maintaining ionic balance, offering protection, and securing organs, among others. Within the maxillofacial region, the mandible and maxilla are the primary bones responsible for forming a significant portion of the face. These bones also house the teeth securely through their alveolar processes, which create sockets for the 32 teeth. Connecting the teeth to the bone is the fibrous periodontal ligament, forming a resilient system that absorbs shocks resulting from the forces generated during mastication. The bone undergoes constant remodelling facilitated by osteoblasts and osteoclasts in response to tensile and compressive forces. Precise regulation of the

balance between these cell types ensures synchronised bone resorption and formation, preserving the structural integrity and homeostasis of bone tissue. However, when bone remodelling becomes dysregulated, it can lead to pathological osteolysis, a condition in which inflammation plays a crucial role in promoting bone destruction.

The alveolar bone, with its high turnover rate, exhibits intricate connections with the tooth and periodontium, making it susceptible to oral pathogens and mechanical stress. These factors contribute to its complexity in terms of both host defense and bone remodeling. Various factors, including periodontal disease, orthodontic treatment, implants, osteomyelitis, osteoporosis, and pathological lesions such as cysts and tumors, can result in bone loss in the alveolar processes.

METHODS

To gather pertinent information on pathological bone loss in the alveolar bone, comprehensive searches were conducted utilising prominent academic databases such as PubMed and Google Scholar. The keywords employed in the search included "bone loss," "periodontitis," and "pathological bone remodelling." The focus was primarily on accessing systematic review papers, case reports, and cross-sectional studies that could provide substantive insights into the subject matter. However, it is noteworthy that this article did not incorporate longitudinal studies or clinical trials as part of its research methodology.The article is subdivided under following headings:-

1) Physiological bone remodeling
2) Alveolar bone:- what makes it different from limbic bones?
3) BONE LOSS(ALVEOLAR BONE)ETIOPATHOGENESIS- HOW , WHO , WHEN ?
4) ALVEOLAR BONE LOSS :- LOCAL SCENARIO
5) Diagnosis :- CAN YOU DETECT ALVEOLAR BONE LOSS EARLY ?
6) HOW TO PREVENT IT ?
7) Treatment :-CAN A HOPELESS TOOTH WITH ADVANCED BONE LOSS ,BE SAVED?
8) PERSPECTIVE OF INNOVATION:- WHAT'S NEW?
9) DISCUSSION
10) CONCLUSION
11) REFERENCES

PHYSIOLOGICAL BONE REMODELING

Bone is formed by the osteoblasts and resorbed by specialized cells called osteoclasts,born from progenitor cells. Preosteoblasts, osteoblasts, osteocytes, and bone lining cells all arise from the osteogenic line of cells, which, in turn, arise from primitive mesenchymal cells in bone marrow stroma and from pericytes adjacent to connective tissue blood vessels(13). Their differentiation requires activation of the Osf2/Cbfa gene, which activates expression of osteocalcin, bone sialoprotein (BSP), osteopontin (OPN), and collagen synthesis, and is followed by stimulation from bone morphogenetic protein- (BMP-) 2 and transforming

growth factor beta (TGF-β) (14). Besides their primary role in bone formation, osteoblasts express chemokines, prostaglandins, and growth factors (e.g., BMPs, TGF-β, colony-stimulating factor- (CSF-) 1, granulocyte colony-stimulating factor (G-CSF), basic fibroblast growth factor (basic FGF), and insulin-like growth factor (IGF)) with autocrine, self-regulatory, and/or paracrine activity that regulate osteogenic as well as osteoclastic cells(15-17) . Osteoblastic cells have a major influence on the environmental responsiveness of osteoclasts through localisation, induction, stimulation, and inhibition of resorption(18) .To accomplish normal physiological bone remodeling, the proper coupling of bone formation and bone resorption requires direct communication among different bone cells. Cells of the osteoblast lineage (osteoblasts, osteocytes, and bone-lining cells) and bone-resorbing cells (osteoclasts), together with their precursor cells, are organized in specialized units called bone multicellular units (BMU)(2). The remodeling cycle is composed of seven sequential phases, namely, quiescence, activation, resorption, reversal, formation, mineralization, and termination. Activation precedes resorption, which precedes reversal, with termination as the last step (2). There are many factors responsible for the maintenance of the homeostasis between bone formation and bone resorption. These includes endocrine system (parathyroid hormone, glucocorticoids, thyroid hormone, growth hormone), growth factor regulators (bone morphogenetic proteins, transforming growth factors, epidermal growth factors, fibroblast growth factors).

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HOMOEOPATHY IN INDIA: A POPULAR YET CONTROVERSIAL ALTERNATIVE MEDICINE

Introduction

Homoeopathy, a system of alternative medicine developed in the late 18th century by Dr Christian Friedrich Samuel Hahnemann, has found a strong foothold in India. Based on the principle of "like cures like," homoeopathy is widely practiced and accepted as a form of treatment for various ailments. Despite its popularity, it remains a subject of debate, with proponents praising its holistic approach and critics questioning its scientific validity.

Principles of Homoeopathy

Homoeopathy is founded on two core principles:

1. The Law of Similars: This principle suggests that a substance that produces symptoms in a healthy individual can cure those same symptoms in a sick person. For example, onions, which cause watery eyes, are used in homoeopathic remedies for allergies.

2. The Law of Infinitesimals: Homoeopathic remedies are prepared through a process of serial dilution and succussion (vigorous shaking). The more a substance is diluted, the more potent it is believed to become. Many homoeopathic remedies are diluted to the point where no molecules of the original substance remain.

Homoeopathy in India: A Historical Perspective

Homoeopathy was introduced to India in the early 19th century and gained popularity due to its non-invasive nature and affordability. The Central Council of Homoeopathy (CCH), established in 1973, regulates homoeopathic education and practice in India. The advent of 21st century gave clarity to science in the field of quantum mechanics and concepts of interdisciplinary sciences and thus gave hope to the realization of understanding the phenomenon of homoeopathic medicine and its mode of action in a living system. Today, India is one of the largest markets for homoeopathic medicine, with over 200,000 registered homoeopathic practitioners and numerous homeopathic colleges and hospitals.

Efficacy and Scientific Scrutiny

The efficacy of homoeopathy has been a subject of intense debate globally, including in India. Critics argue that its principles defy established scientific knowledge, particularly in chemistry and physics. The extreme dilutions used in homoeopathic remedies often result in solutions that are chemically indistinguishable from plain water.

In India, the Indian Council of Medical Research (ICMR) and other scientific bodies have called for more rigorous research to evaluate the effectiveness of homoeopathy. While some studies conducted in India have reported positive outcomes, the overall scientific consensus remains skeptical.

Controversies and Criticisms

1. Lack of Scientific Basis: Homoeopathy's mechanisms are not supported by modern scientific understanding. The idea that water retains a "memory" of substances it once contained has no empirical evidence.

2. Ethical Concerns: Critics argue that promoting homoeopathy as a treatment for serious illnesses can deter patients from seeking evidence-based medical care, potentially endangering lives.

3. Regulatory Challenges: In India, homoeopathic products are sold alongside conventional medicines, often without rigorous testing or labelling requirements, leading to confusion among consumers.

Proponents' Perspective

Supporters of homoeopathy in India argue that it offers a holistic approach to healing, addressing the root cause of illness rather than just symptoms. They claim that homoeopathy is safe, non-toxic, and effective for a wide range of conditions, including chronic illnesses and mental health issues. Many patients report positive experiences, which they attribute to homoeopathic treatment, though placebo effects and natural recovery may play a role.

Government Support and Integration

The Indian government has been supportive of homoeopathy, integrating it into the national healthcare system. The Ministry of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy) was established in 2014 to promote alternative medicine systems, including homoeopathy. The government also runs homoeopathic dispensaries and hospitals, making it accessible to a large population.

Current Status and Future Directions

Despite the controversy, homoeopathy remains popular in India, with millions of people relying on it for their healthcare needs. In recent years, there have been calls for more rigorous scientific research to either validate or debunk its claims. The future of homoeopathy in India may lie in bridging the gap between traditional practices and modern scientific methods.

Conclusion

Homoeopathy occupies a unique place in India's healthcare landscape. While its principles and practices are at odds with conventional science, its popularity persists. As the debate continues, it is essential for patients to make informed decisions and for the scientific community to maintain an open yet critical approach to evaluating its efficacy.

Bibliography:

1. Scientific framework of Homoeopathy (2021). Central Council For Research in Homoeopathy, page 167.

2. Hahnemann, S. . . Organon of the Medicine 5th & 6th (Ed.). B Jain Books.

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PANCHAKARMA THERAPY FOR OLDER PERSONS

A*yurveda,* the science of life originated in India. It has undergone a remarkable journey of transformation throughout its rich history. Ayurveda differs from western medicine in the healing and prevention process which is based on the principles of promotion of health, rather than elimination of disease. On the other hand, Ayurveda has interventions and procedures that improve physiological processes, which can influence metabolic and immunological status. Charaka and Sushruta Samhita are the two ancient texts of Ayurveda, which defines health as a condition where the body is free from toxins and organs functions normally. With the body one's mind remains in peace and emotions in calm and happy.

The two primary elements in Ayurvedic treatment are Panchakarma and Ayurvedic medicines. **Panchakarma in Ayurveda** means five actions. It consists of five specific procedures, designed to eliminate *Doshas*(body humors), facilitating the removal of body's toxins from each cells and tissues. Panchakarma procedures contribute to the promotion of overall health and the prevention of diseases. Thereby, strengthening immune system for restoring the health and well-being of an individual. Depending one's need all or part of five therapies are utilized. For the most part Panchakarma is a comfortable therapy, even there can be periods of discomfort due to release of deep seated toxins called as "Healing Crisis".

Jarāchikitsā is one among *Ashtānga(*Eight) *Ayurveda,* which is concerned with the treatment of various *Jarāvyādhis* (Geriatric diseases) and care of the old-age persons. Following the procedures of Panchakarma therapies, Ayurvedic oral medicines are administered to enhance the therapeutic effects. Geriatric care can be made safe and cost-effective with Ayurvedic *Panchakarma* therapy as it is more effective towards the ailments of Neuromuscular, Metabolic, Musculoskeletal, Endocrine origins like Osteoarthritis, Insomnia, Parkinsonism, Dementia etc. The specially designed five procedures of *Panchakarma* are unique in nature which does purification of *Kapha* through *Vamana*(Emesis), *Pitta* through *Virechana*(Purgation), *Vata* by *Basti*(Enema), head through *Nasya*(Nasal Instillation) and removing vitiated blood through *Rakta Mokshana*(Blood letting including Leech therapy) which helps in treating diseases. Geriatric Panchakarma may use a range of external therapeutic techniques to achieve the benefits like oil massage, medicinal powder massage or herbal steam therapy, which are used to prepare the body for the five main procedures. Rejuvenation techniques in Ayurveda called as *Rasayana (r*ejuvenation therapy). *Shirodhara* or pouring medicated oils on the forehead, and *Abhyanga* or full-body massage, are used to complete the treatment process. Ayurvedic texts mention that a foot massage and head massage induces good sleep and keeps eye sight good. According to scientific investigations, the methods of detoxification, appears to help in eliminating chronic diseases. These fivefold therapies are known for their ability in calming the nervous system which can reduce stress and anxiety levels. These therapies are often soothing, gentle, promotes deep relaxation and emotional well-being. By eliminating toxins and restoring balance to the body humors, Panchakarma helps stabilise emotions and effectively alleviates mood swings, irritability, and other imbalances resulting, in profound sense of inner peace and contentment.

Panchakarma can improve cognitive function and mental performance by balancing the flow of blood and life force energy to the brain, enhancing the brain clarity, concentration and boosts memory.

Public health concerns can be done if *Panchakarma* is well supported with strong scientific evidence and confirmation. Nowadays, questions regarding the role of Ayurveda in Public health are discussed widely. It is a compendium of therapies that are highly individualized based on the one's *prakriti* (constitution type), imbalances (if any), digestive fire, age, immune status, health conditions and many other factors. Conventional medical therapy may not have health promoting agents for prevention of geriatric disorders. Thus, *Panchakarma* therapy can fulfil the needs of healthy elderly as well as diseased individuals. So, it is the ultimate detoxification of body, mind and soul.

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BALANCING THE SATVIC LIFESTYLE WITH FAMILY NEEDS

The Satvic lifestyle, rooted in ancient yogic philosophy, emphasises simplicity, purity, and harmony in all aspects of life. It promotes practices such as consuming fresh, plant-based foods, performing yoga, pranayama, and maintaining mental clarity through meditation. While adopting this lifestyle can bring numerous health benefits, integrating it into a family dynamic often poses challenges. Each family member may have different dietary preferences, schedules, and comfort levels with change. However, with thoughtful planning and gradual implementation, balancing the satvic lifestyle with family needs is achievable and rewarding.

Transitioning to a satvic lifestyle doesn't require a complete overhaul of your family's routine. Begin by incorporating small changes, such as replacing processed snacks with fresh fruits, nuts, or home made alternatives. Gradually introduce satvic meals like khichdi, vegetable soups, or simple salads into your weekly menu. Avoid pushing the lifestyle onto family members; instead, lead by example and highlight the benefits you experience, such as improved energy levels and mental clarity.

One of the core principles of the satvic diet is simplicity and purity, avoiding over spicy or processed foods. To make these meals family-friendly, focus on flavours that appeal to everyone. Use natural spices like cumin, coriander, and turmeric sparingly to enhance taste without overwhelming it. Prepare satvic versions of family favourites—such as vegetable pulao, dal, or pasta with fresh tomato sauce—to bridge the gap between tradition and satvic principles.

Involve family members in meal preparation. Kids, for instance, are more likely to eat fruits and vegetables if they help select and prepare them. Share the purpose behind satvic food choices, emphasising the health benefits rather than imposing restrictions.

Adapt Yoga and Mindfulness Practices for All Ages

Yoga and mindfulness are integral parts of the satvic lifestyle. While advanced asanas or meditation may not suit everyone, there are ways to adapt these practices for the whole family. For younger children, make yoga fun by introducing simple poses like the tree pose or downward dog. Create a family mindfulness session, where everyone takes five minutes to breathe deeply and focus on the present moment.

Encourage morning or evening yoga sessions, even if it's just a quick stretching routine. Over time, these practices will become a shared activity that strengthens family bonds and promotes overall well-being.

Balance Individual Needs with Collective Goals

Every family member has unique preferences and needs. While you may embrace the satvic lifestyle fully, others might prefer a more gradual approach. Respect their choices while gently encouraging healthier habits. For instance, if some family members prefer non-satvic meals occasionally, balance those with satvic options during other times. Flexibility is key to maintaining harmony while gradually introducing a healthier lifestyle.

Create a Supportive Environment

Make the satvic lifestyle more accessible by keeping fresh fruits, vegetables, and nuts readily available. Avoid stocking processed snacks to minimise temptation. Educate family members about the benefits of satvic living through books, videos, or shared discussions.

Conclusion

Balancing a satvic lifestyle with family needs requires patience, creativity, and open communication. By making small inclusive changes and respecting individual preferences, you can create a harmonious environment where everyone enjoys the benefits of a healthier, more mindful way of living. Leading with compassion and flexibility ensures that the transition is not only smooth but also sustainable.

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REHABILITATION SERVICE IN INDIA

Rehabilitation services are a crucial aspects of healthcare focusing on restoring the independence, function and quality of life for individuals who have experienced physical or mental health challenges. In India rehabilitation service are gaining recognition with specific emphasize on physiotherapy occupational therapy prosthetics and orthotics and BSALP (Bachelor of audiology and speech language pathology) program. These services plays a vital role in improving the lives of individuals with disabilities injuries or medical conditions that affect their daily functioning. Physiotherapy is one of the most common rehabilitation services used in India for individuals recovering from injuries strokes or managing chronic conditions. They are trained to access physical impairments and movement disorders and treat them using various techniques aimed at restoring physical function and relieving pain.

Despite growing demand; there is a lack of qualified physiotherapist in rural and remote areas. Many patients are unaware of the be benefits of physiotherapy leading to delayed treatment, like that occupational therapy focuses on helping individual of all ages achieve independence in daily living activities particularly for those with physical sensory or cognitive impairment. Therapist help clients improve motor skills cognitive abilities and mental health enabling them to perform everyday task such as eating dressing bathing or returning to work. Many healthcare facilities in India lack the necessary equipment and trained professionals to offer comprehensive occupational therapy services. Stigma surrounding disability often discourages families from seeking occupational therapy particularly in rural areas. Like that prosthetics and orthotics are essential components of rehabilitation for individuals who have lost a limb or have a congenital limb deficiency. Prosthetic involves the design fitting and maintenance of artificial limbs to restore mobility and function while orthosis focuses on the design and application of devices such as braces splints and supports to correct deformities or assist in rehabilitation after an injury, but due to high quality prosthetic limbs can be expensive often making them unaffordable for many in lower income groups. In many parts of India there is a shortage of centres that provide compressive prosthetic and orthotic services especially in rural areas many people are unaware of available prosthetic services or have limited assets to them due to geographical and economic barriers. The BAS LP program is a specialised undergraduate degree in India that trains professionals to access diagnose and treat speech language and hearing disorders.BASLP professionals play a vital role in the rehabilitation of individuals with communication and hearing impairments including children with speech delays adults recovering from stroke or elderly individual dealing with age related hearing loss. While the demand for speech therapist and audiologist is growing there is still a shortage of trained BASLP professional particularly in rural and undeserved regions. People often do not recognise speech and hearing disorders early leading to delayed interventions that could improve rehabilitation outcomes. It also includes many more members such as podiatrist it's specialised in the diagnosis and treatment of lower limb conditions common foot alignments and chronic medical conditions that affect the feet and lower limbs. Like that dietician also excess and treat on dietary and nutritional problems with their overall aim to promote good health and prevent diseases in individuals and communities. Clinical Psychology is also a part of rehabilitation which aims to reduce distress and to enhance and promote psychological wellbeing minimise exclusion and like that social workers is also a part which works in partnership with individuals families and groups experiencing

marginalization disadvantage social and for emotional difficulties. It also includes rehabilitation nurse feature of broad role in covering a range of rehabilitation issues including personal care activities of daily living short and long term health social independence issues and emotional support. There is a disparity in excess of rehabilitation services between urban and rural areas. While major cities may have specialist centres rural areas often lack the infrastructure and trained professionals to deliver high quality rehabilitation services particularly prosthetic devices and long term therapy can be more costly. Many individuals and lower income groups are unable to afford their services limiting their ability to access proper rehabilitation. Rehabilitation services particularly physiotherapy occupational therapy prosthetics and orthotics and BASLP program are indispensable components of healthcare in India to create a more inclusive and accessible healthcare system. It is vital to invest in expanding this services improving awareness and ensuring that rehabilitation options are available to all regardless of their geographic or economic status.

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CARE ON STORAGE AND STABILITY OF MEDICINAL PRODUCTS

A pharmacist has a duty of care to the patients he or she manufactures, dispenses or supplies medicines to, to ensure that those medicines and medical devices are both safe and effective and thus have not deteriorated due to the improper storage and stability of these products.

STABILITY:

The stability of a pharmaceutical preparation may be defined as the capability of a particular formulation, in a specific closure system to remain within its physical, chemical, microbiological, therapeutic and toxicological specifications. The assurance of stability of the packaged product is given on the basis of valid date involving selected parameters which taken to-gather forms the stability profile.

Stability of a drug can also be defined as the time from the date of manufacturing and packaging of the formulation, until its chemical & biological activity is not less than a predetermined level of labelled potency and its physical characteristics have not changed appreciably. So, a drug /medicine can be considered as usable as long as at least 90% of the label claim is available and the galenic properties meet the fixed requirements, the harmlessness of the occurring degradation product has been proved and the packaging is intact for use.

A. Factors affecting stability.

Many factors affect the stability of a pharmaceutical product including the stability of the active ingredients, potential interaction between the active and inactive ingredients, the manufacturing process, the dosage form, the container, liner-closure system and the environmental conditions encountered during shipment, storage, handling and length of time between manufacture and usage.

The modes of degradation of a Pharmaceutical Products may be classified as chemical, physical and biological (especially microbiological). Due to different chemical structure of pharmaceutical product the nature of chemical degradation has to be different.

I. Oxidation: The decomposition of pharmaceutical preparations due to oxidation is very common. Adrenaline, oil soluble and water-soluble Vitamins, volatile oils are some of the examples that oxidize.

a. Ascorbic Acid undergoes oxidation to De-hydro-ascorbic Acid. (Yellow to red) resulting formation of loss of activity.

b. lodide and Bromide undergo oxidation, liberate free lodine and Bromine.

c. Auto oxidation is the term applied to those processes that proceed slowly under the influence of atmospheric Oxygen.

Factors influence oxidation is pH, atmospheric and dissolved Oxygen, temperature & metallic impurities.

Some commonly used drugs sensitive to oxidation are:

i. Amikacin,
ii. Ascorbic Acid,
iii. Chlorpromazine & other Phenothiazines,
iv. Cyanocobalamin,
v. Dexamethasone,
vi. Epinephrine,
vii. Gentamicin,
viii. Heparin,
ix. Hydrocortisone,
x. Pentazocine,
xi. Resorpine,
xii. Riboflavin,
xiii. Streptomycin,
xiv. Kanamycin,
xv. Iscproterenol,
xvi. Methyl Dopa,
xvii. Metoclopramide,
xviii. Morphine, Neomycin,
xix. Penicillin,
xx. Vitamin A, D & E

- To reduce Oxygen content, boil water and allow it to cool in an atmosphere free of Oxygen.
- To protect against auto-oxidation where small amount of Oxygen is enough to initiate the degeneration, auto oxidant & chelating agents may be used.

II. **Hydrolysis/De-carboxylation:** This is a process of elimination of Carbon dioxide from a compound. Important groups of compounds liable to hydrolytic decomposition are the Esters and the Amides. Several Anaesthetics, Antibiotics, Vitamins, Barbiturates etc deteriorates due to hydrolytic breakdown.

The rate of hydrolysis depends upon pH, nature of solvent used and degree of complexations etc.

Amides, e.g., Sulphanilamide and Halogen derivatives; in presence of strong base like Ephedrine, releases Chlorine from the solvent Chloroform and Hydrochloric Acid.

III. **Absorption of Carbon dioxide:** The absorption of Carbon dioxide from atmosphere by pharmaceutical substances is more frequent occurrence than the loss of Carbon di oxide. Lead Sub Acetate and Calcium Hydroxide on storage becomes turbid due to the formation of insoluble carbonates. Also, nasal decongestants like Amphetamine also absorb Carbon dioxide from atmosphere.

IV. **Racemization:** Optically active substances can exist in two stereo- chemical forms, Levo & dextro-rotatory, having the same chemical composition when an optically active substance is racemized it is converted into a mixture of both forms which is optically inactive. As biological activity is usually greater in one stereo chemical form than the other, racemization constitutes a loss of activity. The rate of change is dependent on pH & temperature. The Levo form of Adrenaline is about ten times more active than dextro form and on racemization the potency is nearly halved. Atropine is the racemic form of (-) Hyoscyamine which is in general use.

Prednisolone, Hydrocortisone, Paraldehyde, Vi LA & D, Aneurine Hydrochloride, Ergometrine and Riboflavin are few photosensitive substances. In many cases, attack by atmospheric Oxygen occurs more readily after exposure to light.**Physical factors influencing chemical degradation:**

i. Temperature. Some pharmaceutical products with little rise of temperature, starts degrading, yielding degraded products and thereby reduce their activity. To prepare parenteral dosage form of such heat sensitive product alternative method other than the autoclaving has to be worked out. Before marketing such product in topical areas accelerated stability study needs to be carried out. in few cases, there is a tendency to accelerate decomposition at a low temperature, e.g. at a temperature below 15 degrees centigrade, Formaldehyde polymerizes and its activity to kill Bacteria gets reduced.

ii. Moisture: In some cases, Aspirin & Antibiotics e.g. Penicillin, Streptomycin & Tetracycline, there is a tendency to absorb moisture and get hydrolysed leading to Decomposition. While in some cases the presence of moisture increases the rate of oxidation, because of the availability of dissolved oxygen in water. Ferrous Sulphate crystals are more rapidly oxidized in moist air than dry surrounding. It is therefore necessary to manufacture such products in controlled humidity such products after manufacture should be packed in moisture resistant containers. It is also important to use such excipients, which do not absorb moisture while preparing dosage form out of such product.

iii. Light: Some pharmaceutical products when exposed to sunlight undergo degradation resulting instability. In some cases, instability is more due to the heat accompanying the sun's ray, as light in the form of energy can initiate & accelerate decomposition. A study to distinguish the heat and light effect is necessary in

order to determine whether a preparation should be stored below 20° C or protected from light. As the increased temperature can accelerate a thermal reaction, exposure of a light sensitive drug (photosensitive drug) to sunlight, supplies sufficient energy of activation to enable degradation of the product.

iv. Radiation: Pharmaceutical products usually do not come in contact with lionization radiation. But for many thermo labile compound lionizing radiation may be a useful tool for sterilization of thermo labile pharmaceutical products. The radiation treatment can also decompose many pharmaceutical products since the procedure also causes ionization in the irradiated material. The ions formed in the initial stage of the process are subsequently converted into atoms & free radicals which become involved in the chemical reactions. It was observed that using Gamma radiation (at the sterilizing dose) the sterilization of pharmaceutical products, e.g. Polymyxin Sulphate, Streptomycin Sulphate, Atropine Sulphate. Progesterone, Sulphonamide and biological products like Insulin and Heparin, the amount of decomposition varied from one product to another. Thus, in case of Progesterone, change of colour was observed, while in case of Insulin, there was complete loss of activity.

v. In some cases of light radiation by the drug is effective in producing photochemical reaction.

vi. In case of photochemical reaction, the rate of decomposition is independent of the temperature of the system. All Silver, Mercury, Gold salts, iodides, Bromides, Salicylates & Benzoates arelight sensitive. In order to protect any photosensitive product, dark glass bottles or amber colored bottles should be used for storing purpose.

Biological and non-biological products getting contaminated by microbial and affecting Stability: Various pharmaceutical dosage forms where contamination may take place during the process of manufacture. Microbiological contamination may play destructive role and may spill the products. The various dosage forms and possible microbial contaminations are stated below.

Manufacture of Antibiotics and other pharmaceutical products based on fermentation Technology may get contaminated if proper care is not taken during manufacture.

A. Oral dosage preparations:

i. If in any solid dosage form substances like Starch or any other naturally occurring binding agents are used without considering permissible limit of microbial organism then these may lead to substandard quality of drug. To avoid this type of phenomenon limit of microbial in each naturally occurring substances are specified.

ii. In liquid oral preparation a limit on the microbial count is prescribed. However, when microbial counts exceed this limit, the products become substandard.

iii. There are various sterile dosage forms viz. ophthalmic preparations, Small Volume Parenteral (SVP) and Large Volume Parenteral (LVP). Contamination may take place during the process of manufacture or from various inputs used in the formulation.

iv. Blood and Blood Products: Blood and Blood Products should be processed taking care that no microbial contamination takes place.

v. Medical Devices: Many Medical devices which need to be implanted in the body should be manufactured in sterile conditions. Encountering Microbial Contamination: Sterile dosage forms should be free from Microbial organisms. To achieve this objective, it is essential to follow guidelines of GMP.

a) All input raw materials to be used should be tested in accordance with the guide line set as per Standard Operating Procedure of GMP.

b) In Oral liquid preparation the microbial counts have to be kept within prescribed limit. Where Lecithin and other natural substance are used the microbial count should not exceed prescribed limit. In addition, in some cases preservatives are used and a list of such preservatives are given in Table: I.

c) The GMP conditions for the purpose of sterile product manufacture should be followed including the important criteria viz; sterile filtered positive air pressure and maximum particle size that may be allowed in the manufacturing area. It is therefore necessary to monitor microbial and particle size present in the manufacturing area by developing SOP.

d) In case of sterile Ophthalmic dosage form in addition to manufacturing Ophthalmic products in sterile area specific preservatives are required to be added and a list of such Preservatives are given in Table II.

e) For Small Volume Parenteral (SVP) dosage form in multi-dose containers, preservatives are to be added & a list of such Preservatives are given in Table III.

f) In case of some sera and vaccine like anti snake venom it is not possible to keep proper shelf life in liquid form, therefore such products are required to be manufactured using lyophilizing technique and thereby it is possible to achieve better shelf-life period.

Table-I: Preservatives used in Oral Liquid Preparations.

Sr. No	Name of the Preservatives	Recommended Concentration
1.	Benzoic Acid	0.1% to 0.2%
2.	Sorbic Acid	0.1% to 0.2%
3.	Methyl Paraben (Nipagin)	0.25%
4.	Propyl Paraben (Nipasol)	0.05% to 0.2%
5.	Sodium Benzoate	0.1% to 0.2%
6.	Bronodiol (Bronopol)	0.001% to 0.05%
7.	Propylene Glycol.	0.25%

Table-II: Preservatives used in Ophthalmic Preparations.

Sr. No	Name of the Preservatives	Recommended Concentration
1.	Benzyl Alcohol	1% to 2%
2.	Chlorobutanol	0.2% to 0.5%
3.	Chlorocresol	0.1% to 0.2%
4.	Phenyl Ethyl Alcohol	0.25% to 0.5%
5.	Benzalkonium Chloride	0.01% to 0.2%
6.	Thiomersal	0.005% to 0.02%
7.	Chlorhexidine	0.01%
8.	Cetrimide.	0.001% to 0.002%
9.	Phenyl Mercuric Nitrate	0.001% to 0.002%
10.	Phenyl Mercuric Acetate	0.001% to 0.002%

Table-III: Preservatives used in Parenteral Preparations.

Sr. No	Name of the Preservatives	Recommended Concentration
1.	Benzyl Alcohol*	0.5 % 10%
2.	Chlorobutanol*	0.25% to 0.5%
3.	Chlorocresol*	0.1% to 0.2%
4.	Phenyl Ethyl Alcohol*	0.25% to 0.5%
5.	Benzalkonium Chloride*	0.01%
6.	Thiomersal*	0.001% to 0.02%
7.	Meta Cresol*	0.1% to 0.25 %
8.	Butyl Paraben*	0.015%
9.	Phenyl Mercuric Nitrate*	0.001% to 0.002%
10.	Phenyl Mercuric Acetate*	0.001% to 0.002 %
11.	Methyl Paraben	0.01% to 0.18 %
12.	Propyl Paraben	0.005% to 0.035%
13.	Phenol.	0.065% to 0.5%

A. Storage and Stability of Drugs

It is to be noted that both expiry date and storage condition are directly related with the stability of the pharmaceutical products. Therefore, to know the nature of the pharmaceutical product and to ascertain the storage conditions are very essential. The definition of storage conditions as per Indian Pharmacopoeia 1996, are given below:

- **Cold:** Any temperature not exceeding 8 degree centigrade, usually between 2 and 8 degree centigrade.
- **Cool:** Any temperature between 8 °C to 25 °C.
- **Room Temperature:** The temperature prevailing in a working area.
- **Warm:** Any temperature between 30 °C to 40 °C.
- **Excessive Heat:** Any temperature above 40 °C.
- **Light Resistant containers:** A light resistant container protects the content from the effect of light by virtue of the specific properties of the material of which it is made.
- **Well Closed Container:** A well closed container products the contents from contamination by extraneous liquid, and from loss of the article under normal condition of handling. shipment, Storage and distribution.
- **Tightly Closed Containers:** A tightly closed container protects the contents from contamination by extraneous liquid and solids or vapours, from loss or deterioration of the article from effervescence, deliquescence or evaporation under normal condition of handling, shipment, storage and distribution.Essentially three processes assure the ultimate suitability of pharmaceutical products.

1. **Preservation:** The process includes operation or techniques intended to maintain a given

product in the initial form.

2. **Stabilization:** The process includes operations intended to prevent or counteract undesirable physical or chemical change, chemical used for the purpose are called Stabilizer. The Drug

stabilization can be achieved through,

I. Selection of optimum pH, buffer and solvent,

ii. Use of specific complexing agent,

iii. Use of surfactants.

3. **Sterilization:** Environment contains a variety of micro-organisms, some of them are non- pathogenic and beneficial and others are pathogenic, causes fatal diseases. Methods are employed for processing of pharmaceutical products to avoid contamination of microbes. The process includes physical &chemical method intended to produce products free from contamination by micro-organisms.

There are two types of method applied for sterilizations: -

I. Physical Methods-

a. Heat,

b. Radiation

c. Filtration.

II. Chemical Methods-

a. Treatment of Gas,

b. Treatment with Chemicals.

No preservative should be used if the volume of Transfusion/Parenteral is more than 30ml.

B. Schedule-P, Concept of Sterilization,

In a comprehensive manner the date of expiry and condition of storage has been stated for various drugs under schedule P. of Drugs & Cosmetics Rule. Manner of labelling of Pharmaceuticals Preparation mentioned in Rule 96 of the said Rule, which states as follows:

Rule 96 (vii) - Drugs specified in Schedule P and their preparations including combinations with other drugs shall bear on their labels the date of manufacturing and date of expiry of potency, and the period between the date of manufacture and the date of expiry shall not exceed that laid down in the schedule P. [under the conditions of storage specified therein. Drugs preparation not included in schedule P and, shall bear on the labels the date of manufacturing and also the Date of their expiry which shall not exceed sixty months from the date of manufacture.]

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CLERODENDRUM PHILIPPINUM: NATURE'S GIFT TO DIABETES

Introduction

Clerodendrum philippinum is a perennial shrub belonging to the family lamiaceae. also known as Philippine Glorybower. and vernacular name dilbahar, mysoremalle (Telugu), ammam, chendumulla, motormohin (Malayalam), is a plant native to Southeast Asia, and has been traditionally used in various herbal practices, particularly in folk medicine. It is often touted as a natural remedy for a variety of ailments, including diabetes.

Morphology

It is a semi-woody shrub; stems smooth, Roots are consisting of many root suckers. Stem are branches stout, finely pubescent, branchlets nearly 4-angled to round, velvet-hairy when young, becoming hairless. Leaves are membranous, broadly ovate to triangular-ovate, 6-25 cm long, 5-25 cm wide, both surfaces sparsely to moderately strigillose.

Phytochemical Constituent:

The leaves of Clerodendrum Philippinum contain a rich array of bioactive compounds, including flavonoids, phenolic acids, and alkaloids, which contribute to its pharmacological properties.

Benefits of Clerodendrum Philippinum for Diabetes:

1. Blood Sugar Regulation: Some studies suggest that this plant may help in lowering blood sugar levels. It is believed to contain compounds that enhance insulin secretion or improve the body's sensitivity to insulin, which could be helpful for managing diabetes.
2. Antioxidant Properties: The plant has antioxidant effects, which help in reducing oxidative stress that can worsen diabetic complications like heart disease, kidney issues, and nerve damage.
3. Anti-inflammatory: Chronic inflammation is often associated with diabetes. Clerodendrum Philippinum may have anti-inflammatory properties that help alleviate some symptoms associated with diabetes.
4. Weight Management: It is also believed to have properties that may assist in weight management. Maintaining a healthy weight is an important factor in controlling diabetes.
5. α-Amylase Inhibition: Some studies suggest that the Extracts from C. Philippinum roots and leaves exhibit significant α-amylase inhibition properties.
6. α-Glucosidase Inhibition: Some studies suggest that the Certain species within the Clerodendrum genus, including C. Philippinum, display potent α-glucosidase inhibition

Daily Use of Clerodendrum Philippinum:

In traditional use, various parts of the plant (leaves, flowers, or roots) are either consumed or applied in different forms:

- Tea: The leaves are often boiled to make a tea that is believed to help lower blood sugar levels. Diabetics may drink this tea regularly, though it's essential to consult with a healthcare provider first.
- Powder: Dried leaves may be ground into a powder and taken with water.
- Topical Application: Sometimes, the leaves are crushed and applied topically to manage skin issues associated with diabetes, such as wounds or infections, thanks to its anti-inflammatory properties.

Precautions:

- While Clerodendrum Philippinum is believed to have medicinal properties, it's important for diabetics to consult their doctor before adding this plant to their routine. It can interact with other diabetes medications or supplements.
- Dosage and method of consumption should be guided by a health professional to avoid adverse effects.

In conclusion, Clerodendrum Philippinum shows promise in supporting diabetic health, particularly for blood sugar management. However, like any natural remedy, it should be used responsibly and under the guidance of a healthcare professional.

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HERBAL SYRUPS: A BOON TO MANKIND

In the context of alternative medicine, herbal syrups—a type of traditional medicine that capitalizes on the medicinal qualities of chemicals obtained from plants—have attracted increased attention. The long-standing use of herbal treatments, such as syrups, in many ancient medical systems and their impact on contemporary medical procedures demonstrate their historical significance. To improve their palatability, stability, and usability, plant extracts are carefully combined with sugars and other substances to create herbal syrups. Despite being valued for their inherent qualities and possible health advantages, herbal syrups must pass stringent testing to guarantee their efficacy and safety. Certain formulations have proven to be more stable than others, which is important for both their therapeutic effectiveness and shelf life.

Concerns about the negative effects of synthetic components in traditional syrups are one factor contributing to the trend for herbal syrups. The requirement for empirical confirmation of their claimed advantages is highlighted by the fact that not all herbal syrups have demonstrated effectiveness in all therapeutic domains, including anticancer activity.

Herbal syrups are compositions that combine the therapeutic qualities of plants with improved palatability and simplicity of use. In order to enhance taste and stability, they are frequently made by mixing herbal extracts with sugars and other substances. The syrups can be used for a number of medicinal purposes, including cough alleviation, anti-inflammatory and anti-cancer effects, and the delivery of particular herbs' pharmacological properties, such as those of ginger. Herbal syrups are valued for their natural ingredient profiles and possible health advantages, but they must also pass stringent testing to guarantee their stability and security. According to studies, some formulations are more stable than others, which is important for both their effectiveness and shelf life.

Concerns about the negative effects of synthetic components in traditional syrups, like confusion and hallucinations, are another factor contributing to the trend toward herbal syrups. In conclusion, herbal syrups are prized for their natural makeup and medicinal properties, making them an important class of traditional remedies. Because of their safety profiles and long history of usage, they are being preferred over synthetic alternatives and are meticulously formulated to assure stability. These syrups' creation and assessment reflect a larger movement to combine conventional medical procedures with contemporary healthcare norms.

The commonly used Herbal syrups are stated below:

1. Elderberry Syrup

Common Ingredients:

- Elderberry (Sambucus nigra): Rich in antioxidants, elderberries are well-known for their immune-boosting properties, especially for fighting colds and flu.
- Honey: Serves as a natural preservative and helps soothe the throat.
- Cinnamon: Adds flavor and has anti-inflammatory properties.
- Ginger: Known for its anti-inflammatory and digestive properties.
- Clove: Often used for its antiseptic and pain-relieving qualities.
- Filtered Water: Base for the syrup.

Typical Composition:

· Elderberry extract: 40-50% · Honey: 25-30% · Ginger: 5-10% ·Cinnamon: 5-10% · Clove: 1-2%

2. Ginger Syrup

Common Ingredients:

· Ginger Root (Zingiber officinale): Known for its digestive benefits and ability to reduce nausea, inflammation, and pain.

· Honey: Provides sweetness and soothing properties.

· Lemon Juice: Adds vitamin C and aids digestion.

· Water: Used to dilute the syrup and extract the ginger's properties.

Typical Composition:

· Ginger root extract: 30-50% · Honey: 25-40% ·Lemon juice: 10-15% · Water: 10-20%

3. Licorice Root Syrup

Common Ingredients:

· Licorice Root (Glycyrrhiza glabra): Traditionally used for respiratory and digestive issues; it soothes irritation and promotes mucous production.

· Honey: Works as a natural preservative and soothes the throat.

· Aniseed: Adds flavor and has a soothing effect on the respiratory system.

· Ginger: Adds a warming quality and helps with digestion.

· Water: The base for dissolving the active ingredients.

Typical Composition:

· Licorice root extract: 40-50% · Honey: 20-30% · Aniseed: 5-10% · Ginger: 5-10% ·Water: 10-20%

4. Throat Soothing Syrup (for cough and sore throat)

Common Ingredients:

· Marshmallow Root (Althaea officinalis): Known for its soothing properties for sore throats.

· Slippery Elm (Ulmus rubra): Also helps to coat and soothe the throat.

· Honey: Used for its soothing properties and to thicken the syrup.

· Lemon Balm: Helps relax the body and has antiviral properties.

· Ginger or Cinnamon: To reduce inflammation and boost circulation.

Typical Composition:

· Marshmallow root extract: 30-40% · Slippery elm extract: 20-30% · Honey: 20-30% · Lemon balm: 5-10%

· Ginger or Cinnamon: 5-10%

5. Peppermint Syrup

Common Ingredients:

· Peppermint (Mentha piperita): Provides a cooling sensation and aids in digestion, as well as soothing headaches.

· Honey: For sweetness and soothing properties.

· Lemon Juice: Adds a fresh citrus note and aids in digestion.

· Water: Used as the base for dissolving the ingredients.

Typical Composition:

· Peppermint extract: 30-50% ·Honey: 20-30% · Lemon juice: 10-20% · Water: 20-30%

6. Chamomile Syrup

Common Ingredients:

· Chamomile (Matricaria chamomilla): Known for its calming properties, chamomile is often used to promote sleep and ease digestive discomfort.

· Honey: For sweetness and soothing effects.

· Lavender: Adds a calming effect and works well with chamomile.

· Lemon Balm: Enhances the relaxing properties of chamomile.

· Water: To extract the beneficial compounds from the herbs.

Typical Composition:

· Chamomile extract: 40-50% · Honey: 20-30% · Lavender: 5-10% · Lemon balm: 5-10% · Water: 10-20%

An effort has been made to fully utilize the therapeutic potential of medicinal plants, as evidenced by research on herbal syrup formulations. While taking into account the products' stability and safety, these formulations have been studied for a variety of health advantages, such as hepatoprotective, antidepressant, antitussive, and anti-anemic properties. Notably, multiple investigations have indicated that these herbal syrups do not exhibit substantial anticancer characteristics, which is an essential issue in the area of therapeutic applications of these formulations.

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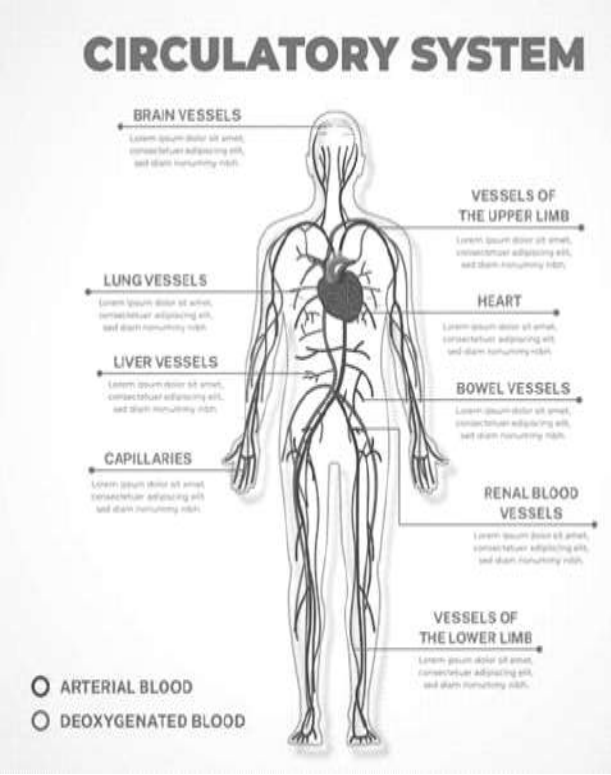
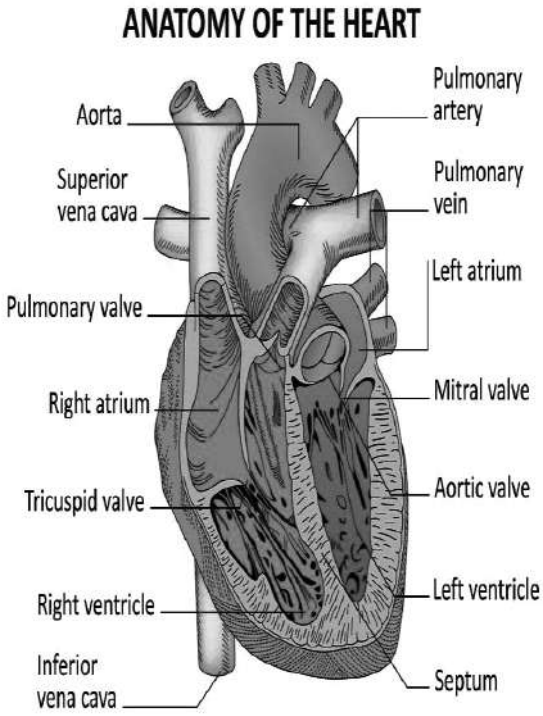
HUMAN CIRCULATORY SYSTEM

The Human Circulatory System: Structure, Function, and Importance

The human circulatory system is a vital network that sustains life by delivering oxygen and nutrients to cells while removing waste products. It is a dynamic and efficient system that ensures homeostasis and supports the body's physiological processes. This article explores the circulatory system's components, functions, types, common diseases, and tips for maintaining cardiovascular health



I. Components of the Circulatory System



The circulatory system comprises three primary components:

1. The Heart

The heart is a muscular organ roughly the size of a fist. Located slightly to the left of the chest, it functions as the system's pump. It is divided into four chambers:

Right Atrium and Right Ventricle: Receive and pump deoxygenated blood to the lungs via the pulmonary artery.

Left Atrium and Left Ventricle: Receive oxygenated blood from the lungs and pump it to the body via the aorta.

The heart operates through electrical impulses, ensuring a coordinated rhythm essential for pumping blood effectively.

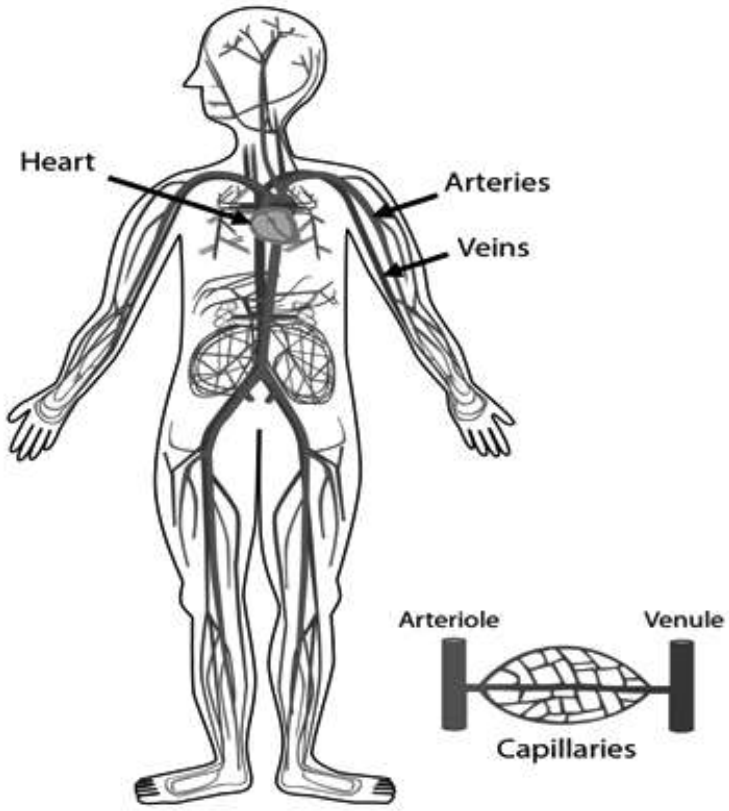
2. Blood Vessels

Blood vessels form the network through which blood flows. They are classified into three types:

Arteries: Carry oxygen-rich blood away from the heart. The largest artery is the aorta.

Veins: Return deoxygenated blood to the heart. Veins have valves to prevent backflow.

Capillaries: Tiny vessels connecting arteries and veins. They facilitate the exchange of oxygen, carbon dioxide, nutrients, and waste between blood and tissues.



White Blood Cells (WBCs): Defend against infections.

Platelets: Aid in blood clotting.

Plasma: The liquid component, carrying hormones, nutrients, and waste products.

II. Functions of the Circulatory System[3]

The circulatory system performs several crucial functions:

1. Transportation:

Delivers oxygen and nutrients to cells.

Removes carbon dioxide and metabolic waste.

Transports hormones and immune cells.

2. Regulation:

Maintains body temperature.

Balances pH levels and fluid volume.

3. Protection:

Facilitates clot formation to prevent excessive blood loss.

Houses immune cells to fight pathogens.

III. Types of Circulatory Systems

The human circulatory system is divided into two circuits:

1. Pulmonary Circulation:

Carries deoxygenated blood from the heart to the lungs.

Returns oxygenated blood to the heart.

2. Systemic Circulation:

Distributes oxygen-rich blood from the heart to the body.

Returns deoxygenated blood to the heart.

Together, these circuits ensure efficient oxygen delivery and waste removal.

IV. The Mechanism of Blood Flow

Blood flow follows a specific path:

1. Deoxygenated blood enters the right atrium from the superior and inferior vena cava.

2. It flows into the right ventricle and is pumped to the lungs via the pulmonary artery.

3. In the lungs, blood releases carbon dioxide and absorbs oxygen.

4. Oxygenated blood returns to the left atrium via the pulmonary veins.

5. It flows into the left ventricle, which pumps it to the body through the aorta.

This continuous cycle supports life by ensuring cells receive the oxygen and nutrients needed for energy production.

V. Diseases of the Circulatory System

Despite its efficiency, the circulatory system is susceptible to various diseases. Common conditions include:

1. Hypertension (High Blood Pressure):

A condition where the force of blood against artery walls is persistently high.

Risk factors: Obesity, smoking, high salt intake, and stress.[4]

2. Atherosclerosis:

The build-up of fatty deposits (plaque) in arteries.

Causes reduced blood flow and increased risk of heart attack or stroke.

3. Coronary Artery Disease (CAD):

Occurs when plaque narrows coronary arteries, reducing blood supply to the heart.

Symptoms: Chest pain, shortness of breath, and fatigue.

4. Heart Attack (Myocardial Infarction):

Results from blocked blood flow to the heart muscle, causing tissue damage.

Symptoms: Chest pain, sweating, nausea, and arm discomfort.

5. Stroke:

Occurs when blood flow to the brain is interrupted due to a clot or haemorrhage.

Consequences: Paralysis, speech difficulties, and cognitive impairment.

6. Anaemia:

A condition where there are insufficient red blood cells or haemoglobin.

Symptoms: Fatigue, weakness, and pale skin.

VI. Maintaining a Healthy Circulatory System

Promoting cardiovascular health requires a combination of lifestyle changes and preventive care. Here are some tips:

1. Adopt a Balanced Diet:

Consume fruits, vegetables, whole grains, lean proteins, and healthy fats.

Limit salt, sugar, and saturated fats to reduce the risk of hypertension and atherosclerosis.

2. Exercise Regularly:

Engage in at least 150 minutes of moderate aerobic activity weekly.

Activities like walking, jogging, and swimming improve heart strength and circulation.

3. Avoid Smoking and Excessive Alcohol:

Smoking damages blood vessels and increases plaque build-up.

Limit alcohol intake to prevent high blood pressure and heart disease.

4. Manage Stress:

Chronic stress elevates blood pressure and harms the heart.

Practice relaxation techniques like meditation and deep breathing.

5. Monitor Health Parameters:

Regularly check blood pressure, cholesterol levels, and blood sugar.

Early detection of abnormalities can prevent complications.

6. Stay Hydrated:

Proper hydration ensures optimal blood flow and prevents clot formation.

7. Get Regular Check-ups:

Routine visits to a healthcare provider can help monitor cardiovascular health and detect issues early.[5]

VII. The Importance of Circulatory Health

The circulatory system is essential for survival. It sustains energy production, supports the immune system, and enables efficient communication between organs. Poor cardiovascular health can lead to severe complications, emphasizing the need for preventive care and awareness.

VIII. Recent Advances in Cardiovascular Medicine

Medical advancements have revolutionized the diagnosis and treatment of circulatory diseases. Innovations include:

1. Minimally Invasive Surgeries: Procedures like angioplasty and stent placement restore blood flow with reduced recovery time.

2. Artificial Hearts and Valves: Help patients with severe heart damage.

3. Cardiac Rehabilitation Programs: Comprehensive care plans combining exercise, nutrition, and counselling for heart disease patients.

4. Precision Medicine: Personalized treatments based on genetic profiles.

Conclusion

The human circulatory system is an intricate and efficient network that sustains life by supporting the body's physiological needs. Understanding its structure and functions is crucial for appreciating its role in maintaining health. By adopting a healthy lifestyle and staying informed, individuals can reduce their risk of cardiovascular diseases and enjoy a longer, healthier life.

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PROSTHETICS AND ORTHOTICS SERVICES IN HEALTH CARE (TRANSFORMING THE LIFE OF THE MANKIND)

Prosthetics and Orthotics services are part of health care and are often included in rehabilitation services. Like other health services, their aim is to optimize users' health and well-being. The field of Prosthetics and Orthotics is commonly referred to as P&O. Prostheses (artificial limbs) and orthoses (external devices, braces and splints) enable people with physical impairments or functional limitations to lead healthy, productive, independent, dignified lives and to participate in education, the labor market and social life. With significant advances in technology and healthcare, the role of P&O within rehabilitation services has shifted from a technical focus to a more inclusive approach.

Prosthetist and Orthotist

Prosthetist and Orthotist are allied health professionals who assess and treat people's physical and functional limitations due to disease and disability. Prosthetists and Orthotists not only serve neuro-musculoskeletal disorders and the disabled (Divyangjans), but they also treat general health and functional problems including foot disorders, bone fractures and joint problems, sports injuries, geriatric diseases, tendinitis, muscular pain, cosmetic restoration etc. According to the International Society for Prosthetics and Orthotics (ISPO), a Prosthetist and Orthotist is defined as: “A health care professional who practices evidence-based clinical assessment, prescription, technical design, and biomechanically effective manufacture of Prostheses and Orthoses.

Roles and Responsibilities

With private Prosthetic or Orthotic practice, these health professionals are employed and working in hospitals, other clinics, rehabilitation centers, rural medical clinics, home health settings, non-governmental organizations (NGOs) and in different healthcare settings. These professionals can also work in academics, research and teaching at universities. Prosthetist and Orthotist work with adults and children of all ages with a wide variety of clinical conditions, such as.

- Children born with congenital limb deficiency or cerebral palsy
- People who have had an amputation following an accident
- Patients with muscular weakness after a stroke or spinal injury
- Patients at risk of contractures after burn injuries
- Patients requiring stabilization after surgery
- Patients with diabetic foot complications or ulcers
- Elderly persons who have lost a limb as a result of vascular disease
- Other conditions affecting the neuromuscular or musculoskeletal system

Educational requirements

Professional requirements require a bachelor's degree courses from an accredited college or university with a concentration in the sciences. In addition to required technical courses, students study research methods, kinesiology and biomechanics, musculoskeletal and neuromuscular pathology, communication and education, and contemporary health care. Orthotics and prosthetics programs are often based at academic health centers or colleges

or universities affiliated with hospitals. Upon completion of the academic program, a six-month internship begins, during which new clinicians gain expertise in the acute, rehabilitation, and long-term phases of pediatric and geriatric care. After completing the educational and experience requirements, the student is eligible to receive a professional practice certificate. Apart from undergraduate degrees, post-graduation and PhD level courses are also available in this profession for higher education. As a Rehabilitation team, physicians, nurses, Prosthetists, Orthotists, physical therapists, occupational therapists, social workers, patients, and family members strive to reduce function, injury, impairment, and disability. 4 ½ year Bachelor in Prosthetics and Orthotics (BPO) course is offered in 18 educational institutes in the government and private sectors in our country. Similarly, there are 7 institutes running 2-year post graduation [Master in Prosthetics and Orthotics (MPO)] courses in this subject in India.

Governance and Compliance

Many education programs and clinics follow the standards of the ISPO. This is a global, multilateral membership organization dedicated to improving the quality of life of people with reduced mobility by promoting appropriate and equitable rehabilitation facilities, mobility devices and other assistive technologies. To improve access to prosthetics and orthotics services, the World Health Organization (WHO), in partnership with ISPO and the United States Agency for International Development (USAID), has developed global standards and an implementation manual to assist member states in setting them up. One of the objectives of this document is to ensure that prosthetics and orthotics services are integrated into health services and systems, as they are provided at the same time as other health services. The Rehabilitation Council of India under the Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment (DEPwD, MSJ&E) in our country is the central body of all skilled professionals working in the field of rehabilitation education to regulate and monitor services provided to persons with disabilities, standardize curriculum and regulations and working to maintain rehabilitation register. The Orthotics and Prosthetics Association of India (OPAI) is a nationally recognized professional body actively involved in rehabilitation of prosthetics and orthotics professionals for the betterment.

International Prosthetics and Orthotics Day

International Prosthetics and Orthotics Day (IPOD) are celebrated on November 5, following ISPO's founding date in 1970. Its purpose is to raise awareness of the importance of artificial limbs and assistive devices to users and the need to provide more resources to ensure equitable and appropriate access to prosthetic or orthotic services. The theme of the International Prosthetics and Orthotics Day 2024 was 'Enabling and Empowering'.

Enable: Prosthetics and orthotics services help people lead healthy, productive, independent and dignified lives and learn, work and participate in society in general and thus contribute to the development of their countries.

Empowerment: People accessing prosthetics and orthotics services provide opportunities for service providers to determine their own futures and participate fully in community life.

A variety of academic and service-oriented events centered around the theme of 'Enabling and Empowering' are organized to spread awareness about the significance of the day and the status of this noble profession.

This noble medical profession "Prosthetics and Orthotics" will always be there to serve the mankind.

Jai Hind, Jai Bharat.

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A HEALTHY MORNING ROUTINE

A morning routine is like a little secret to starting our day on the right foot. Imagine waking up and doing things that make us feel happy, calm, and ready to take on the day. Whether it's stretching, enjoying a delicious breakfast, or simply taking a few minutes to breathe, our morning routine should be the best part of the day. It's a special time just for us-before the rush of college and homework begins A sweet, simple routine helps us feel organized, positive, and full of energy to shine bright throughout the day .

We must to understand and realise, that what we do in the first hour after waking up in the morning, influences the quality of our day and how it fares. So, we must incorporate and do some simple things after waking up to stay fit, energetic, and productive throughout the day.

- Trying to wake up at a consistent time in order to give ourselves enough time to start the day calmly, without rush.

- Hydrate our body as soon as we wake up to replenish the fluids lost overnight and kick- start our metabolism.

- Engage in stretching or gentle movements to relieve muscle tension, improve blood circulation, and boost our energy levels.

- A balanced breakfast with protein, fiber, and healthy fats helps fuel our body and mind for the day ahead.

- Take a few moments to review our schedule or set our goals for the day. This can help us stay organized and focused.

- A short session of meditation or mindfulness can help calm our mind, reduce stress, and improve focus.

- Exposure to natural light in the morning helps regulate our body's circadian rhythm and boosts mood and alertness.

By following a mindful morning routine, we can set ourselves up for a more productive, positive, and balanced day.

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TOPIC: THE PAST, PRESENT, AND FUTURE OF AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY ROLE IN INDIAN CONTEXT

Historical Overview of Audiology and Speech-Language Pathology

The origins of audiology and speech-language pathology (SLP) date back to ancient civilizations, where there were initial, albeit rudimentary, efforts to address hearing and communication disorders. Over centuries, these fields have evolved significantly, and it was not until the 20th century that they emerged as distinct scientific disciplines. This paper delves into the historical evolution of audiology and SLP, highlighting key milestones, technological advancements, and the dynamic scope of practice. Additionally, it explores emerging trends such as personalized medicine and artificial intelligence, and discusses the challenges and opportunities

Historical Evolution

Early Foundations: The Beginnings of Audiology and Speech Therapy

- Ancient Civilizations: The roots of audiology and speech therapy can be traced to ancient civilizations like the Egyptians, Greeks, and Romans, who acknowledged the importance of treating speech and hearing disorders. However, these early methods were basic and lacked scientific validation.
- Hand Signals in Egypt: In ancient Egypt, individuals used hand signals to communicate with those who were deaf, a primitive yet significant step towards understanding communication disorders.
- Greek and Roman Contributions: Philosophers like Aristotle wrote about the relationship between speech and hearing, noting that individuals who were deaf from birth often could not speak. This early understanding set the stage for future advancements in the field.

The 19th and Early 20th Centuries: Advancements and Recognitions

- Scientific Measurement of Hearing Loss: The 19th century brought substantial progress in understanding the ear's anatomy and hearing mechanisms.
- Developing Hearing Aids: This era also saw the development of hearing aids, which, although initially cumbersome and not very effective, laid the groundwork for future innovations.
- Emergence of Speech Therapy: Concurrently, speech therapy began to be recognized as a distinct field. Innovators like Alexander Graham Bell, influenced by his deaf mother and wife, developed techniques to teach speech to the deaf.

Mid-20th Century Developments: The Impact of World War II

- Catalyst for Audiology: World War II acted as a catalyst for audiology. The need to address soldiers' hearing loss from exposure to loud explosions and machinery noise led to significant advancements in hearing aids and rehabilitation techniques.
- Recognition of Audiology as a Profession: Audiology emerged as a recognized profession, with formal training programs and certifications being established.

Post-World War II: The Rise of Audiology Impact of World War II

- Hearing Rehabilitation: The war highlighted the urgent need for effective hearing rehabilitation for returning

soldiers with significant hearing loss, this led to increased funding for research in rehabilitation

- Academic Audiology Programs: In response to this need, the first academic audiology program was established at Northwestern University in 1946.

Technological Advancements

- Advances in Hearing Aids: The post-war period saw remarkable advancements in hearing aid technology. Earlier bulky devices were replaced by more sophisticated and effective ones. The late 20th century introduced digital hearing aids, which offered customizable and precise amplification.

Contributions of Georg von Békésy

- Georg von Békésy's early studies in chemistry and physics eventually led him to explore the inner workings of the ear. Discovery the basilar membrane's movement in the cochlea different sound frequencies caused maximum vibrations at different locations along the membrane. Received Nobel Prize and Legacy in 1961 in the Physiology or Medicine. He influenced the development of hearing aids and cochlear implants.

Development of the Audiometer

- Early 20th Century: The invention of the audiometer revolutionized hearing assessment by providing a standardized and objective method for measuring hearing thresholds.

Birth of the Cochlear Implant

- History: The concept of cochlear implants (CI) dates back to the late 1950s. Early pioneers created the first single-channel CI in 1957, providing auditory stimulation by directly stimulating the auditory nerve.
- 1960s and 1970s: William F. House developed a multi-channel cochlear implant in 1961, and it was first implanted in a patient in 1964 by Blair Simmons and Robert L. White at Stanford University.
- 1980s: The FDA approval of cochlear implants in 1984 marked a significant milestone, leading to widespread clinical use and showing improved speech perception and hearing outcomes for users.
- 1990s: Advancements in miniaturization and signal processing in the 1990s made CI more efficient and user-friendly, in terms of better sound quality and customization to individual hearing needs.
- 2000s and Beyond: Modern CI has continued to evolve with improvements in electrode design, sound processing algorithms, and wireless connectivity, significantly enhancing the user experience.

Advancements in Hearing Aid Technology

- Early Beginnings: The history of hearing aids began in the 17th century with the invention of ear trumpets, which collected and directed sound into the ear.
- 19th Century: Commercial production of ear trumpets and devices like hearing fans and speaking tubes began in the early 19th century, though they were still large and required physical support.
- Late 19th Century: Hidden hearing aids, such as acoustic headbands and Aurolese Phones.
- Early 20th Century: The invention of the telephone by Alexander Graham Bell played a significant role in creating the first electric hearing aid by Miller Reese Hutchison in 1898.
- 1920s: Vacuum tube hearing aids, converted speech into electrical impulses and amplified it.
- Mid-20th Century: The development of transistor hearing aids in the late 1940s revolutionized the industry, making aids smaller and more practical.

- Late 20th Century: The rise of digital hearing aids in the late 20th century offered customizable and precise amplification through digital signal processing (DSP).
- 21st Century: Modern hearing aids incorporate advanced technologies like Bluetooth connectivity, rechargeable batteries, and AI-powered features, seamlessly integrating into users' daily lives.

Post-Independence Era

- Institutional Foundations: After India's independence in 1947, organized efforts to address speech and hearing disorders began. The All India Institute of Speech and Hearing, Mysore established in 1965.
- Expansion of Services: The 1960s and 1970s witnessed the growth of speech and hearing services across India. The Indian Speech and Hearing Association (ISHA) in 1967 provided a platform for professional.

Role of NGOs and Government Bodies

- NGO Contributions: NGOs like Sounds of Silence, India's first technology-based NGO for the hearing and speech-impaired, provide resources for education, vocational training, and digital solutions.
- Government Support: The Department of Empowerment of Persons with Disabilities (DEPwD) under the Ministry of Social Justice and Empowerment promotes the welfare of individuals with hearing and speech impairments through various services, including assessments and auditory training programs.
- Rehabilitation Council of India (RCI): Established under the RCI Act, 1992, regulates and standardizes training courses for professionals, ensuring qualified and registered professionals in the disability sector.

Part 2:

The Present - A Dynamic Landscape

The field of speech and hearing communication disorder management is continuously evolving, driven by technological advancements and a deeper understanding of human communication needs. This dynamic landscape ensures that individuals receive comprehensive, personalized care, improving their quality of life.

Audiology Today

Modern audiology has evolved into a sophisticated field encompassing the diagnosis, treatment, and management of hearing and balance disorders. Advanced technologies such as otoacoustic emissions (OAE), auditory brainstem response (ABR), and real-ear measurement to assess and treat patients. These technologies allow for precise measurement of hearing function and the identification of specific types of hearing loss.

Speech Therapy Today

Speech therapy has also seen remarkable advancements. Speech-language pathologists (SLPs) work with individuals across the lifespan, addressing a wide range of speech, language, and swallowing disorders. SLPs work with children who have developmental speech and language disorders, helping them develop effective communication skills. Also assist adults with acquired speech and language disorders due to conditions such as stroke, traumatic brain injury, or degenerative neurological diseases. They provide therapy for individuals with swallowing disorders, helping them eat and drink safely.

Interdisciplinary Approaches

Both audiology and speech therapy emphasize a collaborative approach, involving multidisciplinary teams that may include educators, occupational therapists, physical therapists, and medical professionals. This holistic approach

ensures care for patients, addressing all aspects of their communication and auditory needs.

Advancements in Hearing Aid Technology

The history of hearing aids is a fascinating journey of innovation and technological advancement. The key advancements in hearing aid technology today includes; Artificial Intelligence (AI) and Machine Learning, Rechargeable Lithium-Ion Batteries, Bluetooth Connectivity, Noise-Cancelling Features, Digital Sound Processing, Automatic Fitting and Feedback Reduction, Over-the-Counter Hearing Aids, Integration with Wearable Technology, Telehealth and Remote Care etc.

Present Scenario of Cochlear Implants

Today's cochlear implants are highly sophisticated devices offering features such as: Bluetooth Connectivity, rechargeable Batteries, AI-driven Sound Processing, totally Implantable Cochlear Implants, robotic Surgery, telemedicine and Remote Care etc.

Aural Rehabilitation Includes: Speech reading Training, Auditory Training, Communication Strategies Screening and Counselling

Regular screenings for hearing loss are conducted, and audiologists provide counselling and support to individuals and their families to help them cope with hearing loss and its impacts.Part 3:

The Future - A Horizon of Possibilities

The fields of audiology and SLPs are rapidly advancing, driven by innovations in technology and a deeper understanding of human communication needs. The future possibilities in these dynamic fields of Audiology Emerging Trend include Personalized Medicine, Artificial Intelligence (AI) in Clinical Practice includes AI-powered Diagnostic Tools, AI-driven Treatment Planning and AI-enhanced Patient Monitoring, Brain-Computer Interfaces.

Future of Hearing Aid Technology

The future of hearing aid technology promises remarkable innovations that will further enhance the quality of life for individuals with hearing loss in terms of Gene Therapy, Advanced AI Algorithms and Seamless Integration with Smart Devices.

Future Innovations in Cochlear Implants

Cochlear implants will continue to evolve, offering even greater benefits to individuals with severe hearing loss includes, Enhanced Sound Quality, Reduced Power Consumption, Fully Implantable Systems, Implantable Microphones and Advanced Signal Processing

Challenges and Opportunities

As the fields of audiology and speech-language pathology advance, they will face several challenges and opportunities for Aging Population, Technological Advancements, Global Health etc.

Summary Conclusion

The fields of audiology and speech-language pathology have a rich history and a promising future. Driven by ongoing research, technological advancements, and a commitment to providing high-quality care, these professions will continue to evolve and adapt to meet the ever-changing needs of individuals with communication disorders. The future holds the promise of personalized medicine, innovative technologies, and a deeper understanding of the underlying causes and consequences of communication challenges.

Audiology and speech therapy have come a long way from their early beginnings, evolving into sophisticated fields that blend science, technology, and human care. The past has laid a strong foundation, the present showcases remarkable advancements, and the future holds immense promise for even greater innovations. As we move forward, the collaborative efforts of audiologists, SLPs, and other professionals will ensure continued progress and improved quality of life for those with communication and hearing disorders.

Research and scientific methodologies have been fundamental in advancing these fields. Rigorous research ensures that interventions are based on solid evidence, improving their effectiveness and reliability.

Scientific inquiry drives innovation, leading to the development of new technologies and treatments that significantly enhance the quality of life for individuals with communication and hearing disorders.

Ongoing research and the application of scientific principles are crucial for understanding the underlying causes of these disorders, allowing for early detection and more targeted, effective interventions.

As we move forward, the collaborative efforts of audiologists, SLPs, and other professionals will be crucial in driving these innovations and ensuring that individuals with communication and hearing disorders receive the best possible care. The future is bright, filled with opportunities to transform lives through the power of science, technology, and compassionate care. The ongoing dedication to research, technological advancements, and high-quality care will ensure that these fields continue to evolve and adapt to meet the ever-changing needs of society, making a profound impact on the lives of those they serve.

DR. JAYASANKAR PANDA
Department of Speech & Hearing,
SVNIRTAR, Cuttack

AROGYAM

Arogyam is a Sanskrit world that means “overall well-being” on health. It can also refer to a disease-free state or a good state of mind, body, and spirit. Arogyam comes from the word aroga which means" absence of disease. Being healthy and fit in simple terms means taking good care of the body. Protecting your body from the intake of harmful substances doing regular exercises, having proper food and sleep are some of the important that define a healthy lifestyle.

Regular Exercise routine that each individual should focus on a specific defined time for daily exercise as it directly affects both mental and physical health of a person. Balancing nutritional food, balancing diet that includes essential minerals vitamins and proteins makes a person healthy and fit Take appropriate amount of sleep. Each individual, as per medical norms should take at least 8 hours of sleep. Drink loads of water, as it helps to release toxins and improve one's metabolism. Maintain hygiene and have proper sanitation. Have a positive outlook towards life for mental health, it is the key to stay fit and healthy.

Yoga is very important for our health the form at exercises performed in yoga is called as Asana. It helps in balancing the relationship between body and mind it also includes breathing exercises and helps to relax and calm the mind and soul. It reduces the daily stress level and live healthier life. Not many know that drinking water regularly and keeping the body hydrated will help to the process of weight loss. Always carry a water bottle no matter where you go. Try to reducing stress is one main reason for most of the health problems people face stress leads to overeating, oversleeping and depression which would in turn, alter online physical and mental health.

Good health is the most valuable possession an individual can have in their life. Nothing you work for on earn can be enjoyed unless you stay healthy. Your health can be said to be directly proportional to the amount of wealth you can make. So, health is wealth, walking, running, cycling, playing, swimming, gardening, shipping, weight-lifting are some of the important activities which helps us maintain fit and health. Avoid superstitions, Ayurvedic medicines greasing the shelves in pharmacies and health food stores. Ayurveda was so much part of the heritage and tradition that when kids got a cough, then promptly gave them turmeric, milk and honey.

Benefits of arogyam that natural healing like ayurvedic medicines and therapies are derived from nature. ensuring minimal side effects. Holistic that treats the root cause of diseases what he has the man that being mental wellness that reduce stress and enhance emotional stability. Disease prevention can done by preventive healthcare through diet, exercises and lifestyle management spiritual Growth it Fosters connection between the body, mind and soul leading to inner peace and self-awareness.

In today's world, Stress, pollution and unhealthy lifestyles have led to various health problems the concept of Program has gained popularity as people seek natural and sustainably ways to stay healthy Organization like the Aragon institute provide certification courses in Ayurveda and yoga helping individuals learn and apply ancient wisdom to modern healthcare. Ayurveda meaning the science of life is an ancient Indian medical system that promotes long-term health through national remedies, diet, and life style changes. Many Ayurvedic hospitals and wellness centres, such as the program Ayurvedic Allergy hospital, provide herbal treatments for allergies and chronic diseases, ensuring healing without side effects. So that Arogyam represents a movement towards wellness through Ayurveda. yoga, and natural therapies.

Keeping fit is about how we choose to live as individuals and the levels of fitness we aspire to maintain your health and fitness to keep your body look and feel good, but also maintain a level of physical fitness which will enable you to manage and enjoy your daily lifestyle. The way towards Healthy and active" wellbeing is to focus on making the healthy chord at any given moment. So many different people, so many different ideas about health and fitness just read me to thinking of how describe actually and get I will and way to express my selves in the best way I can.

"You can't enjoy Wealth

If you're not in good health...

BIJAYLAXMI KHILAR
(Maharani Prem Kumari College of Nursing, Baripada)

GLOBAL WARMING

The term global warming refers to an average increase in the earth's temperature which in turn causes changes in the climate. In 1896 a seminar paper by Swedish scientist Svante Arrhenius first predicted that changes in atmospheric carbon dioxide levels could substantially alter the surface temperature through the greenhouse effects. In 1938 Guy calendar connected carbon dioxide increases in Earth's atmosphere to global warming.

As greenhouse gas emissions blanket the earth, they trap the suns heat. This leads to global warming & climate change. Generating electricity and heat by burning fossil fuel such as coal, oil and natural gas causes a large chunk global emissions. Manufacturing, industry produce & cutting down forest to create ,forms or for other reasons cause emissions.

Global warming accelerates the melting of polar ice caps & glaciers. warmer temperature overtime are changing weather pattern and disrupting the usual balance of nature. It can cause changes in rainfall. This result in more severe and frequent storms. They cause flooding and landslides, destroying homes crops and communities area. It can also cause increased drought. Deserts are expending ,reducing land for growing food 2020 was one of the hottest year in the record. Higher temperature increase heat related illness and can make it more difficult to work & move around. In 2024 was the warmest year on record, with global temperature exceeding 1.50 c above pre industrial level for the first time.

Global warming poses a significant threat to the earths ecosystem and human well being. We cannot stop global warming overnight, we can slow the rate & limit the amount of global warming by reducing human emission of heat-trapping gases and black carbon.

Mamashree Pal
5th Semester

THE ROOTS OF SUICIDAL THOUGHT

Suicidal thoughts come when a person feels completely hopeless, he thoughts that he is the cause of all problems & he thought that if I die, everything will be at peace.

90% of people who die suicide also have a mental health condition, often a mood disorder. Boarderline personality disorder, anorexia nervosa, depression & bipolor disorder had the highest suicide risks.

Suicidal thoughts and behaviours are a growing concern in India, with a rising trend observed over the past few oatcakes. A according to the National crime records Bureaw (NCRB), the suicide rate in India increased from 9.9 lakh population in 2017 to 12.4 per lakh population in 2022.

The Triggers:-

"Mental health problems have multiple causes, and usually stem from a combination of genetic & environmental", "the living conditions of people, their family & support networks can have a huge impact on ones' mental health".

A dysfunctional family life & neglect experienced in childhood, external stressors that can trigger an illness in a person susceptible to mental illness includes death or end of a long standing relationship, feelings of inadequacy & low self esteem, loneliness, a change of jobs or schools & cultural factors.

Vulnerable Group:-

YOUTH:- Suicidal thoughts among youth are a growing concern, with significant increase in prevalence among female student. Youth struggling with suicidal thoughts often face various challenges, including:- Social isolation, mental health disorder, trauma, lack of support, bullying & discrimination female students, particularly those who identify as black, hispanise, or white, reported increased prevalence of suicidal thoughts & behaviours. Lesbians, gay, bisexual, questioning, o0r other students reported higher prevalence rates of suicidal thoughts & behaviours compared to their heterosexual peers.

WOMEN:- Woman, especially those are live in rural area, higher risk of suicidal thought due to factors like domestic violence, divorce, poverty, sexual harassment, lack of education & health care.

FARMER:- Farmer in India are also at a higher risk of suicidal thoughts due to lack of financial support, crop failure, lack of government support.

Recently, prakriti Lamsal a 20-years old Nepal student at Kalinga Institute of Industrial Technology (KIIT), committed suicide due to mental & physical torture from her boyfriend.

If she could have received good mental support or if prakriti's boyfriend had been punished on time then this unfortunate incident would not have happened today.

God has given human birth for a great purpose, we will explain the importance of life to whoever is trying to commit suicide. Never leave someone who is suffering from mental illness alone. Let us explain the importance of mental peace to our families, friends & people around us.

MONICA MONALISA PATRA
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(Maharani Prem Kumari College of Nursing, Baripada)

DOCTOR, CURE THYSELF FIRST

Consider this: handpicked from amongst the smartest minds in the country, a bright eyed, hopeful, eager, teenager on the brink of adulthood steps into one of the most demanding professions of the country. The privilege has not been handed to him on a platter. It is the result of a childhood dedicated to books, exams, tuitions, endless hours at coaching centers, sleepless nights of revision, not to mention cracking one of the toughest entrance exams in the world. You would think the poor young fellow deserves a break, right? All work and no play as the old adage goes. But no, he/she is subjected to an exhaustive curriculum asking for hours of detailed study apart from practical work, ward rotations, clinical hours, patient interaction, sleepless nights pouring over books heavy enough to crush one's spine if not one's soul, rigorous internships with some more challenging examinations thrown in between And that is how one becomes a doctor. What follows this arduous journey? Throwing the doctor to the wolves, obviously. In other words, putting him/her at the mercy of an unforgiving over burdened healthcare system.

The Indian Medical Association (IMA) Pune chapter says that the average lifespan of a doctor is 55-59 years which is 10 years less than the average lifespan of the general population. Doctors in India are at elevated risks of early deaths due to diseases attributable to unhealthy lifestyle, such as hypertension, diabetes, cardiac events. Add to this the increasing incidence of suicides in doctors and you have painted before you a very sorry picture indeed. You would expect the brightest minds in the country to know better than that. So, what goes wrong?

The academic pressure and the competition a young doctor is subjected to in an endless rat race is enough to rattle anyone's mental health. Toxic training environment in most medical institutions with the glorification of continuous 48-72 hour shifts and a culture of ragging and harassment at the hands of seniors with no outlet for coping with the mental strain are sadly widely known facts that are silently swept under the rug. It is no wonder that young doctors are increasingly engaging in risk taking behavior.

We are all aware of the deplorable working conditions of doctors in government sectors. The patient doctor ratio is highly skewed with most doctors having their working hours stretched beyond what can be termed as 'acceptable'. These doctors are often the targets of frustration of the general public, peppering newspapers with numerous articles on violence against doctors in public sectors. What is done for their security? That remains an open question that no one is comfortable to either answer or be held accountable for. Forget security, these doctors are at the risk of health hazards owing to lack of access to hygienic washrooms, proper working environment, resources to protect themselves from contagious disease. Most of these setups are deficient in support staff providing no breaks to the doctors who survive on tea and samosas. Burnout is hence a common occurrence. Any layman can assess the impact of this kind of lifestyle on a person's health. An unjust social system, no legal aid and erratic insufficient pay are added triggers that push our physicians to the brink of unfathomable stress.

Corporate sectors are not innocent in this vicious layout either. They serve as a suffocating quicksand, setting unrealistic targets, pushing prescriptions and treatments, raising ethical conflicts and harboring a bullheaded focus on generating revenue. They promise no job security and the doctor is continuously threatened by the prospect of being dispensable.

Speaking of female physicians is to open Pandora's box. They are susceptible to being victims of both public rage as well as violence as exemplified by recent incidents. At the receiving end of harassment by both their male colleagues as well as support staff they have no assurance of security while working late night shifts nor guarantee of safe

accommodation, no provision for separate rooms to rest in and no clean and hygienic washrooms. Disparate pay scales, non-consideration for being assigned administrative responsibilities and inadequate leave provisions add to their woes.

These factors weave a web of injustice where physicians are trapped with no respite. Exploitation, unjustifiable working hours, sleep deprivation, lack of privileges, financial strain and a sedentary lifestyle lead to more young doctors featuring in obituaries than is acceptable. If these issues are not addressed, the death knell of an already crumbling health care system shall be rung and it will definitely ring sooner than later.

This raises the pertinent question- who is accountable? Who shall take responsibility? The call of strike has created more harm than benefit, providing only superficial solutions and fueling public and political rage. Candlelight marches have yielded no result. Negotiations have failed and requests fallen on deaf years. So, who shall guard the guards? Where does the buck stop?

It seems the onus falls on the doctors themselves. It is up to us to survive in this system with our health and dignity intact. The public puts us on a pedestal and forgets we are humans with needs. What is frightening is the brutality with which they drag us off the same pedestal. It is therefore up to us to preserve our mental health, create solidarity and a sense of community with our colleagues, prioritize our health, learn the limits of our body, our mind, reach out and speak out and maybe do our children a favor by dissuading them from following us in taking up our profession. Gone are the days where doctors were glorified as gods. If you were to consider the humble opinion of yours truly, it is far better to be a mortal living out his/her due days in peace than to be a vilified god in an early coffin.

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AYURVEDIC MANAGEMENT OF UTERINE FIBROID: A CASE REPORT

Abstract:

Fibroid is the most common benign solid tumour of the uterus in female. Histologically, this tumour is composed of smooth muscle & fibrous connective tissue, so named as Uterine leiomyoma, myoma or fibromyoma.1 According to the U.S. National Institutes of Health (NIH) 20-25% of women of reproductive age have fibroids. The aetiology still remains unclear. The prevailing hypothesis is that, it arises from the neoplastic single smooth cells of the myometrium. It can be related to Garbhasaya Granthi or Arbuda.2 The presented case involves a 43 years old female patient who approached the outpatient department with complaints of menorrhagia with clots and pain in left iliac region. On the basis of sign and symptoms, USG had shown bulky uterus measuring 9.6×4.6×6.6 cm. & a mixed echoic mass measuring 3.3×2.4 cm. seen in middle part of uterus, which is a Fibromyoma. After having a thorough examination, the patient underwent Ayurvedic treatment protocol, including sodhana chikitsa, oral medication & dietary modifications. After three months, the patient reported symptomatic relief & an ultrasound report with size of uterus i.e. 8.2×5.5×4.4 cm. & a small intramural fibroid of size 15mm.

Key words- Uterine fibroid, Garbhasaaya granthi

INTRODUCTION

Uterine fibroids are common benign smooth muscle tumours of the uterus which affects most of the women during their reproductive lifespan. Histologically, this tumour is composed of smooth muscle & fibrous connective tissue, so named as Uterine leiomyoma, myoma or fibromyoma.[1] Globally, in 2019 uterine fibroids accounted for 9.64 million incident cases, 226.05 million prevalent cases and 1.25 million the number of YLDs (years of healthy life lost due to disability), a significant increase compared with the number in 1990. The majority of fibroids remain asymptomatic (75%) and will not require treatment. They are accidentally discovered by the physician during routine examination or at laparotomy or laparoscopy. The symptoms are related to anatomic type and size of the tumour. The site is more important than size. A small submucous fibroid may produce more symptoms than a big subserous fibroid. However, in symptomatic cases, abnormal uterine bleeding is the most frequent complaint, the commonest of which is heavy menstrual bleeding.3,4 Other symptoms include; abdominal pain, dysmenorrhoea, pressure effect, spontaneous miscarriage and infertility.

PATIENT INFORMATION

A 43-year-old married parous woman, para one, live birth one visited to the outpatient department on February 01, 2023 with complaints of heavy bleeding with clots during menses since eight months and pain in left iliac region since three days. The patient had taken allopathic treatment which gave her temporary relief from bleeding and pain. Past history: no H/O DM/HTA, F/H: not significant.

CLINICAL FINDINGS

General examination

On examination, the general condition of the patient was fair, blood pressure was 110/70 mmHg, pulse rate was 72/min, SpO2 was 98%, respiration rate was 18/min, height was 158cm, and weight was 51kg, with body mass index of 20.4kg/m2. The Prakriti was assessed to be Vatapittaja with Madhyama satva, having mandagni, with Madhyama

kostha. Per abdomen examination revealed that abdomen was soft, mild tenderness in the left iliac region and no organomegaly was detected.

Investigation

The USG-pelvis (February 02, 2023) revealed a bulky uterus measuring 9.6×4.6×6.6 cm. & a mixed echoic mass measuring 3.3×2.4 cm. seen in middle part of uterus, which is a Fibromyoma.

Diagnosis

The clinical features along with the ultrasound scan report suggests that it is case of Intramural fibroid and was diagnosed as Garbhashyagata (intrauterine) Granthi (encapsulated growth). Based on the symptoms, it was treated on the lines of Pradara (Menorrhagia) and Granthi.

Subjective parameter:

Pain – This was assessed using the Visual analogue scale

Objective parameters:

Sl no.	Parameters	Gradation	Score
1.	Duration of the menstrual flow	1 – 5 days	0
		6 – 7 days	1
		8 – 9 days	2
		>10 days	3
2.	Amount of menstrual bleeding loss	1 – 3 pads/day	0
		4 – 6 pads/day	1
		7 – 9 pads/day	2
3.	Consistency of bleeding	Watery	0
		Watery + clots	1
		Clots (mild)	2
		Clots (moderate)	3
		Clots (severe)	4

TIMELINE

After a detailed examination, sodhana procedures and internal medicines were planned for a period of three months.

THERAPEUTIC INTERVENTIONS

Procedure	Intervention	Treatment duration
Deepan pachana	*Agnitundi vati* and *saddharana churna*	3 days 03/02/23 – 05/02/23
Snehpana	*Varunadi ghrita* (upto150 ml) given empty stomach for 5 days starting from 30 ml on 1st day, increased day by day and 150 ml on 5th day	5 days 06/02/24 – 10/02/23
Abhyanga and Swedana	*Bala taila sarvang abhyanga* and *swedana*	2 days 11/02/23 – 12/02/23
Virechana karma	*Trivruta avaleham, abhayadi modak*	1 day (13/02/23)
Samsarajana karma	As per *kostha shudhi*	5 days 14/02/23 – 18/02/23
Yoga vasti	5 *Anuvasana vasti* with *sahacharadi taila* - 120ml 3 *Niruha vasti(lekhana vasti* ingredients)- 750ml	8 days 19/02/23 – 26/02/23

Shamana ousadhies administered

Days (After	Medicines	Dose and anupana
2 months	*Varunadi kasaya*	15ml BD with ½ cup of warm water BF
2 months	*Chandraprava vati*	1 tab. BD AF
2 months	*Kanchanar guggul*	2 tab. BD with warm water AF
2 months	*Kankayana gutika*	1 tab. BD AF

Follow up after two months

Days	Medicines	Dose and anupana
1 month	*Saptasara kasaya*	15 ml BD with ½ cup of warm water BF
1 month	*Kanchanara guggul*	1 tab. BD with warm water AF
1 month	*Mahasankha vati*	1 tab. BD with warm water AF

FOLLOW UP AND OUTCOME

Sl no.	Parameters	Before treatment	After treatment
1.	Duration of the menstrual flow	2	0
2.	Amount of menstrual bleeding loss	1	0
3.	Consistency of bleeding	5	0

Ultrasound report of patient:

Date	Size of uterus	Size of mass	Remarks
02/02/23	9.6×4.6×6.6 cm	3.3×2.4 cm	Fibromyoma with bulky uterus
26/04/23	8.2×5.5×4.4 cm.	15mm	Small intra -mural posterior wall uterine fibroid

Srikshetra Diagnostics

Hospital Square Puri -752001
Phone : 06752 - 221746, 8480086256

- Echo Cardiography
- Ultrasound - Patholab
- Computerised ECG

ULTRASONOGRAPHY REPORT (ABDOMEN AND PELVIS)
Patient Name:
Address:
Referred By: Dr.M.U

Date: 02.02.2023
Age-44 yrs Sex Female

LIVER: Normal size, Shape and contour. A.P. Diameter 10.7 cm. (Normal maximum 13cm).Parenchyma: Echogenesity : Normal. Intra hepatic billary channels are not dilated. Portal vein-0.92 cm. (Normal maximum 13mm).
GALL BLADDER: Gall bladder measures 5.1 x 2.4 cm. Wall thickness- 0.27 cm (Normal maximum3 mm). Lumen contains bile. Calculus – Not seen.
CBD: Normal in diameter mm.(Normal 3 to 6 mm).No intra luminal calculus seen.
PORTA HEPATIS: No Pathology / glands seen.
PANCREAS: Shape, Size, Outline – Normal. Parenchyma – Normal. Pancreatic duct – Normal 2mm.(Normal maximum 3mm)
SPLEEN: Shape,size,Echo texture-Normal.No cyst/S.O.L. seen.Splenic vein-Normal.
BOTH KIDNEYS: Right kidney measures 8.9 x 4.3 cm & Left kidney measures 8.6 x 4.7 cm.(Normal 9-12cm x 5 x 2.5 cm.)Cortico Medullary differentiation is maintained. No Calculus/growth seen.
URETERS: No pathology seen.
BOWEL LOOPS: Appears normal with normal peristalsis. Appendix could not be visualized due to bowel gas.
URINARY BLADDER: Filled with urine 184cc. Wall thickness – Normal. Epithelium appears regular. Internal Echo-Not seen.
UTERUS: **Bulky Uterus measuring 9.6 x 4.6 x 6.6cm.(Normal 7.3 x 4.8 x 2.4cm) Position - Anteverted. A mixed echoic mass measuring 3.3 x 2.4 cm seen in middle part of uterus,Which is a Fibromyoma.** Cervix-Normal.
BOTH OVARIES: Left ovary measures 30.5x 31.8x 22.2cm.Right ovary measures 22.8 x 21.6x 14.4cm.
POD: Clear/Normal.

IMPRESION : - **FIBROMYOMA UTERUS.**

Sonologist
(Dr.Narahari Mishra)

NB: Certified that I have neighter dectected nor disclosed the sex of this foetus.
This Report Is Not Valid For Medico Legal Purposes and Clinical Co-Relation is Suggested.

02/02/2023

RISHNA DIAGNOSTIC CENTRE
r Sri Gundicha Bhakta Nivas, Infront of Sri Gundicha Temple, Puri-2
bile : 8895994226, 8328822754
d. No. : 1655/14
& PNDT Regd. No.:
PUR/PC&PNDT/0034/2022

USG OF WHOLE ABDOMEN (FEMALE)

PATIENT'S NAME:
REF. BY: Dr. Sedeshna Meher, MD
AGE/SEX: 45 Yrs/F
DATE: 26. 04. 2023

LIVER: appears normal in size and measures 11.4 cm, shape and contour. Normal homogeneous parenchymal echo texture noted. No evidence of focal lesion seen. Intra-hepatic vascular channels appear normal. Biliary radicles not dilated.
Portal vein measures 10 mm in caliber.
GALL BLADDER: is normal in size, shape and position. Wall thickness appears normal. No evidence of any intra-luminal mass lesion or calculi noted.
CBD: is normal in caliber (5 mm). Distal duct is not visualized due to overlying bowel gas.
PANCREAS: is normal in size, shape and echo pattern. Pancreatic duct is not dilated. No calculus / cyst / calcification seen.
SPLEEN: shows normal in size (8.7 cm), shape & homogeneous echo pattern. No focal lesion is seen.
KIDNEYS: RIGHT KIDHEY: is normal in size, shape, position and axis. Cortical echo pattern and parenchymal thickness is normal. CM differentiation is maintained. No hydronephrosis / calculus / mass / cyst are seen on right side. Size of RK = 8.7 x 3.3 cm.
LEFT KIDHEY: is normal in size, shape, position and axis. Cortical echo pattern and parenchymal thickness is normal. CM differentiation is maintained. No hydronephrosis / calculus / mass / cyst are seen on left side. Size of LK = 8.9 x 4.0 cm.
URETER: Both ureters are not dilated (normal).
URINARY BLADDER: is normal in outline. No intra-luminal lesion noted. No calculus / mass seen.
UTERUS: is normal in size, shape and contour. There is a small intra-mural fibroid of size 15 mm dia seen in posterior wall of uterus. Endometrial thickness – 7 mm. Size of uterus = 8.2 x 5.5 x 4.4 cm. Cervix appears normal and healthy.
OVARIES: are normal in size, shape, position and echo pattern. No mass / cyst seen in either ovary. Size of ovaries: RO = 2.1 x 1.0 cm; LO = 2.1 x 1.2 cm.
ADNEXAE: No adnexal mass / cyst seen.
POD: appears normal. No fluid.
R I F: Appendix is not visible. No peritoneal fluid collections noted. No evidence of omental thickening seen.
PERITONEUM & RETROPERITONEUM: No nodal enlargement or free peritoneal fluid

IMPRESSION: A SMALL INTRA-MURAL POSTERIOR WALL UTERINE FIBROID.

CONSULTANT RADIOLOGIST

DISCUSSION

Mamsaja granthi/arbuda Uterine fibroid is considered a Bahu dosh janya vikara, which involves garbhashya and deep seated dhatus in the body. Considering this, as mentioned in Ashtanga hridya, Sanshodhan chikitsa i.e. Panchakarma has the property of srotoshodhan i.e. cleansing of micro channels and also to eradicate sroto avarodh i.e. obstruction in micro channels. Virechana karma is done for vitiated pitta and it also has raktaprasadana karma. Basti, the prime treatment in panchakarma5 not only cure vataja disorders but also samsarga and sannipaatja condition of dosha, kaphaja, pittaja disorder, shakhagata and kosthgata rogas by combination of different types of basti.6 The main site of action of Basti is pakvashaya (large and small intestine).5 stimulates different nerves in the intestine, one gets stimulatory or inhibitory effect production of various hormones and neurotransmitters.

In Kanchanara Guggulu, Kanchanara and Guggulu are the main ingredients.7 Kanchanara (Bauhinia variegata) is having Shothahara, Granthihara, Kaphahara, Vranasodhaka etc properties.7 Kanchanara bark showed significant anti-inflammatory activity.8 By the virtue of its lekhaneeya guna and anti-inflammatory property helps in reducing the size and arrest the further growth of existing fibroid.

In Varunadi kasaya, the main ingredients are Varuna (Crataeva nurvala), Shatavari (Asparagus racemosus), Chitraka (PlumbagoZeylanica), Bilva (Aeglemarmelas), Bhallataka (Semecarpusanacardium) etc. which have katu-tikta Rasa, Ushna Veerya. It has kaphavataharam, medanashanam, Gulmanashan, shophahara, and Vidradhi nashana.9

Chandraprabha Vati in which Guggulu and Silajatu become the chief ingredient is Pachana (enhancing digestion),

Lekhana (therapeutic Scraping), Chedana, and Kledasoshana (expels the excessive fluid) with an added indication in Yoni Roga. It has also antitumour effects, – studies show that Fibroadenomas which are the non-cancerous tumor, most commonly benign in nature, can be treated by Kanchanar guggulu and Chandraprabha Vati, which shows significant result in the regression of the tumor. Thus, both can be combinely used in Fibroadenoma breast.10

Kankayan gutika has katu-tikta rasa, katu vipaka, usna virya. It is kapha-vata samaka, deepana, ama pachana, lekhana, vilayana and srota sodhan in nature. Kankayan vati also helps in reduction of the cyst, growth of follicular size to form a mature ovum.

Saptasaram Kashaya11 is having better result in pain as it possesses vatakapha samana, anulomana, rakta shodhana. Most of the drugs own fibrinolytic property which reduces the formation of clots during menstruation which in turn reduces the pain. Also, the properties of the drugs may contribute to reduce pelvic congestion thereby reducing intensity of pain.

Classically, Mahasankha vati is Sheeta Veerya, alkaline in nature, Balya, Grahi, Varnya and is indicated in Amlapitta, Agnimandhya, Grahani, Parinama Shula, and Mukha Dhushika.12 Hingu is a good digestive and appetizer. It pacifies Vata and Kapha, and diseases like Shula, Gulma, Udara, Anaha and Krimi.13 New pharmacological studies have almost confirmed the traditional uses of asafoetida as an antihelminthic, antispasmodic and antibacterial agent.14

CONCLUSION

Uterine fibroid is seen during reproductive life of a female irrespective to the age, which may result in various menstrual problems such as dysmenorrhea, menorrhagia, and irregular periods, by disturbing physiological as well as psychological integrity. Medical management of this problem is possible on the basis of Ayurvedic fundamental principles. Vata-Kapha Shamaka, Rakta-Shodhaka, Lekhana, Shothghna and Kledaghna medicines such as Kanchanara Guggulu, Shigru Guggulu, and Haridra Khanda were found to be very effective in relieving the symptoms of uterine fibroid in this case. Uterine fibroid is similar to Garbhashyagata (intrauterine) Granthi (encapsulated growth) but a large sample clinical study will only establish the hypothesis and may help to contribute to avoid uterine fibroid surgery in initial stages.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. D.C DUTTA, the Text book of Gynecology, edited by Hiralal Konnar, Seven edition Pulished by JP Brother medical publisher, The Health Sciences Publisher New Delhi, 224.
2. Chapter in a book: Tiwari Premavati, Prasooti tantra evam strirog. Varanasi: Chaukambha Orientalia; 2022.
3. Kayadibi Y, Ozmen E, Emir H, Emre S, Dervisoglu S, Adaletli I. Subserosal leiomyoma of uterus mimicking an ovarian tumour in adolescent patient. Japanese Journal of Radiology 2013; 32(1):48–52.
4. Bassey D, Dianabasi, Inah G, Ekott M. Prevalence of uterine fibroid among adolescent school girls in Calabar, Nigeria. IOSR-JDMS. 2016;15(3):74- 75.
5. Editor(s), compiler(s) as author: Caraka, Srikanth Murthi MR. Carak Samhita (English Translation). Varanasi: Chaukambha Orientalia; 2001.

6. Editor(s), compiler(s) as author: Sushruta, Srikanth Murthi MR. Sushrut samhita (English Translation) nidaan sthan, Varanasi: Chaukambha Orientalia; 2001.
7. Kaviraj Govind Das Sen, Bhaishajyaratnavali, Galagandadirogadhikar Adhyaya, 44/62, 67, In: Prof. Siddhinandan Mishra, Editor, Reprinted, Chaukhamba Orientalia, Varanasi, 2015; 806.
8. The Ayurvedic Formulary of India, Part-I, Second Revised English Edition, Government of India, Ministry of Health and Family Welfare, Dept. Of AYUSH, New Delhi, Page no-67
9. Vagbhatta, Astanga Hridaya, edited by Tripathi Dr. Brahmanand, Sutrasthana – 15th Chapter, Shloka No. 21, Chaukhambha Sanskrit Pratishthan, Delhi, Page No. 200.
10. Agnihotri NS, Deshmukh JS. A Clinical Study on the Management of Fibroadenoma of Breast with Kanchanar Guggulu and Chandraprabha Vati. Aayushi International Interdisciplinary Research Journal, 2017; 4(8): 72-74
11. K. V. Krishnan Vaidyan, S. Gopalapilla, Sahasrayogam, Sujanapriya Vyakhyanam, Ed:31, Vidyarambham Publishers, Mullakkal, Alappuzha688011; p 92
12. Sadananda Sharma. Rasa Tarangini. edited by th Kashinatha Shastri, 11 ed. Delhi: Motilal Banarasidas; 1989. 12/20-21, 20/83-86, 14/154 155 p.288 and 364.
13. Bhavamishra. Bhava Prakasha Nighantu. Commentory by Chunekar KC and Pandeya GS. Varanasi: Chowkhambha Bharati Academy; 2004.
14. Milad Iranshahy, Mehrdad Iranshahi. Traditional uses, phytochemistry and pharmacology of asafetida (Ferula assa-foetida oleo-gum-resin)—A review. Journal of Ethnopharmacology, 2011;134:1-10

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FATTY LIVER DISEASE & ITS TREATMENT

ABSTRACT

Fatty liver disease (FLD) is a condition characterized by excessive fat accumulation in the liver, and it is primarily classified into two types: alcoholic fatty liver disease (AFLD) and non-alcoholic fatty liver disease (NAFLD). NAFLD, the more prevalent form, is strongly associated with metabolic risk factors such as obesity, type 2 diabetes, hypertension, and dyslipidaemia. As the global prevalence of these risk factors rises, the incidence of FLD continues to increase, making it a leading cause of liver-related morbidity and mortality. In its early stages, FLD may be asymptomatic or mildly symptomatic, progressing to NASH, fibrosis, cirrhosis, and liver failure.

Keywords- NAFLD, AFLD, HCC, FLD, NASH

INTRODUCTION

Fatty liver disease is common, caused by genetic and lifestyle factors, leading to chronic liver damage and higher cardiovascular risk FLD occurs when fat accumulates in the liver, exceeding 5% of its weight, without being linked to alcohol consumption or due to alcohol. Fatty liver disease exists in two forms: non-alcoholic fatty liver disease (NAFLD) and alcohol-related fatty liver disease (AFLD). In early stages, fat build up causes reversible steatosis; continued alcohol use can lead to hepatitis, fibrosis, and cirrhosis. Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease globally, ranging from simple steatosis with fat accumulation to NASH, which involves hepatocyte ballooning, inflammation, fibrosis, cirrhosis, and potentially hepatocellular carcinoma (HCC).

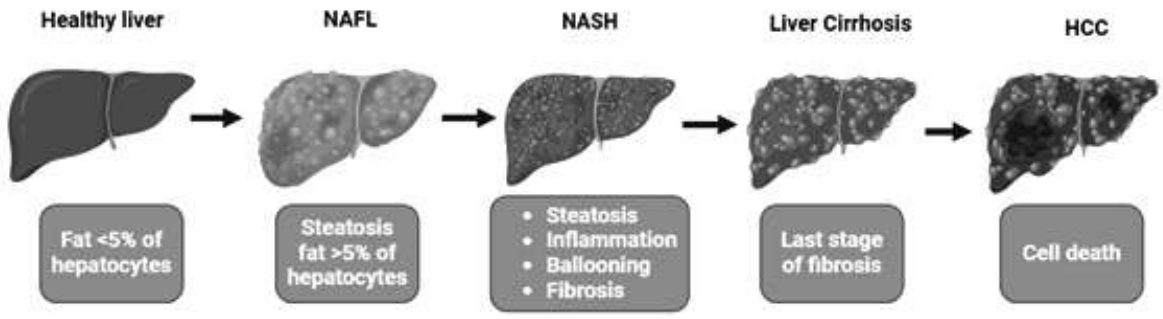

Fig no-1(stages of liver disease)

EPIDEMIOLOGY OF FATTY LIVER

Non-alcoholic fatty liver disease (NAFLD) affects 25% of the population, with 2% to 5% developing the more severe NASH.NAFLD prevalence rises with sedentary lifestyle, overeating, affecting lean, non-diabetic individuals. NAFLD is emerging as a primary cause of chronic liver disease in India, while cirrhosis ranked thirteenth globally in death causes. Chronic viral hepatitis B and C cause cirrhosis, liver cancer. Epidemiological studies on liver disease in developing countries have primarily concentrated on viral hepatitis. In contrast to developing nations, developed Western countries see non-alcoholic fatty liver disease (NAFLD) as the third most common liver disease, after HCV and alcoholism.

ETIOLOGY OF LIVER CIRRHOSIS

Liver cirrhosis is primarily caused by exogenous, infectious, autoimmune, vascular issues, or inborn metabolic errorsGender, ethnicity, geography influence cirrhosis; hepatitis B, C, alcohol major causes

Alcoholic liver disease: Chronic alcohol consumption activates stellate cells, causing fibrosis and HCC.

High-fat diets: High-fat, fructose-rich, and Western diets contribute to NAFLD, obesity, ATP depletion, and liver fibrosis.

Steatosis: Obesity, steatosis, metabolic disorders, alcohol, and drugs can cause chronic liver cirrhosis

Oxidative stress: Oxidative stress drives fibrogenesis, fibrosis progression, and liver cirrhosis development.

Zinc deficiency and altered zinc metabolism: Zinc deficiency in liver disease impairs protein metabolism and liver.

Fig no-2 Risk factor of NAFLD

Current Treatment of Non-alcoholic Fatty Liver Disease

NASH is the second leading cause of liver disease in U.S. transplants; managing obesity, diabetes prevents NAFLD. It can be treated in a number of ways based on current medical procedures and drugs.The methods that are followed are as follows:-

1. LIFESTYLE MODIFICATIONS

Weight Loss: Losing 5–10% of body weight significantly improves liver health.

Dietary Adjustments: Lean proteins, whole grains, fruits, vegetables reduce liver fat; limit processed foods, sugars, fats.

Physical Activity: Regular exercise, such as jogging or cycling, helps with weight loss, insulin sensitivity, and supports liver health

2. PHARMACOLOGICAL INTERVENTIONS

Many drugs are being researched for potential NAFLD treatment options. Among the agents that show promise are:

Vitamin E: Vitamin E may reduce liver fat and improve enzymes in NASH, but its safety requires further evaluation.

Pioglitazone: TZD improves liver fibrosis in NASH, may cause fluid retention.

GLP-1 Receptor Agonists: Originally for diabetes, these drugs reduce liver fat, regulate appetite.

Agonists for FXR: FXR agonists target liver receptors, reduce fat and inflammation in NAFLD.

3. New Treatments

For NAFLD, a number of additional intriguing treatments are presently being investigated, including:

Bile Acid Sequestrates: These drugs reduce bile acid reabsorption, promoting production from liver fat.

Antioxidants: Antioxidants protect liver cells, while omega-3 reduces fat and inflammation.

Current Treatment of Alcoholic Fatty Liver Disease

AFLD treatment includes lifestyle changes, alcohol cessation, medications, and potential liver transplant. The methods that are followed are as follows:-

1. Abstinence from Alcohol: Avoiding alcohol helps liver heal, may reverse AFLD damage, and requires abstinence.

2. Nutritional Therapy: A balanced diet with fruits, vegetables, and whole grains supports liver health; professionals offer personalized advice.

3. Medications: In some cases, medications may be used to manage symptoms or address specific complications of AFLD.

These medications may include:

Corticosteroids: To reduce inflammation in severe cases of alcoholic hepatitis.

Pentoxifylline: May also help reduce inflammation in alcoholic hepatitis.

Other medications: Under investigation for potential future treatments.

4. Liver Transplant: In severe liver failure, a transplant may be necessary, reserved for patients with end-stage disease.

Additional Considerations:

Support and Counselling: Healthcare professionals, support groups, therapists aid abstinence and manage AFLD challenges.

Regular Monitoring: Regular check-ups with a healthcare provider are crucial to monitor liver function and assess the effectiveness of treatment.

CONCLUSION

At the moment, lifestyle modification—with an emphasis on weight loss, dietary changes, and consistent physical activity—remains the cornerstone of managing FLD. By addressing the underlying risk factors, these techniques not only aid in the reduction of liver fat but also enhance metabolic regulation. Nevertheless, pharmacologic treatments are becoming more widely acknowledged as viable adjuncts, particularly for individuals with more advanced disease or those who cannot obtain sufficient gains through lifestyle changes alone, notwithstanding the significance of lifestyle adjustments. Although a number of drugs, including pioglitazone, vitamin E, and GLP-1 agonists, have demonstrated effectiveness in clinical studies, there are currently no FDA-approved therapies that target FLD directly.

REFERENCE

1. Petroni, M.L., et al., Management of non-alcoholic fatty liver disease. Bmj, 2021. 372.
2. Liu, Q., S. Bengmark, and S. Qu, The role of hepatic fat accumulation in pathogenesis of non-alcoholic fatty liver disease (NAFLD). Lipids in health and disease, 2010. 9: p. 1-9.
3. Craciun, A., C. Lackner, and H. Cortez-Pinto, Nonalcoholic fatty liver disease versus alcohol-related liver disease: is it really so different? Current pharmaceutical design, 2020. 26(10): p. 1093-1109.

4. Purohit, V., D. Russo, and P.M. Coates, Role of fatty liver, dietary fatty acid supplements, and obesity in the progression of alcoholic liver disease: introduction and summary of the symposium. Alcohol, 2004. 34(1): p. 3-8.
5. Lonardo, A., et al., History of nonalcoholic fatty liver disease. International Journal of Molecular Sciences, 2020. 21(16): p. 5888.
6. Younossi, Z.M., et al., Global epidemiology of nonalcoholic fatty liver diseasemeta-analytic assessment of prevalence, incidence, and outcomes. Hepatology, 2016. 64(1): p. 73-84.
7. Yalamanchili, K., et al., Nonalcoholic fatty liver disease after liver transplantation for cryptogenic cirrhosis or nonalcoholic fatty liver disease. Liver Transplantation, 2010. 16(4): p. 431-439.
8. Murray, C.J. and A.D. Lopez, Mortality by cause for eight regions of the world: Global Burden of Disease Study. The lancet, 1997. 349(9061): p. 1269-1276.
9. Williams, R., Global challenges in liver disease. Hepatology, 2006. 44(3): p. 521-526.
10. Beasley, R.P. and L.-Y. Hwang. Hepatocellular carcinoma and hepatitis B virus. in Seminars in liver disease. 1984. © 1984 by Thieme Medical Publishers, Inc.
11. Kim, W.R., et al., Burden of liver disease in the United States: summary of a workshop. Hepatology, 2002. 36(1): p. 227-242.
12. Méndez-Sánchez, N., et al., Etiology of liver cirrhosis in Mexico. Annals of Hepatology, 2004. 3(1): p. 30-33.
13. Grüngreiff, K., D. Reinhold, and H. Wedemeyer, The role of zinc in liver cirrhosis. Annals of hepatology, 2016. 15(1): p. 7-16.
14. Hernandez-Gea, V. and S.L. Friedman, Pathogenesis of liver fibrosis. Annual review of pathology: mechanisms of disease, 2011. 6(1): p. 425-456.
15. Wiegand, J. and T. Berg, The etiology, diagnosis and prevention of liver cirrhosis: part 1 of a series on liver cirrhosis. Deutsches Ärzteblatt International, 2013. 110(6): p. 85.
16. Durand, F., et al., Age and liver transplantation. Journal of hepatology, 2019. 70(4): p. 745-758.
17. Pinter, M., et al., Cancer and liver cirrhosis: implications on prognosis and management. ESMO Open, 2016. 1(2): p. e000042.
18. Rinella, M.E. and A.J. Sanyal, Management of NAFLD: a stage-based approach. Nature reviews Gastroenterology & hepatology, 2016. 13(4): p. 196-205.
19. Harrison, S.A. and C.P. Day, Benefits of lifestyle modification in NAFLD. Gut, 2007. 56(12): p. 1760-1769.
20. Perumpail, B.J., et al., The Role of Vitamin E in the Treatment of NAFLD. Diseases, 2018. 6(4): p. 86.
21. Yao, P. and Y. Liu, Terpenoids: Natural compounds for non-alcoholic fatty liver disease (NAFLD) therapy. Molecules, 2022. 28(1): p. 272.
22. Dharani, S., A Prospective Observational Study to Evaluate the Efficacy of Pentoxifylline in Severe Alcoholic Hepatitis in a Tertiary Care Hospital. 2017, Rajiv Gandhi University of Health Sciences (India).
23. Donnelly, M.C., P.C. Hayes, and K.J. Simpson, The changing face of liver transplantation for acute liver failure: assessment of current status and implications for future practice. Liver Transplantation, 2016. 22(4): p. 527-535.

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GINSENG AND ULCERATIVE COLITIS

Ulcerative colitis (UC) is a chronic inflammatory bowel disease (IBD) that primarily affects the colon and rectum. It is characterized by repetitive episodes of inflammation, leading to ulceration, bleeding, and diarrhea. Conventional treatments for UC include systemic steroids, anti-inflammatory medications, immunosuppressants, and biologics. However, these treatments can have significant side effects, including infection, gastrointestinal disturbances, and an increased risk of malignancy.

Ginseng, a perennial herb belonging to the genus Panax of Araliaceae family, has been used in traditional medicine for centuries to enhance physical and mental performance, boost immunity, and combat various diseases. Different ginseng species, including Panax ginseng and Panax quinquefolius , have been extensively studied for their pharmacological properties.

Ginseng's potential benefits in UC are attributed to its diverse pharmacological properties, including anti-inflammatory, antioxidant, and immunomodulatory effects etc.

è ANTI-INFLAMMATORY EFFECTS: Ginseng has shown to inhibit the production of pro-inflammatory cytokines, such as tumor necrosis factor-alpha (TNF-α) and interleukin-6 (IL-6), which play a crucial role in the pathogenesis of UC. Ginsenosides have been reported to suppress the activation of nuclear factor-κB (NF-κB), a key transcription factor involved in the inflammatory response. Additionally, ginseng may modulate the activity of cyclooxygenase-2 (COX-2), an enzyme involved in the production of prostaglandins, which contribute to inflammation in UC.

è ANTI-OXIDANT EFFECTS: Oxidative stress is implicated in the pathogenesis of UC. Ginseng exhibits antioxidant properties, as it can scavenge reactive oxygen species (ROS) and enhance the activity of antioxidant enzymes, such as superoxide dismutase (SOD) and glutathione peroxidase (GPx). By reducing oxidative stress, ginseng may help protect the intestinal mucosa from damage and promote tissue repair potentially improving gut integrity.

è IMMUNOMODULATORY EFFECTS: Ginseng can modulate the immune response by regulating the activity of various immune cells, including T cells, B cells, and macrophages.It has been shown to suppress the proliferation of T cells and promote the differentiation of regulatory T cells (Tregs), which play a crucial role in maintaining immune tolerance. Ginseng can boost the immune system, but it can also exacerbate autoimmune diseases. However, there are reports showing that ginseng can regulate the immune system in a balanced manner.

è REGULATION OF GUT MICROBIOTA: Emerging evidence suggests that ginseng may have a positive effect on the gut microbiota. An imbalance in gut bacteria, known as dysbiosis, is a known factor in the pathogenesis of UC. Ginseng has been shown to modify the composition of the gut microbiome, promote the growth of beneficial bacteria and suppress harmful bacteria, which may help reduce UC symptoms.

è ANGIOGENESIS AND HEALING PROMOTION: Ginseng may also increase angiogenesis, the formation of new blood vessels, which is important for tissue repair and healing in the inflamed intestine. It may promote the healing of damaged intestinal tissue by increasing blood flow and nutrient supply to the affected areas.

è INHIBITION OF NITRIC OXIDE PRODUCTION: Some studies indicate that ginseng may decrease the production of nitric oxide (NO), which is often elevated in UC and contributes to inflammation and tissue damage. By reducing NO, ginseng may help alleviate the inflammatory response in the intestines.

Several studies have investigated the effects of ginseng on UC, with promising results.

è ANIMAL STUDIES: Animal models of UC have shown that ginseng can ameliorate disease activity by reducing inflammation, improving mucosal healing, and restoring intestinal barrier function. A study published in Carcinogenesis (oxford journals) examined the effects of American ginseng extract on colitis in mice. Researchers found that the extract not only prevented colitis but also treated it by reducing inflammatory markers such as inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2). Additionally, it also protected against DNA damage associated with colitis. A study in Cancer Prevention Research examined the effects of the hexane fraction of American ginseng on colitis in mice. Researchers found that this fraction suppressed colitis by blocking the expression of inflammatory signals and inhibiting the development of colon cancer. Research published in Oncotarget identifies panaxinol, a bioactive component of American ginseng, as a compound that targets inflammatory pathways. This study provides mechanistic evidence supporting the use of American ginseng in the treatment of colitis and other inflammatory diseases.

è HUMAN STUDIES: While human studies on ginseng and UC are limited, some clinical trials have shown promising results A randomized controlled trial was published in which it was found that SJZD in ginseng was more effective than mesalazine in producing clinical remission in patients with mild to moderate UC, also SJZD could improve UC by modulating gut homeostasis through microbial modulation and intestinal barrier integrity. A clinical study showed that rectal co-administration of Panax notoginseng and Cola cori asini suppositories effectively reduced clinical symptom scores and inflammatory factors in UC patients, thereby improving colon immune function. The result of a network meta-analysis indicated that Chinese Herbal Injection (Xiangdan injection, Shenmai injection, Shengmai injection, and Danshen injection may be the most effective CHI) integrated with traditional drugs is likely to be effective for treating UC.

Ginseng has the potential to reduce symptoms of ulcerative colitis due to its therapeutic properties. Preclinical studies have highlighted its ability to reduce inflammation and improve gut health, but clinical research is scarce. Despite being promising as a complementary therapy, it should not replace standard treatments. More rigorous trials are needed to confirm its efficacy and safety. Medical guidance is necessary for its use in the management of ulcerative colitis.

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OBESITY AND ITS DIETIC MANAGEMENT

In the present era, Obesity has emerged as a prevalent health concern worldwide. Modernization of lifestyles has significantly contributed to the rise of the disease Obesity. It results from an excessive accumulation of fat in the body, which aligns with the Ayurvedic concept of Medaroga or Sthoulya. Ayurveda describes this condition as one of the Ashtanindaniya Purusha (undesirable person) as mentioned in Ayurveda (Charaka Samhita). Kapha is an Ayurvedic humour which is dense, heavy, slow, sticky, wet and cold in nature,In a balanced state ,it gives nourishment to the tissues and when it is aggravated, it accumulates in weaker channels of the body, may lead to blockage of body channels.

Obesity is a medical condition that can negatively affect health. The World Health Organization (WHO) defines obesity in adults as a Body Mass Index (BMI) greater than or equal to 30. It is recognized as a significant risk factor for numerous chronic conditions, including cardiovascular diseases, Cancer, Type 2 diabetes, and stroke.

The prevalence of severe obesity among adults stands at 9.4%, with women experiencing higher rates compared to men.

Classification of Obesity

- Overweight (Hina Sthaulya): BMI between 25–29.9 kg/m²
- Obesity (Madhya Sthaulya): BMI between 30–39.9 kg/m²
- Morbid Obesity (Ati Sthaulya): BMI ⩾ 40 kg/m²Image Source - https://drsmitaramachandran.com/Causative Factors
- Primary Cause: Genetic predisposition / Hereditary
- Secondary Causes: Sedentary lifestyle, lack of physical activity, and frequent consumption of fast foods, consumption of high-fat and oily foods, unbalanced diets rich in refined carbohydrates, stress, smoking, alcohol consumption,due to excess intake of Madhur Ahar (sweet diet), Consuming food without hunger or on an irregular schedule.
- Incompatible dietary combinations (Virudha Bhojan), excessive water intake, sour curd, sweets, cakes, and indulgence in uncontrolled eating (Asanjami).
- Daytime naps, jaggery, milk-based diets, black gram, red meat, and fish are contraindicated for individuals with obesity. Underlying conditions such as diabetes mellitus, hypothyroidism, hyperthyroidism, kidney failure, and adverse effects of certain medications.

Obesity primarily affects individuals aged 20–60 years, with a higher prevalence among middle-aged individuals, menopausal women, and older adults.

Clinical Features

Key symptoms of obesity include a sensation of heaviness, breathlessness, excessive sleepiness, lethargy, and fatigue. Obesity also predisposes individuals to heart attacks, hypertension, peripheral vascular disease, metabolic disorders and musculoskeletal complications.

Prevention and Dietary Management

While obesity has multifactorial origins, dietary interventions play a crucial role. Leading researchers highlight caloric restriction as the cornerstone of weight management.

- Lifestyle Modifications: Limit the intake of sugar-sweetened beverages, salt, and calorie-dense foods. Incorporate at least 10 minutes of walking after meals.
- Nutritional Supplements :

o Garlic (3–4 grams daily) to reduce cholesterol and combat atherosclerosis.

o Trikatu (125–500 mg with warm water or honey) for reducing cholesterol and supporting heart health.

o Tulsi for its antioxidant and cholesterol-lowering properties.

o Triphala to reduce blood lipids and protect the heart and liver.

o Bark of Arjun- It can be made kwath taking 5 to 10gm of Arjun bark and boiled with water (4part) and milk (8parts).One part will remain

o Green tea to lower LDL cholesterol.

o Coriander water and turmeric to manage lipid levels.

o Warm water, Vacha (Acorus calamus), barley (Yava), and honey.

o Fiber-rich vegetables such as pointed gourd (Potol), brinjal, radish, carrot, and fruits like pomegranate, pineapple, and orange.

o Other recommended items include yogurt (Takra), ginger, tomato, old rice, and salads.

Lifestyle Interventions :

- Incorporate regular physical activity, fasting, and yoga practices such as Anulom-Vilom and Kapalabhati.
- Behavioral changes, including moderation in eating habits, are essential first-line treatments. Advanced therapies like Shaman, Shodhan (Panchakarma) in Ayurveda or bariatric surgery in modern medicine are reserved for severe cases.

Conclusion

Obesity is a serious health hazard that increases morbidity and mortality by stressing all body systems. While obesity may "lengthen the waistline," it significantly "shortens the lifeline" by imposing undue stress on all body systems. Ayurveda aptly states, "Sthoulya Na Bhesajasm," highlighting the challenges in treating obesity. Although no pharmacological solution guarantees a cure, adopting a fat-free, low-calorie diet and healthy lifestyle habits can significantly improve well-being, despite unchangeable genetic factors. Celebrated on March 4, World Obesity Day emphasizes breaking stigmas, raising awareness, and inspiring collective action to prevent and treat obesity effectively. This year's theme, "Changing Perspectives: Let's Talk About Obesity," encourages open dialogue and a shift in how obesity is viewed and addressed globally.

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THALASSEMIA AND IT'S NATURAL CURE

Thalassemia is a genetic blood disorder characterized by the body's inability to produce enough healthy hemoglobin, an essential component of red blood cells. Hemoglobin carries oxygen throughout the body, and its deficiency leads to anemia—a condition marked by fatigue, weakness, and pale skin.

Types:

1. Alpha Thalassemia: Caused by mutations in the alpha-globin gene. It ranges from mild to severe forms, including Hemoglobin H disease and Bart's hydrops fetalis.
2. Beta Thalassemia: Resulting from mutations in the beta-globin gene. The severity varies, with Beta Thalassemia Major (Cooley's anemia) being the most severe, leading to significant health issues

Symptoms:

- Fatigue
- Weakness
- Pale or yellowish skin (jaundice)
- Enlarged spleen
- Slow growth in children
- Bone deformities, particularly in the face

Diagnosis and Treatment:

Diagnosis involves blood tests to detect abnormal hemoglobin levels and genetic testing. Treatment depends on the type and severity of the disease. Options include regular blood transfusions, iron chelation therapy to remove excess iron, and bone marrow or stem cell transplantation as potential cures. Management also involves monitoring and treating complications.

Risk Factors:

- Ethnic Background: Thalassemia is more common in people of Mediterranean, Middle Eastern, South Asian, and African descent.
- Family History: A family history of thalassemia increases the risk of inheriting the condition.

Natural Cure For Thalassemia:

1. Folic Acid-Rich Foods: Folic acid is essential for red blood cell production. Foods rich in folic acid include leafy greens (spinach, kale), citrus fruits, beans, lentils, and fortified grains.
2. Turmeric (Curcumin): Turmeric contains curcumin, which has anti-inflammatory and antioxidant properties. It can help reduce oxidative stress and inflammation, potentially alleviating complications related to iron overload1.
3. Wheatgrass Juice: Wheatgrass juice is known for its high nutrient content and can support overall health. It's best consumed fresh on an empty stomach2.
4. Tulsi (Holy Basil) Juice: Tulsi juice has been traditionally used for its health benefits. Consuming 4-5 teaspoons of fresh tulsi juice daily may help manage symptoms2.
5. Calcium and Vitamin D: Ensuring adequate calcium and vitamin D intake is important for bone health, especially for those with thalassemia who may experience bone deformities. Sun exposure for 5-10 minutes early in the

morning can help with vitamin D synthesis2.

6. Balanced Diet: A well-balanced diet rich in nutrients can support overall health. Include a variety of fruits, vegetables, lean proteins, and whole grains.
7. Avoid Iron Overload: People with thalassemia should be cautious about iron intake, as excess iron can cause organ damage. Consult with a healthcare provider for personalized dietary advice.

In conclusion, thalassemia is a hereditary blood disorder caused by genetic mutations affecting hemoglobin production. This results in an imbalance of globin chains, leading to ineffective erythropoiesis and chronic anemia. The condition can present with symptoms such as fatigue, weakness, and pallor, and may cause serious complications like organ damage due to iron overload.

Management of thalassemia involves regular medical treatments such as blood transfusions and iron chelation therapy, and in some cases, bone marrow or stem cell transplantation offers a potential cure. Natural remedies, while supportive, should complement but not replace conventional medical treatments.

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FROM UNBEARABLE TO UNSTOPPABLE

It's been said that our quality of life is created by the quality of our habits. If a person is living a successful life, then the person simply has the habits in place that are creating and sustaining their level of success. On the other hand, if someone is not experiencing the level of success they want no matter what the area they simply haven't committed to put the necessary habits in place which will create the results they want.

Considering that our habits create our life, there is arguably no single skill that is more important for you to learn and master than controlling your habits. You must identify, implement and maintain the habits necessary for creating the results you want in your life while learning how to let go of any negative habits which are holding you back from achieving your true potential

Habits are behaviors that are repeated regularly and tend to occur subconsciously. Whether you realize it or not, your life has been and will continue to be created by your habits. If you don't control your habits, your habits will control you. Unfortunately, if you are like the rest of us, you were never taught how to successfully implement and sustain positive habits. There's no class offended in school “Habit Mastery”. There should be, such a case would probably be more important to your success and overall quality of life than all of the other courses combined. Because they never learned to master their habits, most people fail at virtually every attempt to control them, time and time again. Take the correct step to control your habits as resolutions.

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CONTRIBUTION OF RASAYANA IN GERIATRIC CARE

ABSTRACT

The Development of any country depends on the number of Young people in society ,Ageing is a natural process that begins at birth,or to be more precise,at conception,a process that progresses throughout ones life and ends at death, but according to recent data we soon will have aged community more than youth. In Ayurveda Jara chikitsa is the branch of medicine dealing with the problems of aging.The number of people aged 65 or older is projected to grow from an estimated 524 million in 2010 to nearly 1.5 billion in 2050. The term Rasayana (Rasa+ Ayana) refers to the nourishment and for the formation of best qualities of Dhatus, like cells and tissues of the body. Rasayana therapy act essentially on nutrition dynamics and rejuvenate the body on both physical and mental health. In Ayurveda aging (Jara) is one of the Swabhavik Vyadhi. In current scenario with proper administration of Rasayana therapy we can delay Jara Janita Vyadhis. Thus rasayana plays an important role in geriatric care.

KEYWORDS: Rasayana, Swabhavik Vyadhi, Jara Chikitsa, Geriatric.

INTRODUCTION

At present era, there arised a situation in which human community will witness many aged individuals than young people. Nowadays many developing countries face chronic diseases like heart disease, cancer, diabetes etc. This reflects Changes in the personal lifestyle and causes ageing. Ayurveda deals mainly with all the aspects of life in relation of health and prevention of disease. Rasayana therapy is very important for promotion of life and prevention of disease. Rasayana Improved physical and mental health. Jarachikitsa is the branch of Ashtanga Ayurveda which aims to promote health by preventing and treating diseases and disabilities in older adults. Rasayana plays an important role in geriatric diseases.

Jara Chikitsa

It is a branch of Ashtanga Ayurveda. Jara chikitsa is a science which deals with problems and diseases of elderly. Ageing is defined as the total sum of physiological changes that progressively leads to death of individual. Vridha vastha refers to the stage where older individuals has attained the state of dhatu kshaya Charak, has considered age above 60 years to be Vridha vastha but Sushruta and Vagabhatta considered it as age more than 70 years. Vridha vastha is characterized by diminution of tissues,sense faculties,strength,

vitality and diminution of enthusiasm day after day, person develops wrinkles,graying of hairs ,occurrence of secondary disorders, inability to perform all activates. Vata dosha is predominant in old age. So there will be more of catabolic activities taking place in body. By using rasayana regularly, one can preserve his health and delay ageing.

RasayanaTherapy

The word Rasayana refers to nourishment and is helpful in the formation of best qualities of Dhatus,like cells and tissue of the body, which leads to an improvement in physiological state,better immunity,bio strength, mental competence and longevity. Thus Rasayana therapy has a comprehensive scope for positive nutrition, immune enhancement, longetivity and sustaining of mental and sensorial competence. Besides the promotion of mental and physical health and rejuvenation potential, it offers a preventive role against all ranges of diseases through improved immunity and bio- strength. Thus, Rasayana therapy is the essential component of Ayurvedic geriatrics and geriatric

health care.

The invigorating of energizing substances for the health of the healthy are usually Vrsya (Aphrodisiacs including semen potency) and Rasayana (Rejuvenating).

Rasayana tantra is the modality of Ayurveda, which describes the methods of withholding ageing, increasing lifespan, intelligence, strength, and capacity to get rid of diseases.

The therapy which sustains ageing and prevents the disease is known as Rasyana.

Classification of Rasayana

A) As per method of use

1. Vatatapika Rasayana or casual outdoor practice
2. Kutipraveshik Rasayana or intensive regimen (Inclusive of Panchakarma) using a specially designed Trigarbha Rasayana kuti or therapy chamber.

B) As per scope of Application

1. Kamya Rasayana - for the promotion of health of the healthy, further sub-classified as

a. Sri Kamya-To promote lusterand beauty

b. Prana Kamya-To promote longevity

c. Medha Kamya-To promotion mental competence.

2. Naimittika Rasayana-To induce bio-strengthening a diseased person to fight better with his existing disease.
3. Ajasrika Rasayana- Daily dietary Rasayana approach consuming Sattvika, nourishing elements of the diet.

According to Prabhava (Effect)

(1) Samshodhana Rasayana

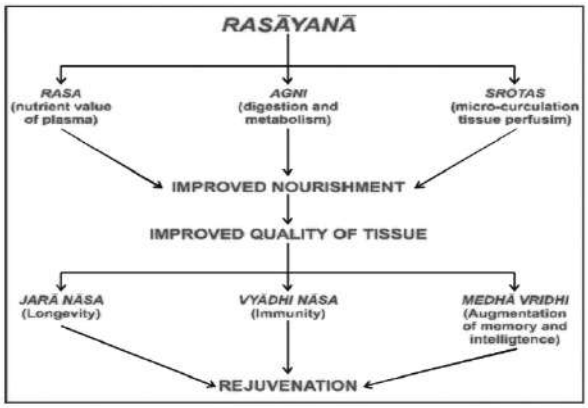
(2) Samshamana Rasayana

Mode of Action

As our classics Rasayana therapy works on Agni which in turn leads to proper formation of Rasadi dhatus, hence responsible forformation of Ojas, which is considered as prime essence of these Rasadi Datus. In terms of vyadhi Kshamtva, this is responsible for the appropriate functioning of the body's immune system. Hence, Rasayana plays a crucial role in prevention of aging and old age related disease.

The probable mode of action of Rasayana therapy as per contemporary scienceis as follow.

Antioxidant Action	Amalaki
Immuno-modulator yaction	Guduchi
Haemopoietic Effect	Amalaki,Lauha Bhasma
Anti-aging Action	Ashwangandha,Bala
Anabolic Action	Vidarikanda
Neuroprotective Action	Swarna Bhasma,Rajata Bhasma
Nutritive function	Ghrita,Ksheera



Decade Wise Rasayana by Sharangdhar Samhita

AGE	ACTION	DECADEOFLIFE	USEDRASAYANA
1-10	Balya	Childhood	Vacha,Swarna bhasma
11-20	Vriddhi	Growth and Development	Ashwangandha,Bala
21-30	Chavi	Complexion	Amalaki,louha bhasma
31-40	Medha	Intelligence Power	Sankhapushpi,Brahmi
41-50	Twak	Skin	Bhringaraja,priyala
51-60	Drishti	Visual Activity	Triphala,Shatavari
61-70	Shukra	Fertility	Atmagupta,Ashwangandha
71-80	Vikram	Valour	Amalaki,Bala

MATERIALS AND METHODS

The literary sources for the Present work was collected from Charak Samhita, Sushruta Samhita, AstangHridaya, Astang Sangrah, Chakradatta, Sharangdhar Samhita and available commentaries on it. It will be correlated with contemporary available literature, journals, websites, and research paper as per the need of the study.

DISCUSSIONS

Ayurveda gives importance for geriatric care, since it is one among the branch of Ashtnga Ayurveda. Jara Chikitsa has a good scope in present day scenario. As mentioned earlier, the qualities of Rasayana therapy are one which enhances the longevity, memory, freedom from diseases youthful age, excellence of lustre, complexion and voice, optimum strength of physique and sense organs, successful words and brilliance. Hence, these Rasayana drugs have critically analyzed and mentioned in specific age group as to overcome the specific age related situation.

CONCLUSION

The entire ayurvedic management is more health oriented Than disease oriented(maintaining the health of a healthy Individual).So to maintain the healthy state of a person one should follow the swasthavritta principles.Rasayan Therapies are helpful in attaining long life,vitality and happiness.so we should practice Rasayan with complete devotion according to the prescribed procedure.

REFRENCES

1. Srimat Charak, Chakrapanidatta, English translation by

   P.V. Tiwari, Charak Samhita, Chaukhambha Vishwabharati edition year 2018.

2. Srimat Sushruta Dalhana, English translation by Prof.

K. R. Srikanthmurthy, Sushruta Samhita, Chaukhambha Orientalia, Varanasi, re-print -2017. 3. Srimat Vagbhatta English translation by Prof. K. R. Srikantmurthy, Astanghrudyam. Chaukhambha krishnadas, Academy, Varanasi re-print – 2009.

4. Srimat Vriddha Vagbhatta Indu Ashtanga Sangrah Chaukhambha Sanskrit Series office, Varanasi reprint – 2008.
5. Sharangadhacharya, Sharangdhar Samhita Edited: Pandit Parshuram Sastri Vidyasagar with Admalla Dipika and kashiram's Gudartha Dipika 7th edition Chaukhambha Orientalia Varanasi- 2008.
6. http://www.who.int/topics/ageing/en.
7. https:// en.m.wikipedia.org/wiki/Geriatrics

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BUBONOCELE CASE REPORT
HOMOEOPATHY HOLISTIC APPROACH

Introduction:

A Hernia is an abnormal protrusion of an organ or tissue through an opening in the layer that normally confines it.Inguinal Hernia is most common hernia in men and is around 10 times more common in men than in women. Congenital inguinal hernia is of indirect type, whereas acquired hernias may be either indirect or direct. Hernia does not come out of the superficial inguinal ring and is limited to the inguinal canal. Bubonocele is also called as incomplete indirect inguinal hernia. Bubo-(Enlarged lymph node in groin).Bubonocele downward descend of the sac is limited to the inguinal canal and does not extend beyond the external ring, incomplete so resembles the shape of bubo.

Case History:

A 5 years male child complaints of pain and swelling over right inguinal region since 12 weeks. He had symptoms of a lump or swelling near the groin (Right inguinal) region, Pain and tenderness around the area, a visible bulge that gets bigger during crying coughing and straining. The child complaints of bed wetting at night time since early childhood. He was apparently well before visible bulge noticed by parents consulted Pediatric doctor diagnosed as right indirect inguinal hernia right bubonocele. However in mean time parents came for homoeopathy consultation.

Observation of Child:

The patient accompany with mother when he entered the chamber his look was very timid, fearful. He is one among another twin sister. While narrating his complaints the child present as silent , humble during the conversation when her mother narrated about bed wetting the child was giving a harsh look to her mother and when he noticed I am observing then his expression suddenly changed he gave me a sweet smile. The sudden change of expression is the peculiar adaptation of this child.

Physical Generals:

Thermally patient is hot with susceptible to cold. Appetite is very good decreased intake of water, desire sweets, chocolates, warm food. Stool is normal bed wetting during sleep at night. Perspiration normal sleep disturbed startles during sleep.

Mental Generals:

When I asked her mother to describe nature of the child. They are living in a big joint family. The patient is pampered because he is the youngest child among all. The mother told that he is very obstinate, dictatorial type, fight with his sister dominates her. Fearful startles easily. Cowardice but present himself as strong. He is possessive of their things, will not share with anyone his belongings. He became anger when things not done as per his wish. He became anger when he feels hungry. Since few days he did not listen to anyone became disobedient.

Clinical findings:

The patient was well oriented and alert. Clinically no signs of anemia, cyanosis, jaundice, clubbing or edema were observed. His weight was about 15.9 kg. On visual inspection bulge in the right groin area observed on coughing bulge became prominent. As pain was there patient not allowed for palpation.

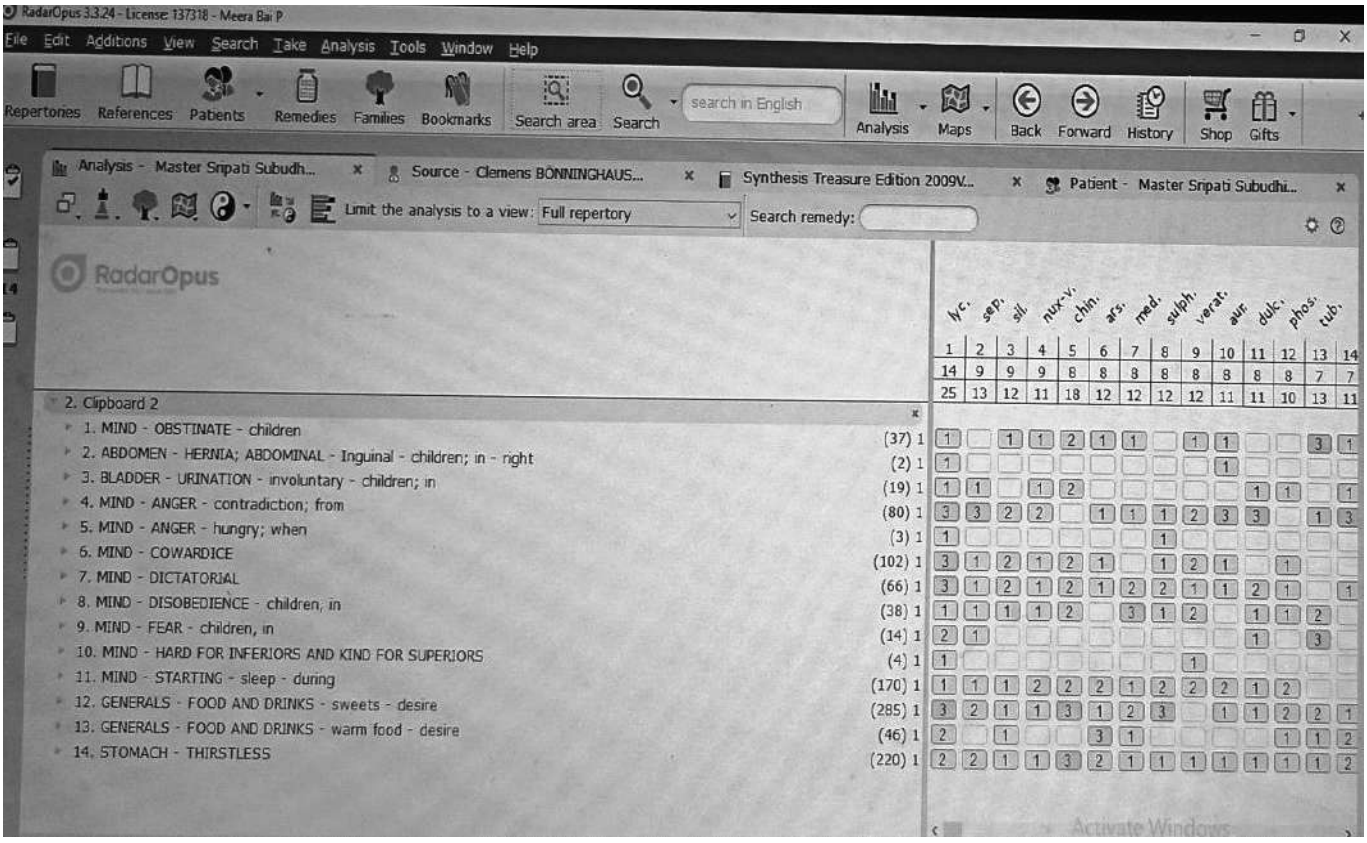
Laboratory findings:

USG of whole abdomen with inguinal region 22 Oct 2023 shows:

An oval anechoic lesion is noted along the right spermatic cord located above and separated from the testis and the epididymis- s/o bubonocele

Impression: Right Bubonocele

Repertorial Analysis: The repertorisation was done by RadarOpus Homoeopathy Software latest RadarOpus 3.3 24 version.



Therapeutic intervention

Based on the reportorial result above totality of 14 symptoms and considering miasmatic background of the patient prescribed Lycopodium- 200.

Follow up and outcome:

1st prescription on 10/11/23 Lycopodium- 200, 4 pills twice daily for 1 week.

1st Follow up on 20/11/23: Pain in right inguinal region reduced & swelling reduced by 40 %

Lycopodium-0/1, 1 dose daily once for 7 days.

2nd Follow up on 28/11/23: Pain in right inguinal region reduced swelling better by 70 %

Bed wetting alternate days.

Lycopodium-0/2, 1 dose daily once for 7 days

3 rd Follow up on 11/12/23: No pain as such on exertion, straining

Bed wetting frequency reduced.

Lycopodium-0/3, 1 dose daily once for 7 days

4 th Follow up on 26/12/23: Pain in right inguinal region & swelling better by 90 %

Lycopodium-0/4, 1 dose daily for 7 days

Bed wetting almost subsided

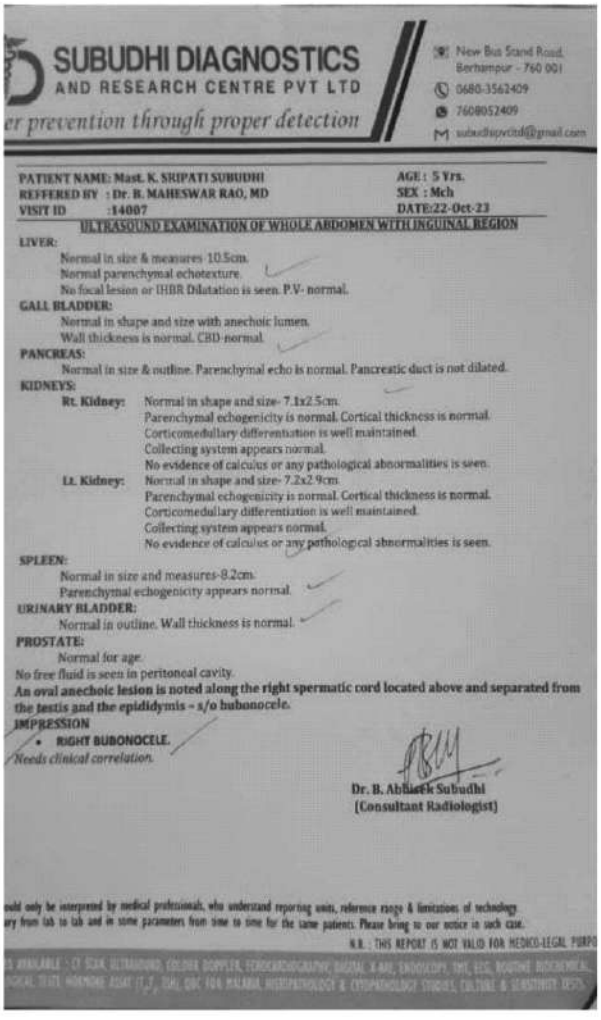
5 th Follow up on 10/02/24 Lycopodium-0/5, 1 dose every alternate day.

Patient advised to Ultrasonography of abdomen and inguinal region.

Last follow up on 14/05/24 Ultrasonography of abdomen and inguinal region shows B/L inguinal regions appears normal.

No significant abnormality is noted in abdomen, pelvis and inguinal region.

Before



SUBUDHI DIAGNOSTICS
AND RESEARCH CENTRE PVT LTD
er prevention through proper detection

New Bus Stand Road,
Berhampur - 760 001
0680-3562409
7608052409

PATIENT NAME: Mast. K. SRIPATI SUBUDHI AGE : 5 Yrs.
REFFERED BY : Dr. B. MAHESWAR RAO, MD SEX : Mch
VISIT ID :14007 DATE:22-Oct-23

ULTRASOUND EXAMINATION OF WHOLE ABDOMEN WITH INGUINAL REGION

LIVER:
Normal in size & measures 10.5cm.
Normal parenchymal echotexture.
No focal lesion or IHBR Dilatation is seen. P.V- normal.

GALL BLADDER:
Normal in shape and size with anechoic lumen.
Wall thickness is normal. CBD-normal.

PANCREAS:
Normal in size & outline. Parenchymal echo is normal. Pancreatic duct is not dilated.

KIDNEYS:
Rt. Kidney: Normal in shape and size- 7.1x2.5cm.
Parenchymal echogenicity is normal. Cortical thickness is normal.
Corticomedullary differentiation is well maintained.
Collecting system appears normal.
No evidence of calculus or any pathological abnormalities is seen.
Lt. Kidney: Normal in shape and size- 7.2x2.9cm.
Parenchymal echogenicity is normal. Cortical thickness is normal.
Corticomedullary differentiation is well maintained.
Collecting system appears normal.
No evidence of calculus or any pathological abnormalities is seen.

SPLEEN:
Normal in size and measures-8.2cm.
Parenchymal echogenicity appears normal.

URINARY BLADDER:
Normal in outline. Wall thickness is normal.

PROSTATE:
Normal for age.

No free fluid is seen in peritoneal cavity.
An oval anechoic lesion is noted along the right spermatic cord located above and separated from the testis and the epididymis - s/o bubonocele.

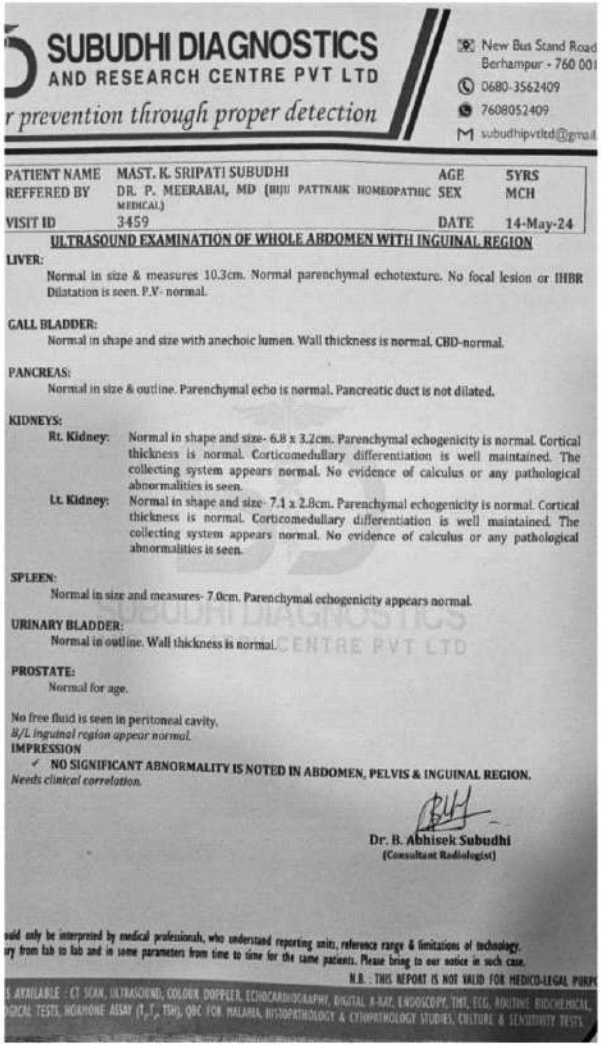
IMPRESSION
- **RIGHT BUBONOCELE.**

Needs clinical correlation.

Dr. B. Abhisek Subudhi
(Consultant Radiologist)

ould only be interpreted by medical professionals, who understand reporting units, reference range & limitations of technology
ary from lab to lab and in some parameters from time to time for the same patients. Please bring to our notice in such case.
N.B. : THIS REPORT IS NOT VALID FOR MEDICO-LEGAL PURPO

After



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AND RESEARCH CENTRE PVT LTD
r prevention through proper detection

New Bus Stand Road
Berhampur - 760 001
0680-3562409
7608052409
subudhipvtltd@gmail

PATIENT NAME	MAST. K. SRIPATI SUBUDHI	AGE	5YRS
REFFERED BY	DR. P. MEERABAI, MD (BIJU PATTNAIK HOMEOPATHIC MEDICAL)	SEX	MCH
VISIT ID	3459	DATE	14-May-24

ULTRASOUND EXAMINATION OF WHOLE ABDOMEN WITH INGUINAL REGION

LIVER:
Normal in size & measures 10.3cm. Normal parenchymal echotexture. No focal lesion or IHBR Dilatation is seen. P.V- normal.

GALL BLADDER:
Normal in shape and size with anechoic lumen. Wall thickness is normal. CBD-normal.

PANCREAS:
Normal in size & outline. Parenchymal echo is normal. Pancreatic duct is not dilated.

KIDNEYS:
Rt. Kidney: Normal in shape and size- 6.8 x 3.2cm. Parenchymal echogenicity is normal. Cortical thickness is normal. Corticomedullary differentiation is well maintained. The collecting system appears normal. No evidence of calculus or any pathological abnormalities is seen.
Lt. Kidney: Normal in shape and size- 7.1 x 2.8cm. Parenchymal echogenicity is normal. Cortical thickness is normal. Corticomedullary differentiation is well maintained. The collecting system appears normal. No evidence of calculus or any pathological abnormalities is seen.

SPLEEN:
Normal in size and measures- 7.0cm. Parenchymal echogenicity appears normal.

URINARY BLADDER:
Normal in outline. Wall thickness is normal.

PROSTATE:
Normal for age.

No free fluid is seen in peritoneal cavity.
B/L inguinal region appear normal.

IMPRESSION
✓ **NO SIGNIFICANT ABNORMALITY IS NOTED IN ABDOMEN, PELVIS & INGUINAL REGION.**

Needs clinical correlation.

Dr. B. Abhisek Subudhi
(Consultant Radiologist)

ould only be interpreted by medical professionals, who understand reporting units, reference range & limitations of technology.
ary from lab to lab and in some parameters from time to time for the same patients. Please bring to our notice in such case.
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S AVAILABLE : CT SCAN, ULTRASOUND, COLOUR DOPPLER, ECHOCARDIOGRAPHY, DIGITAL X-RAY, ENDOSCOPY, THYROID, ECG, ROUTINE BIOCHEMICAL
OGICAL TESTS, HORMONE ASSAY (T3,T4, TSH), QBC FOR MALARIA, HISTOPATHOLOGY & CYTOPATHOLOGY STUDIES, CULTURE & SENSITIVITY TESTS

Conclusion

Homoeopathy is a system of medicine based on the holistic approach of treatment. According to the principle of homoeopathy specific medicine not prescribed for specific disease. Treatment based on totality of symptom found on the individual to select the correct similimum of the patient. In the above case Lycopodium not only cured the right bubonocele of the patient but genius of the remedy Lycopodium covers all the facets like bed wetting and behavioral problems of the patient as well. Holistic approach is the exclusivity of homoeopathy.

Hail Hahnemann Hail Homoeopathy….

Dr. P. Meera Bai MD (Hom)
HOD, Practice of Medicine
BPHMC & Hospital, Berhampur

LITERATURE SECTION

LOVE OF MY LIVER

Being the largest among all your organs, I feel proud of myself. Though I am 1.5 kg, I happily carry the burden of all your body weight. I fight against infections, make proteins, regulate your blood sugar, control cholesterol, release bile for easy digestion, remove toxins from the blood, and so many things... but never get tired of it.

I am very tolerant in nature... How??

I am silent to all your disordered lifestyle noises.
You never listen to your mother, jumping up for oil-rich and junk foods more.
You don't care for your well-wishers and enjoy a sedentary life, avoiding physical activities.
You don't wait for your doctor, taking medicines on your own...
You never stop addictions and alcohol, causing scars & injuries to my body...
I tolerate everything...

God has gifted me regenerative capacity.
All the pain I bear silently so as not to stress you more, but you always continue to hammer me...
I am the one who can connect the healthiest channel among all your vital organs like the heart, kidneys, lungs, etc.
When I disconnect the same, none of them will make you survive anymore...

Sometimes, I warn you by showing a little illness of mine... yellow discoloration of nails, urine, and eyes (jaundice), disinterest towards food (anorexia), mild pain, and weakness...
Your concern at this time makes both you and me happier. But your ignorance drags me towards the loss of all my functions, increasing hardness in my sponges (cirrhosis).

Now you are serious and think of me...

Trying to rectify all your past deeds... But it's always too late for all... Still, I am there till the last breath of my last cell, I owe my sincerity... At last, I fail... the story ends then and there...

My prayer...
I don't need much from you, just love me a little, and I will give you...

"Jigra Wala Jeevan"

L - Largest
I - Indulgent
V - Versatile
E - Enigmatic
R - Regenerative

DR. BHARATILATA ACHARYA
Asst Professor,
P. G Dept of Kayachikitsa, GAM Puri

RAM-AYAN IN A MED-SCHOOL

Eons ago…..
There lived a snowy-bearded frosty-haired senescent-hermit,
In the cuddling lushy-grassy-shady enchanting harmonious forest;
Inscribing on the hazel-hued birch-bark
With his silver-plumbed quill, just shedded-out by the ornate peacock.
He was that austere-August-abstemious saint Adi-Kavi-Valmiki.
As enquired by the preeminent, supremely eloquent,
Ascetic Muni-Narad, the sage of Divinity.

The great indeed inquisition was about His Excellency,
The glorious brilliance with the piously epithet-virtues.
Unequivocally the ascertained salutation was for solemnly
The Ikshavaku-vamsa-prabha-Vedatma, the scion of the Raghu-dynasty
Purushottam-Prabhu-Sri-**Ram** & His reverently holier-than-thou **Ayan**.

Through the optique of a Med-School bairn
In this celestial-epic of the prowess-Atmaram,
The bespoken quintessence of life, the Ambar-Piyush-Vishnu-Padamrita
Is graciously implied as Ramabhadra-Koshalendra-Raghav.
Where Vaidehi-aradhya-vaibhavi-akshara-bhaumija-nandini-janaki-mata-Sita.
Conceivably is the perceivable physique of this monumental wonderous-orb,
The unanimous-basis of the creation in all around this cosmos.

The king of the denary-senses
Nemi the Raghuvanshi-Raja-Dasarath along with his throne-queens
Sagely the first reported cases of the barrenness!
Which was flourishingly treated with the God-sent-porridge
Especially a redeemable-remedy for his lady's Ovulation-glitch!

Long afterwards there comes a devious-deception
By the hunch-back-phenotype reflection
Perchance to her Scheuermann's-kyphosis or her fractured T. Spine!
This confidante-companion of the majesty-Kaikeyi
Made the Ananda-Vigrah-Koushaley & Vandita-Vedika-Janakatmaja
Alongside Dasarathi-Saumitrey-Laxmana-Ramanuja
The embodiment of the intellect & the instinct, for their exile-eviction.
That ominous-severance & separation, departed the crown-head-Dasaratha to the heaven.
Feasibly owing to a takotsubo-cardiomyopathy because of his depression!

In this whole redemption craving banishment
Salvation was bestowed on entire demon-spirits
Suggestively the lust-anger-ego-envy & resentment.

When touched & tinged by the roseate-Lotus-feet as a divine-charm
The ages of hell also ultimately granted with the reclaimed liberation.
Perhaps from the form of that abandoned tombstone,
Sculpted with the centuries of tormented wrath and shame.
Possibly Persuaded by the C-PTSD, Devi-Ahalya, the assured-inner-wisdom!

While dwelling In Dandakaranya
The leering-eyed, hair all disheveled, hoarse-voiced
She, devil Surpanakha, the paunchy-arrogant-corpulent.
On account of her malfunctioned HPA axis was rendered
With the utmost esteem to become a deformed Maleficent!

Aiming the restitution of her superciliousness
Poly-cephalic ingenious Lankesh, the mephistopheles crafty Lucifer
Presumably with Savant syndrome or narcissistic personality disorder!
Abducts the vibhavari jyotika shreemayi Shrestha in his monstrous demeanour.

To desist this impious tainted transgression by the dasanan Ravan
So to speak the most contagious noxious bacterium!
As a crux to the lively physique, namely oxygen as lord Dhanvina Raghunanadan
Escorted by His inextricably cherished predilection
Supposedly the red circulated connective tissue akin to His ichor, Kapishwar Anjaney Hanuman
In unison with the resilient defence complex, Vanar sena the Immune system!
Unquestionably tremendously executed the finest ever phagocytic action.
Additionally conquered the Tama-Kumbhakarna & Raja-Meghanada in that thrashing mission.

Ceremoniously To establish a divinely empyrean Ramarajya, the Ideal Kingdom
On this motherly earth to live serenely symphonically mellifluously melodiously
Free from entire physical, psychological, social, spiritual maladies & miseries Blissfully
It is optique of a Med-School bairn
For the seraphically ethreal Lord **Ram** & His benevolently sacred **Ayan.**

DR. LIPSA MOHAPATRA
2nd year M.D Scholar
Department of Kayachikitsa
G.A.M & H, Puri, Odisha

I WAKE, STARTLED

I wake, startled
Pulled from some dreamless depth,
To find you beside me,
Asleep in the dim quietude of night.
Your breath rises, falls,
the rhythm of tides, of seasons,
of things far older than us.

You are bare,
Muffled by the rawness of being.

Your body, radiant in its simplicity,
Breathes a truth I seldom pause to see.
I let my gaze wander over you
The soft terrain of your skin,
I ache for you,
The gentle swell of your hip,
The valley where your breasts fall,
One leaning towards earth,
The other, towards the sky.
The orb of orbs
The cradle of life and loss,
Held in the balance of unseen forces
That shapes all things.

O wife, O mother
Your body is a universe I inhabit,
From where I issue forth,
In myriad forms and names.
Your flesh,
A temple of my worship,
A mirror in which I see me,
The endless cycle of beginnings and endings,
In which I find the primal
The soil, the seed, the bloom.
Your skin carries the memory
of ancient waters,
of winds that once howled
Over newborn mountains.
I bow to you
To the infinite within the finite,
To the fire and water,
To the giver of breath,
To the taker of time.

Your face holds the faint trace
Of a joy I cannot touch a joy born somewhere
Beyond this world or buried deep within it,
A mystery I only glimpse
When you are still like this
When the day's noise dissolves,
Into the tranquil darkness of night.

Below your navel, a delicate path,
The faint trail of hair
leading downward to the sacred gate,
The dark triangle of truth,
Like an arrow point to the source,
The place from which all journeys begin,
And where they must end.

For the way you hold the world together
In your stillness
My incompleteness rages against you,
A storm pounding an eternal shore,
But you do not break
You receive me
Again and again,
Without judgment, without demand,
Only the quiet acceptance of what is
of what must be.

O sacred paradox
O woman,creator, destroyer
O the veritable altar of the game
O myeternal thirst
O the dark womb of the universe
Where stars are born,
And where they burn
To collapse into lightless grace.

A beloved O wife
You are not only where I come from.
You are where I am going.
You are where I will always return.

PROF. DR. MIHIR RANJAN NAYAK
Department of Psychiatry
SCB MCH, Cuttack

THE BLACKEST DAY

And now we're apart,
a part is just finished like
it never and ever start

From truth and dare to,
Breaking our promises
Hey, ain't it you

Holding each other's hands, riding all the way
Remembering all the past is tearing me, all that I can say

Now that you are happy and thanking God for what has happened,
Really, it's difficult for me to say goodbye, how fast a person can change

I assume I was wrong. Were you completely sane
How can you expect me to stay as I was?
when you left me in pain again

This winter is not the same now,
Filled with a cope of the vain
Entertain is all that am i to you
Just like a character in a video game

Cloudy is my mind, dizzy is my body
Sobber in my eyes
I want warmth from you in my dark
Coldness is all you can give
in my melancholy days

Now that I've learnt my lesson from a session, fortunately you are the reason
In my vision, you are the poison
Who is a treason of my discussion

You should've known better
Than to have, to let her
Get you under so that I can move further

And now we're apart,
a part is just finished like
it never and ever start.

SUDHANSU SEKHAR BEHERA

UNBLOCKING CANALS, UNLOCKING HAPPINESS

The chair spins round, the light shines bright,
A mirror reflects, the dentist's sight.
The dentist is the artist,
And teeth are his canvass.
Crafting with precision and perfection the smiles that last .

From cavities to crowns, to bridges so fine,
The dentist's work , is a craft that forever shines .
A tooth in pain, a patient in distress,
A root canal's the answer, to make the tooth painless.

The dentist's skilled hands, navigate with care,
Through canals so tiny, with precision to dare.
The drill whirs soft, the files glide with ease,
Removing infected pulp, like autumn leaves.
The canal's cleansed, shaped, and prepared with care,
For a filling to seal, and a crown to repair.
The tooth's revitalized, the pain subsides,
A smile's restored, with a healthy, happy pride.

So here's to the dentists, with hands so fine,
Who brave the root canal's, intricate design.
May their tools be sharp, their eyes be bright,
As they rescue teeth, and bring back the light.
May their drills be steady, their hands be sure,
As they craft smiles, that forever endure.

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Department of Conservative Dentistry and Endodontics,
SCB Dental College and Hospital, Cuttack, odisha

HOW DIFFERENT IS THE ROCK

How different is the rock
From the water that scours it,
Working and reworking its matrix,
Drenching, dissolving, precipitating?
Or the wind that strips its grainy skin,
Scattering its remnants far and wide ?

How different is the rock
From the sky that veils and unveils,
Drenching its jagged veins in sun and rain?
Or the fire that melts it to magma,
Deep in the belly of the earth?

Could the rock be what it is,
Without all else being what they are?

Know this, my friend
I cannot be what I am without you,
Just as much as
Without a butterfly's wing beat in the distant
Americas,
Without a snowflake vanishing in the hush of Alps,
Of without a shopkeeper opening his stall
In the neon veins of a waking Tokyo.

Everything leans into my existence,
Everything breathes through me,
Woven in unseen currents,
In the quiet dance of chaos and order

The everythingness in the rock
Is the everythingness in you and me,
All pervasive, suspended in space and time,
Yet beyond their reach-
A miracle of infinite unfolding,
flawed.
As prophetic as me, as you,
As the magic of life,
Born of fire, water, earth, air, and sky.

I am rock-
Scattered dust, drifting sand, restless soil,
Fossilized pollen of vanished forests,
Grains of quartz, cemented and worn,
Crystals of emerald, rough-hewn and

ASTHA MISHRA
2nd year MBBS Student,
HITECH Medical college, BBSR

PILLS OF HOPE

Lying on the bed, with a constant frown,
The beat of my heart feel like a countdown.
As I count every breath, I cling to life,
I feel like I'm walking on the edge of a knife.

All light within my soul engulfed by illness,
When you peek in, all you see is darkness.
The bed, the curtains, the beeping machine,
And a morose man in the mirror is seen.

Being a son, a husband and a father of two,
I refuse to lose against the microbes' crew.
I gulp the water, offered by my little one's hand,
And feel the comfort of my family, in this troubled land.

A new sense of healing starts to take place,
In the water, pills of hope dissolved in slow pace.
Crafted elegantly with healing ingredients,
Infused with love, empathy, strength and radiance.

With every sip, a spark takes flight,
I see a beacon of light, in the dark of night.
The pills of hope, they started to unfold
With all might in my spirit's hold.

The battle is mine, but not to be fought alone,
With loved ones my side, all fear begone.
I'll hold on tight, to this love so true,
And let it heal me, with a power that's anew.

ANKITA DAS
KANAK MANJARI INSTITUTE OF PHARMACEUTICAL SCIENCES
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MY HEALTH

➢ ''Eat right, day and night.
To keep your body feeling bright.
Exercise too it's good for you.
To keep your heart and muscle new''.
➢ ''Drink water, it's the best.
To keep your body at its best.
Avoid stress and get some rest.
To keep your mind and body at their best.''
➢ ''Eat fruits and veggies ,in the way,
To keep your body healthy every day.
Avoid junk food it's not good for you
And keep your body healthy, strong and new.''
➢ ''Take care of your body, it's your friend,
And keep it healthy, till the very end.
Practice the healthy habits, in hygiene way.
To keep your body healthy, every single day''.

IPSITA SAHOO
Asst. Professor, Dept. of OBG
Manjari Devi College of Nursing, Bhubaneswar

FITNESS AND GOOD HEALTH

Fitness! Fitness!
Why with this are people concerned less
Don't they know? That good health can bless
Everything in their life if you need better blood flow
Then eat healthy, exercise and grow Fitness!
Fitness! To keep away sickness

Think wise Do some exercise We all know that life is
race And full of turns and a lot of chase
But bring a smile on your face The world is daying
Oh! What a misery I know you are feeling a bit
shivery We are becoming couch potatoes day by day

Let's work out a bit and let the diseases
go away So boys and girls
It's time to say That leave your gadgets &
follow the say get fit and seize the day!

DR. INDU BHUSAN PATTANAIK
BHMS (BU) MD, Hom (Materia Medica)
Ph.D in Homeopathy
BPMH College & Hospital, Berhampur, Ganjam, Odisha

A MONTH WITHOUT YOU

It's been a month, but time stands still,
The echo of your voice lingers, quiet and chill. November's breath took you away, so swift, Leaving a void no season can fit.

I wait for footsteps that will never arrive, As if you're out there, somewhere, alive. From a distant place, on a path unseen,
I keep hoping this is just a dream.

You were the shelter, so steady and kind, A heart so humble, a selfless mind.
You sacrificed comforts, small joys, your peace, To give us a world where love wouldn't cease.

Your hands, worn and strong, built us a home, Though weary, they crafted dreams of their own. You asked for so little, yet gave all your best,
A quiet man who deserved his rest.

Now every silence feels too wide, too deep, As nights turn to mornings I barely sleep.
I search for you in shadows and air,
In an empty chair where you're not there.

Sometimes there's no answer for every why? How did God become so cruel to make us cry?
Its not the Good byes that hurt, but the flashbacks that follow Papa, A month's absence has left a deep hollow.

But I carry your lessons, your calm, your grace, Your smile etched deep on my soul's embrace.Though a heart attack took you from my side, Your love remains, my eternal guide.

Father, I miss you-this ache will not fade,
The warmth of your memory, both soft and brave. And though it's been a month, I still believe,
You'll walk back home; I'm just here to grieve.

DR. ANWESH MISHRA

A MARK OF STRENGTH

A gentle curve, a unique line,
A story written in a face so fine.
A cleft, they say, but I see more,
A symbol of battles fought and lore.

Tiny smiles that shine so bright,
Holding courage in the softest light.
A lip that speaks of strength untold,
A spirit resilient, brave, and bold.

The world may wonder, pause, or stare,
But beauty lives in how we dare.
To embrace the marks that make us whole,
For every scar holds a piece of the soul.

So wear it proudly, let it gleam,
A badge of hope, a cherished dream.
For a cleft is not a flaw or mar,
It's a reminder of how strong you are.

A gentle curve upon the face,
A mark of strength, a touch of grace.
A cleft that speaks of journeys long,
Of battles fought, of voices strong.

It is not silence, but a song,
A tale of where the brave belong.
Each scar, a story yet to tell,
A path where courage dares to dwell.

In smiles that shine despite the strain,
In laughter that defies the pain,
A cleft is not a thing to fear,
But proof of how the heart draws near.

With every step, with every tear,
The face reveals a soul sincere.
A cleft lip, a mark of light,
A beacon in the darkest night .

DR. ASUTOSH PRADHAN
3rd year, OMFS PG
HI_TECH DENTAL COLLEGE AND HOSPITAL,BBSR

TO THE PEOPLE WHO ARE ALIVE

I dreamed of being a doctor and healing the universe with my fingers,
Succeeding to achieve fame,the name and the congratulations jingles;
Even though I have a duty of 48 hours,I chose to stand there,
It's always beyond my health as I have chosen the profession called healthcare.

If I'm a nurse, looking after the people they look at me as a societal curse,
If I wanted to be a surgeon then going home safely at night is my only fuss,
I may be a physiotherapist,making them comfortable with my touch,
But what about us if I lack my comfort,

All I want to say is that if you don't want to respect us just respect our work, Just because we are the girls can't we make our parents feel perk?
We were the healers, who are now impaired,
It's not about an incident,it lies in every hospital's air,
We even fear God's eyes as from 15 to 55 every man uses us to stare.

I'm not here to blame,I just want to make myself feel safe, Help me to weave the rope of belief as it gets chafe.
The boys in paediatrics always seem like my child,
An uncle with a paralysed limb blessed me as her own daughter and smiled.
These all are the reasons for me to survive and assuredly deal with the people who are alive.

- JAHANVI SNEHA

STARS OR SATELLITES?

Tough to spot but a prominent one ,
The stars shine and satellites twinkle,
You can't spot one until you really look.
Stay back a little, sit with someone and argue,
Love and life, stars and satellites,
Don't they sound a little similar ?
Do you have the time though?
To sit, with a certain someone,
Gaze at the sky,
Find out which twinkles and which shines;
To find the difference a star and a satellite;
Between love and liife.

AMRITA PANDA
(Final year , BDS)
Hi-Tech dental college and hospital

O' NATURE

Beautiful, warm rays shine through the clear sky;
And fall on the wet leaves just as the drops end nearby,
What beauty of nature it is,
Unbeatable as it is.

The warmth spreads and braces my skin;
A sense of freedom, unaware to them, there in,
O' nature, your beauty has filled my heart,
Something I express through my art.

When raindrops touch the ground and swell;
Your tiny friends release such an ecstatic smell,
The aroma triggers my past memories,
And I remember the child in me, looking at a tree, laden with berries.

The wind brushes off my worries;
As I close my eyes and tacit,
A feel of complacence and sublimity that binds me with you,
For the umpteenth time, For eternity……..

DR. AYESHA SATPATHY (PGT)
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MISCARRIAGE

With diluting hope Kunti grabbed herself and let her tears absorbed within her eyes maybe at their graveyard. The flowing water was carrying Karna away from her towards his unacceptable fate as a sutaputra . Those tears which were absorbed then, keep ulcerating every visceral organs of her . Those corrosive tears having pH <1 caused wound so deep that no medications could have healed those.

Time flowed as the streams of river and the chronic ulceration degraded not only the physical entities of her body but also the humanly divine emotions named affection, love, care etc. The late complication of such chronic ulceration have to be adulterated love for the Pandavas and their shared wife Panchali . The truth is buried only within the internal wounds of Kunti which couldn't be stopped to reflected twice or thrice at least.

Hiding the truth had it's punishment as making the adulterated love and deep seated guilt as rivals.

Kunti is dreaming the same dream again , she having MISCARRIAGE but this miscarriage is not identical as it used to be portrayed, in this miscarriage the anomalies are not causing flushing out of the foetus (made up of love) but the pseudo dignity a female must carry in this male dominated world flushed out the love embedded foetus, remnant was guilt with aetiology of chronic visceral ulceration .

- SUBHALAXMI SAHOO

O' WINTER

Winter ! Winter !! Winter !!!
The queen among seasons of the year.

I welcome you, O ! white feathered angel
Come through mountain and green painted jungle.

Arrive at Chilka on the wing of birds
Scatter your breeze over the dancing waves.

Rich man share your pleasure
But poor suffer a torcher.

Winter is the mouth of farmer
The cheer and make themselves warmer.

O! Prince of the seasons
Bring the north wind cooler
Gardens and orchards
Bloom with fruits and flowers

Many festivals you bring with
Visitor enjoy tour and picnic.

Winter brings with many games
Cricket, Football, Hockey & tennis

Diwali, Laxmi pooja, Sripanchami & X-Mas festival
All make me sing, dance and play Santaclus.

O! blessed winter you bring all Luxury to the earth
The song of cricket and grasshopper
Food to the mouth of everyone
Blossom to every pond and lake
Smile to the lip of one and all
And beauty to the mother earth.

DR. BIDHU BHUSAN DAS
Om Sai College of Pharmacy and Health Science
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ସହାୟକ

ସହାୟକ ଶବ୍ଦଟି ଅତ୍ୟନ୍ତ ତୁଚ୍ଛ ଆଉ ସାଧାରଣ, ମାତ୍ର ଏହା କେତେ ଯେ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ କେବଳ ଅନୁଭବି ହିଁ ଜାଣିପାରିବେ। ଜୀବନର ପ୍ରତ୍ୟେକ କ୍ଷେତ୍ରରେ ଏନ୍ତୁଡ଼ିଶାଳ ବା ଚିକିତ୍ସାଳୟ ଠାରୁ ଶ୍ମଶାନ ବା ଇଲେକ୍ଟ୍ରି ଚୁଲ୍ଲି ପର୍ଯ୍ୟନ୍ତ ବିନା ସହାୟକରେ କାର୍ଯ୍ୟ କରିବା କଠିନ। ଗର୍ଭଧାରୀ ମା' ପ୍ରସବ ବେଦନରେ ଛଟପଟ ହେବା ବେଳେ ଡାକ୍ତର, ଦିଦି, ସେବିକା ପ୍ରଭୃତିଙ୍କର ସହଯୋଗରେ ଶିଶୁଟି ଭୂମିସ୍ଥ ହୁଏ। ମା' ଆଉ ଶିଶୁ ସହାୟକ ବିନା ବଞ୍ଚିବା କଷ୍ଟକର ହୁଏ। ଲାଳନପାଳନ, ଖାଦ୍ୟ, ପାନୀୟ, ସ୍ୱାସ୍ଥ୍ୟ ସବୁକିଛି ଜଣେ ସହାୟକଙ୍କର କର୍ମ। ସେହିପରି ମୃତ୍ୟୁ ପରେ ମଧ୍ୟ ଶରୀରକୁ ସତ୍କାର କରିବା ସହାୟକମାନଙ୍କ ଉପରେ ନିର୍ଭର କରେ। ପଞ୍ଚଭୂତର ଶରୀର ପଞ୍ଚଭୂତରେ ଲୀନ ପାଇଁ ଏହାଙ୍କ ସାହାଯ୍ୟ ଆବଶ୍ୟକ।

ସୁତରାଂ ରୋଗୀ ହେଉ କିମ୍ବା ଭୋଗୀ ହେଉ ସହାୟକ ଯେ ନିତାନ୍ତ ଆବଶ୍ୟକ ଏଥିରେ ତିଳେ ହେଲେ ସନ୍ଦେହ ନାହିଁ। ମୁଷ୍ୟ ସାରା ଜୀବନ ଏକା ଚାଲିବାରେ ନିଷ୍ପତ୍ତି ନିଏ ମାତ୍ର ବିନା ସହାୟକରେ ଦୈନନ୍ଦିନ କାର୍ଯ୍ୟ ସମାପନ କରିବା ଅଧୁରା ହୋଇଯାଏ। ରକ୍ତଗତ ସମ୍ପର୍କୀୟ ପୁତ୍ର, କନ୍ୟା, ବନ୍ଧୁ ସହୋଦର ସହାୟକର ଭୂମିକା ନିଅନ୍ତି। ସହଯୋଗର ହାତ ବଢ଼ାଇବା ପାଇଁ ଏଇ ସ୍ଥାନ ଶୂନ୍ୟ ହୋଇପଡ଼େ। ଅର୍ଥ ଯେ ଏହାର ବାଧକ ସେୟା ନୁହେଁ, ସମସ୍ତେ କିଛି ନା କିଛି ରୋଜଗାର କରୁଛନ୍ତି। ଅର୍ଥ ସମସ୍ତଙ୍କ ପାଖରେ ଅଛି। ବିଶେଷ କରି ଆଇଏନ୍‌ଆରରେ ପ୍ରଚୁର ଅର୍ଥ ଗଚ୍ଛିତ ରଖନ୍ତି। ମାତ୍ର ସହାୟକର ଭୂମିକା ନେବାରେ ପ୍ରତ୍ୟେକ ବ୍ୟକ୍ତି ବିଶେଷ କୁଣ୍ଠିତ ହୁଅନ୍ତି। ଯେଉଁ ଦିନ ପର୍ଯ୍ୟନ୍ତ ଉକ୍ତ ସହାୟକର କର୍ମ ନିଜର କର୍ତ୍ତବ୍ୟ, ଧର୍ମ ବୋଲି ବିଚାରି ନାହାନ୍ତି ସେଇ ଦିନ ପର୍ଯ୍ୟନ୍ତ ଏହାର ମର୍ମ ବୁଝିପାରନ୍ତି ନାହିଁ। ସହାୟକର ଆବଶ୍ୟକତା ଅଙ୍ଗେ ଲିଭାଇଲେ ହିଁ ହୃଦବୋଧ ହେବ। ଆଉ ଏଥିପାଇଁ ପ୍ରଯତ୍ନ ନେବେ। ବିଶେଷ କରି ବାର୍ଦ୍ଧକ୍ୟ ସମୟରେ ଏହାର ଭୂମିକା ଅତ୍ୟନ୍ତ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ। ବିନା ସହାୟତାରେ ଚଳପ୍ରଚଳ ଦିନଚର୍ଯ୍ୟା ସମାପନ ତଥା ଭାବର ଆଦାନ ପଅଦାନ ପ୍ରଭୃତି ସମ୍ଭବପର ନୁହେଁ। ଆଶା, ବିଶ୍ୱାସ ଭିତରେ ମନୁଷ୍ୟ ବଞ୍ଚିଛି, ନିଜର କର୍ମ ଆଉ କର୍ତ୍ତବ୍ୟକୁ ଆଖି ଆଗରେ ରଖି ଦିନ। ବିତାଉଅଛି। ସହାୟକର ଆବଶ୍ୟକତା ଉପଲବ୍ଧ କରୁଛି। ମାତ୍ର ସହାୟକ ପାଇବା କଷ୍ଟ ହୋଇଯାଉଛି। ବ୍ୟକ୍ତିଗତ କ୍ଷେତ୍ରରେ ହେଉ ରାଜନୈତିକ କ୍ଷେତ୍ର, ସାମାଜିକ କ୍ଷେତ୍ର ଯେକୌଣସି କ୍ଷେତ୍ରରେ ସହାୟକ ନିତାନ୍ତ ଆବଶ୍ୟକ। ସହଯୋଗ ବିନା ଜୀବନ ଶୈଳି ଦୁର୍ବିସହ ହୋଇପଡ଼େ। ଉପଯୁକ୍ତ ସହାୟତ ଦିଗ୍‌ଦର୍ଶନ, ପ୍ରେରଣା ତଥା ସେବା ଶୁଶ୍ରୁଷା ପ୍ରଭୃତି ପାଇଁ ସହାୟକର ନିତାନ୍ତ ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ। ତେବେ ଆଜିକାଲି ବ୍ୟସ୍ତ ବହୁଳ ସମାଜରେ ଉଭୟେ ପତି ପତ୍ନୀ କାର୍ଯ୍ୟରତ ସହ ଅର୍ଥ ରୋଜଗାରରେ ବ୍ୟସ୍ତ ହୋଇ ନିଜର ଶିଶୁ ପ୍ରତି କିମ୍ବା ମାତା ପିତା ପ୍ରତି ସହାୟକର ଭୂମିକା ନିର୍ବାହ କରିବା ପାଇଁ ପଛଘୁଞ୍ଚା ଦିଅନ୍ତି। ଶିଶୁକୁ ଅବହେଳା ସହ ଅଣଦେଖା କରନ୍ତି। ଯାହ ଦ୍ୱାରା ଶିଶୁ ମାତାପିତାଙ୍କର ପ୍ରକୃତ ସ୍ନେହରୁ ବଞ୍ଚିତ ହୁଅନ୍ତି। ସହାୟକ ଯିଏ କରେ ତାଙ୍କୁ ଭଲ ପାଆନ୍ତି। ଶ୍ରଦ୍ଧା ସ୍ନେହ ଚାକରାଣୀଙ୍କ ଦେଇ ମାତାପିତା ନିଜର ଘୃଣା ପ୍ରକାଶ ନକଲେ ମଧ୍ୟ ମନ ଭିତରେ ରଖନ୍ତି। ସହାୟକ ଚାକରାଣୀଙ୍କ ମନର ବେଦନା, କଥା, ଭାବ ପ୍ରକାଶ କରନ୍ତି। ସେହିପରି ବୃଦ୍ଧ ପିତା ମାତାଙ୍କ ଅବସ୍ଥା ସେୟା, ଯେଉ ସମୟ ବାଲୁତର ସ୍ୱଭାବ, ଚାଲିଚଳନ ପ୍ରକାଶ ପାଏ, ଶରୀରରେ ଶକ୍ତି ହ୍ରାସ ହୁଏ, ଦୈନନ୍ଦିନ କାର୍ଯ୍ୟ ପାଇଁ ସହାୟକ ନିତ୍ୟାନ୍ତ ଆବଶ୍ୟକ ହୁଏ, ତେବେ ଯେଉଁ ବ୍ୟକ୍ତି ବିଶେଷ ଏ

ସମୟରେ ସାହାଯ୍ୟ ସହାନଭୂତି ଦିଅନ୍ତି ସେମାନଙ୍କୁ ନିଜର ହୃଦୟର ବେଦନା ପ୍ରକାଶ କରନ୍ତି, ଆଉ କୃତଜ୍ଞତାର ଅଶ୍ରୁ ବୁହାଇ ଦିଅନ୍ତି। ଆଜିକାଲି ଏହି ପ୍ରକାର ସହାନୁଭୁତି ବିହୀନ ପରିବାର ସାଧାରଣ ହୋଇଗଲା, ସୁତରାଂ ଉକ୍ତ ସମୟରେ କେବଳ ପ୍ରଭୁ ଜଗନ୍ନାଥଙ୍କୁ ଆଶ୍ରିତ କରି ଜୀବନ ନିର୍ବାହ କରନ୍ତି।

ଦେବାଳୟ, ପ୍ରେକ୍ଷାଳୟ, କାର୍ଯ୍ୟାଳୟ, ବିଦ୍ୟାଳୟ, ଚିକିତ୍ସାଳୟ, ଭୋଜନାଳୟ, ଶୌଚାଳୟ, ଏପରି ଯେକୌଣସି ଆଳୟ ହେଉନା କାହିଁକି, ପ୍ରତ୍ୟେକ କାର୍ଯ୍ୟପାଇଁ ଉପଯୁକ୍ତ ସହାୟକର ଭୂମିକା ସୁଚାର ରୂପେ ସମ୍ପାଦନା କରିବା ଦରକାର। ମନୁଷ୍ୟ ସାମାଜିକ ପ୍ରାଣୀ, ସମାଜର ପ୍ରତ୍ୟେକ ବର୍ଗ ସହ ମିଳିମିଶି କର୍ମ କରି ଜୀବନ ଅତିବାହିତ କରେ। ଏକାକୀ ସବୁକିଛି କରିବା ପାଇଁ ଉଦ୍ୟମ କରିବା ସତ୍ତ୍ୱେ ହାତକୁ ଦୁଇହାତ ପରି ସହାୟକର ଆବଶ୍ୟକତା ଉପଲବ୍ଧି କରେ। ସାହାଯ୍ୟ, ସହାନୁଭୂତି, ସହଯୋଗ ସେବା, ଇତ୍ୟାଦି ମନୋଭାବ ପୂର୍ଣ୍ଣବ୍ୟକ୍ତି ହିଁ ସହାୟକ ହୋଇପାରିବ। କହିବା କରିବା ମଧ୍ୟରେ ବହୁତ ତଫାତ୍ ଦେଖାଯାଏ। ଆନ୍ତରିକ ଇଚ୍ଛା, ନିଃସ୍ୱାର୍ଥପର ସେବା, କଷ୍ଟ, ସହିଷ୍ଣୁତା, ଧୈର୍ଯ୍ୟ ତଥା ମାନବୀୟ ଗୁଣରେ ପରିପୂର୍ଣ୍ଣତା ସହାୟକମାନଙ୍କ ଭିତରେ ରହିବା ଆବଶ୍ୟକ।

ଠାକୁରଙ୍କୁ ସେବା କରିବା ଏତେ ସହଜ ନୁହେଁ, ସେବା, ପ୍ରାର୍ଥନା, ଭଜନ, କୀର୍ତ୍ତନ ସମସ୍ତେ କରନ୍ତି ମାତ୍ର ଜଡ଼ବସ୍ତୁ ପ୍ରତିମାଙ୍କୁ ଜୀବନ୍ତ କରି ସଜାଇବା ପାଇଁ ନିଜର ଆତ୍ମୀୟତା, ନିପୁଣତା, ଧୈର୍ଯ୍ୟ ତଥା ଆବେଗତା ଦରକାର। ମୋ ଠାକୁର କିପରି ସ୍ନାନ କରିବେ, କିପରି ବସ୍ତ୍ର ପିନ୍ଧିବେ, କିପରି ସଜାଇ ହେବେ, ଫୁଲ, ଧୂପ, ଚନ୍ଦନ, ସିନ୍ଦୁର, କର୍ପୂର, ଗଙ୍ଗାଜଳ, ଯଜ୍ଞାମୃତ ସହ ଘିଅ ଦୀପର ଆଳତି ଆଉ ସେବା ସତେ ଯେପରି ଜୀବନ୍ତ ପ୍ରତିମା, କଥା କହୁଛନ୍ତି, ନୈବେଦ୍ୟ ଗ୍ରହଣ କରୁଛନ୍ତି, ଆଉ ଆନନ୍ଦରେ ହସ ହସ ମୁହଁରେ ଆଶିଷର କୃପା ପ୍ରଦାନ କରୁଛନ୍ତି। ବାସ୍ତବିକ ଭକ୍ତ ଭଗବାନଙ୍କ ସମ୍ପର୍କ ନିବିଡ଼ ତଥା ମଧୁର। ଠାକୁରଙ୍କ ସହ ଭାବର ଆଦାନ ପ୍ରଦାନ କର, ନୀରବରେ ଧ୍ୟାନ କର, ମୌନ ରହି ତାଙ୍କୁ ସ୍ମରଣ କର। ଆକୁଳବ୍ୟାକୁଳ ମଧ୍ୟରେ ଚିନ୍ତନ କରି ପ୍ରଭୁଙ୍କ ଠାରେ ନିଜକୁ ସମର୍ପଣ କର। ଦେଖିବ ପ୍ରଭୁଙ୍କର କୃପା, ତାଙ୍କ ଉପସ୍ଥିତି, ତାଙ୍କର ପ୍ରେରଣା ଆଉ ତାଙ୍କର ମାର୍ଗଦର୍ଶନ ଦୈନନ୍ଦିନ କାର୍ଯ୍ୟ ମଧ୍ୟରେ ରାସ୍ତା ପାଇଯିବେ, ଯେତେ ବାଧାବିଘ୍ନ ଆସିଲେ ମଧ୍ୟ ତୁମେ ଅସ୍ଥିର ହେବ ନାହିଁ। ପ୍ରଭୁ ଅଛନ୍ତି ସବୁକିଛି ସେ ହିଁ ପାର କରିବେ। ବିଶ୍ୱାସ, ନିର୍ଭରତାର ପଥ ଦେଖାଯିବ। ପାଗଳାମିର ଆକ୍ଷା ଦେଇଯିବେ। ଥରେ ପରୀକ୍ଷା କର, ନୀରବ ନିକାଞ୍ଚନରେ ସମୟ ଦେଇ ବ୍ୟାକୁଳ ମନରେ ଭଗବାନଙ୍କୁ ସ୍ମରଣ କର, ଯେଉଁ ରୂପରେ ହେଉ କିଛି ଯାଏ ଆସେ ନାହିଁ ମାତ୍ର ଏକାଗ୍ରତା ଆବଶ୍ୟକ ସହାୟ ନିଶ୍ଚୟ କର, ଯେଉଁ ରୂପରେ ହେଉ କିଛି ଯାଏ ଆସେ ନାହିଁ ମାତ୍ର ଏକାଗ୍ରତ ଆବଶ୍ୟକ ସହାୟ ନିଶ୍ଚୟ ମିଳିବ। ବିଦ୍ୟାଳୟ, ଜ୍ଞାନର କର୍ମଶଶାଳା (ଛାତ୍ରଛାତ୍ରୀ) ଶିଷ୍ୟର ସହାୟକ ଗୁରୁ ତଥା ଗୁରୁଙ୍କର ସହାୟ ଶିଷ୍ୟ। ଗୁରୁବିନା ଶିଷ୍ୟମାନଙ୍କ ଅବସ୍ଥା ଆଉ ଶିଷ୍ୟ ବିନା ଗୁରୁମାନଙ୍କ ଅବସ୍ଥା ମହାମାରୀ କରୋନା ସମୟରେ ଅନୁଭବ ହୋଇପାରିଛି। ଉଭୟେ ଉଭୟଙ୍କୁ ଖୋଜିବାରେ ବ୍ୟସ୍ତ, ସୁତରାଂ ସହାୟକ ବିନା କୌଣସି କାର୍ଯ୍ୟ ସୁରୁଖୁରୁରେ ପ୍ରାପ୍ତ କରିବା କଷ୍ଟସାଧ୍ୟ। ଅନ୍‌ଲାଇନ୍‌ର ପାଠପଢ଼ା ଅଫ୍‌ଲାଇନ୍‌ର ପାଠପଢ଼ା ଅଫ୍‌ଲାଇନ୍ ପାଠପଢ଼ା ମଧ୍ୟରେ କେତେ ଯେ ପାର୍ଥକ୍ୟ, ଅନୁଭବି ହିଁ ଜାଣିପାରୁଥିବେ।

ଚିକିତ୍ସାଳୟରେ ରୋଗୀର ସହାୟକ ରୂପେ ଡାକ୍ତର, ସେବିକାମାନଙ୍କର ଭୂମିକା ଅତୁଳନୀୟ। ରୋଗର କଷ୍ଟର ଉପଶମ ଦେବା, ଜୀବନକୁ ସଂକଟାପୂର୍ଣ୍ଣ ଅବସ୍ଥାରୁ ଉଦ୍ଧାର କରିବା ବୈଦ୍ୟନାରାୟଣଙ୍କ କର୍ତ୍ତବ୍ୟ। ସହାୟକ ବିନା କ୍ଷଣଟିଏ ମଧ୍ୟ ଡାକ୍ତରଖାନା ଖଟରେ ରୋଗୀ ପଡ଼ିପାରିବ ନାହିଁ। ସେବା, ଶୁଶ୍ରୁଷା ସହ ବଞ୍ଚିବାର ରାହା ସହାୟକ ମାନେ ହିଁ ଦେଇପାରନ୍ତି।

ଭୋଜନାଳୟରେ ସହାୟକ ରୋଷେୟାର ହାତର ଯାଦୁ, ଅନ୍ନ ବ୍ୟଞ୍ଜନର ସ୍ୱାଦ ସହ ସେ ମା' ହୁଅନ୍ତୁ ନତୁବା ସ୍ତ୍ରୀ ହୁଅନ୍ତୁ କିମ୍ବା ଆତ୍ମୀୟ

ହୁଅନ୍ତୁ ଖାଦ୍ୟ ବନାଇବା ଠାରୁ ପରଶିବା ଏବଂ କ୍ଷୁଧା ସମୟରେ ଅମୃତମୟ ସୁଖାଦ୍ୟ ଆଉ ପାନୀୟ କେତେ ଯେ ଶାନ୍ତି ଦିଏ କେବଳ କ୍ଷୁଧାର୍ତ୍ତ ହିଁ ଉପଲବ୍ଧ କରିପାରିବା। କାର୍ଯ୍ୟାଳୟରେ ଚୌକିରେ ବସି ପ୍ରଶାସକ କୌଣସି କାର୍ଯ୍ୟ ସମାପନ କରିପାରିବ ନାହିଁ ଯେତେବେଳେ ସହାୟକମାନେ ତାଙ୍କର କାର୍ଯ୍ୟକୁ ଗଚ୍ଛିଶୀଳ କରି ରହିନଥିବେ ସୁତରାଂ ସବୁକିଛି ନିର୍ଭର କରେ ସହାୟକ ହାତକୁ।

ଶୌଚାଳୟର ସ୍ୱଚ୍ଛତା ନିର୍ଭର କରେ ସେବାବ୍ରତୀ ସହାୟକଙ୍କ ଉପରେ। ନିଜେ ଶୌଚ ନହେଲେ ମଧ୍ୟ ସବୁକିଛି ଆନୁଷଙ୍ଗିକ ବ୍ୟବସ୍ଥା ଥିଲେ ମଧ୍ୟ ସହାୟକର ହାତର ସ୍ୱଚ୍ଛତା ନିଆରା ଅନୁଭବ। ସୁତରାଂ ଜୀବନର ଚଲାପଥରେ ସଂସାରର ସୁଖଦୁଃଖ ଭିତରେ ଗତି କରିବାକୁ ହେଲେ ସମସ୍ତେ ସହାୟକର ହାତକୁ ଖୋଜି ବୁଲନ୍ତି। ସେ ମାଆ, ସ୍ତ୍ରୀ, ଭଉଣୀ, ଭାଇ, ରକ୍ତଗତ ସମ୍ପର୍କୀୟ ବନ୍ଧୁ ସହୋଦର ନତୁବା, ଡାକ୍ତର, ସେବିକା, ସେବକ ଅଥବା ଚାକର, ଚାକରାଣୀ କାମବାଲି ଯେଉଁମାନେ ସହାୟକର ଭୂମିକା ଲିଭାନ୍ତି ସେଇ ସହାୟକମାନଙ୍କୁ ଚିର ନମସ୍ୟ ସହ କୃତଜ୍ଞତା ଜ୍ଞାପନ କରୁଛି।

ଡାକ୍ତର ରାଜେନ୍ଦ୍ର ପ୍ରସାଦ ପ୍ରଧାନ
ଡି.ଏଚ୍.ଏମ୍.ଏସ୍
ନିମଖଣ୍ଡି, ବ୍ରହ୍ମପୁର, ଗଞ୍ଜାମ

ଜନନୀ ଜନ୍ମଭୂମିଶ୍ଚ ସ୍ୱର୍ଗାଦପୀ ଗରୀୟସୀ

ସୂରୁଜ କିରଣ ସଜେଇ ହୋଇ
ମୁରୁଜ ପକାଏ ଏ ମାଟି ଛୁଇଁ।।
ସୁନା ର ଫସଲେ ହସୁଛି କ୍ଷେତ
ପତିତପାବନ ଉଡୁଛି ନେତ।।
ପୁଣ୍ୟ ପୟୋଧି ପୟର ଧୁଏ
ନିର୍ଝରଣୀ ଏଠି ସଂଗୀତ ଗାଏ।।
ବାର ମାସେ ପୁଣି ତେର ପରବ
ଆରିସା କାକରା ନାନା ଦରବ।।
ଆତ୍ମା ତୃପ୍ତ ହୁଏ ପଖାଳ ଖାଇ
ଓଡ଼ିଆ ବୋଲି ମୁଁ ଗରବେ କୁହଇ।।
ଭାଷାର ଚାତୁରୀ କାହାଣୀ କଛା
ଭାଇ ଚାରା ଆଗେ ନୁଆଇଁ ମଥା।।
ଗୋଟି ପୁଅ ସାଥେ ଓଡ଼ିଶୀ ନୃତ୍ୟ
ସଂସ୍କୃତି ସଂସ୍କାର ଭାଷ ସାହିତ୍ୟ।।
କୋଣାର୍କ କହେ ସ୍ଥାପତିୟ କଥା
ବାରବାଟୀ ଗାଏ ବୀରତ୍ୱର ଗାଥା।।
ମାମୁ, ଲଛମା ଓ ରେବତୀ କାହାଣୀ
ପଠାଣି ସାମନ୍ତଙ୍କ ଭବିଷ୍ୟତ ବାଣୀ।।
ଉଲ୍ଲଳ ଗୌରବ ଉଲ୍ଲଳ ମଣୀ
ଜନମିଲେ କେତେ ବରପୁତ୍ର ପୁଣି।।
କୋଟି ଓଡ଼ିଆ ର ଗୌରବ ସାଜି
ଏ ମାଟି ର ଝିଅ ରାଷ୍ଟ୍ରପତି ଆଜି।।
ପବିତ୍ର ଏ ମାଟି ବୀର ପ୍ରସବିନୀ
ସ୍ନେହମୟୀ ମା ଉଲ୍ଲଳ ଜନନୀ।।
ଅମୃତ ଭରା ହୃଦୟେ ତୋର
ପରସରେ ବହେ ମମତାର ଝର।।
ଜନନୀ ଜନ୍ମଭୂମିଶ୍ଚ ସ୍ୱର୍ଗଦପି ଗରୀୟସୀ।।
ତୋ ପାଇଁ ଏ ପରାଣ ଯାଉ ନୀତି ହସି ହସି
ଜନନୀ ଜନ୍ମଭୂମିଶ୍ଚ ସ୍ୱର୍ଗଦପି ଗରୀୟସୀ।।
ଜନନୀ ଜନ୍ମଭୂମିଶ୍ଚ ସ୍ୱର୍ଗଦପି ଗରୀୟସୀ।।

ଡ. ଅରୁଣିମା ସାହୁ
(ଏମ୍.ଡି (ଏଓ୍ୱାଇ.)
ଏ.ଏମ୍.ଓ, ଜି.ଏ.ଏମ, ପୁରୀ

ଅଣୁଜୀବଙ୍କୁ ପଦେ

ଜୀବାଣୁ ଆଉ ଭୂତାଣୁ
ଭାବ ନାହିଁ ତୁମେ ବୋମା ପରମାଣୁ
ଚଳାଇବୁ ଆମ ସୁରକ୍ଷା କଳ
ନାଶ ହେବ ଦିନ ଗଣୁ ଗଣୁ।

ପରଜୀବୀ ଆଉ କବକ
ନାହିଁ ତୁମ ପାଖେ ବିବେକ
ମଣିଷକୁ ଭାବ ବେବୁକ
ବିନା ଔଷଧିରେ କଟିଯିବ ମୁଣ୍ଡ
ବସି ଥିବା ହୋଇ ଭାବୁକ।

ଦୋକାନୀ ପୁଅ ଦୋକାନୀ ପୁଅ
ଔଷ ଦେଇ ତମେ ମୁଣ୍ଡ ନ ନିଅ
ଅଣୁଜୀବଙ୍କର ବଢ଼େ ଆଷର୍ଦ୍ଧା
ଡାକ୍ତରୀ ଚିଠରେ ଔଷଧ ଦିଅ
ଦୁନିଆ ଆଗରେ ସୁନାମ ନିଅ।

ଡାକ୍ତର ବନ୍ଧୁ ଡାକ୍ତର ବନ୍ଧୁ
ରୋଗୀ ଆଖିରୁ ପୋଛ ଲୁହର ବିନ୍ଦୁ
ଭାବି ଚିନ୍ତି ତମେ ଦିଅ ଔଷଧ
ଦମାଜରେ ହୁଅ ବହୁ ପ୍ରସିଦ୍ଧ।

ମମତା ସାହୁ

ସ୍ୱାସ୍ଥ୍ୟ ହିଁ ଧନ

ସୁସ୍ଥ ରଖ ସ୍ୱାସ୍ଥ୍ୟ ଏହା ଅମୁଲ୍ୟ ଧନ,
ସୁସ୍ଥ ରହିଲେ ଜୀବନ ହେବ ସୁଖୀ ଏବଂ ମନୋରମ।

ସଫାପାଣି ପିଅ, ଭଲ ଖାଦ୍ୟ ଖାଅ,
ଶରୀର ଭଲ ରଖିଲେ, ଜୀବନ ହେବ ସୁନ୍ଦର।

ପରିବେଶ ରଖ ପରିଷ୍କାର, ମନ କୁ ଦିଅ ସାନ୍ତ୍ୱନା,
ସୁସ୍ଥ ଜୀବନ ହିଁ ହେଉଛି ସକଳ ଆରଧନା।

ନିୟମିତ ବ୍ୟାୟାମ, ଶୁଦ୍ଧ ଭାବନା
ଦେହ ରଖିଥାଏ ଶକ୍ତିଶାଳୀ ଏବଂ ଦେଇଥାଏ ନୂତନ ପ୍ରେରଣା।

ଖରାପ ଖାଦ୍ୟ, ଅନିୟମିତ ଜୀବନ,
ଦେଇଥାଏ କଷ୍ଟ, କରେ ଦେହକୁ ଦୁର୍ବଳ।

ଡାକ୍ତରଙ୍କ କଥା ମାନ, ସଚେତନ ରୁହ,
ଚିନ୍ତା ଦୂର କର, ହସି ହସି ରୁହ।

ଏହି ସବୁ ମାନିଲେ ଜୀବନ ହେବ ନିରାମୟ,
ସ୍ୱାସ୍ଥ୍ୟ ଭଲ ରଖିଲେ ଜୀବନ ହେବ ମହନୀୟ।

ରିମଝିମ୍ ଥାନପତି
ବିଏସି ନର୍ସିଂ, ୧ମ ସେମିଷ୍ଟର
ବିକାଶ ନର୍ସିଂ କଲେଜ, ସମ୍ବଲପୁର

ଅମୂଲ୍ୟ ସମ୍ପଦ

ସ୍ୱାସ୍ଥ୍ୟ ଠାରୁ ନାହିଁ ଅମୂଲ୍ୟ ସମ୍ପଦ
ଆଉ ଦୁନିଆ ରେ କିଛି,
ଅସୁସ୍ଥ ଜୀବନ ଭୋଗ କରେ କଷ୍ଟ
ବିକାଶ ଯାଏ ରେ ଲୁଚି ।

ସେ ସମ୍ପଦ ଯେବେ ହଜିଯାଏ କ୍ଷଣେ
ଶକ୍ତି ବାଧା ପାଏ ପୁଣି,
ଉନ୍ନତିର ପଥେ ଅନୁନ୍ନତ ଆସେ
ଏ କଥା ନ ଭୁଲ ମଣି ।

ସେଥିପାଇଁ ମୁହିଁ କହୁଅଛି ଆଜି
ସ୍ୱାସ୍ଥ୍ୟର ବିକାଶ ବାଣୀ,
କାମରେ ଲଗାଅ ବେଗେ ବେଗେ ତାକୁ
ମନ ଧ୍ୟାନ ଦେଇ ଶୁଣି ।

ସଅଳ ଶୋଇବା ସଳ ଉଠିବା
ଦିନରେ ଶୁଅ କେବେ,
ରାତ୍ରି କାଳେ ଆମେ ଆଠ ଘଣ୍ଟା ଶୋଇ
ଭୋରୁ ଉଠିବା ବେଗେ ।

ରାତି ଅନିଦ୍ରା ତ ରୋଗର କାରଣ
ଏହାକୁ ଦୃଷ୍ଟିରେ ରଖ,
ସନ୍ଧ୍ୟା ସକାଳ ପ୍ରାଣାୟମ ଯୋଗ
କରିକି ତ ତରେ ଦେଖ ।

କେତେ ଉପକାର ମିଳେ ତ ଏଥିରୁ
ଶରୀର ମନକୁ ପୁଣି,
ଅନୁଭବୀ ଖାଲି ଅନୁଭବ କରେ
ଆନ କି ପାରିବ ଜାଣି ?
ପ୍ରାର୍ଥନା କରିବା ଉନ୍ନତି ର ପଥ
ଉତ୍ତମ ସ୍ୱାସ୍ଥ୍ୟକୁ ଆଣେ,
ଭଗବାନ ପରା ସବୁଥିରେ ମୂଳ
ଭୁଲି ଯାଆ ନାହିଁ କ୍ଷଣେ ।

ଗୀତା ଭାଗବତ ପାଠ କଲେ ପୁଣୁ
ସୁସ୍ଥ ହୋଇବା ଆମେ,
ଘଣ୍ଟ ଶଙ୍ଖ ଧ୍ୱନି ହୁଳ ହୁଳି ସେ ଯେ
ଉପକାରୀ ଧରା ଧାମେ ।

ପାଦରେ ପାଉଁଜି ଧ୍ୱନି ଉପକାରୀ
ଗଳାରେ ତୁଳସୀ ମାଳା,
ସୂଯ୍ୟୋଦୟ ପୂର୍ବୁ ସ୍ନାହାନ କରିଲେ
ଜୀବନ ଭଲ ବେଳା ।

ରୋଗ ହେଲେ ଆମେ ଔଷଧ ଖାଉ
ରୋଗ ନ ହେବାକୁ ଦେବା,
ଆରୋଗ୍ୟ ଅପେକ୍ଷା ପ୍ରତିରକ୍ଷା ମନ୍ତ୍ର
ମନେ ମନେ ଘୋଷୁ ଥିବା ।
ସକାଳ ରେ ଦାନ୍ତ ଘଷିବା ସହିତ
ଶୋଇଲା ପୂର୍ବରୁ ଘଷ,
ଗାଧୋଇ ସାରିଣ ସୂର୍ଯ୍ୟ ନମସ୍କାର
କରିକି ହୋଇଯା ତୋଷ ।

ସ୍ନାନ ପରେ ବେଳ ତୁଳସୀ ପତ୍ରକୁ
ସେବନ କରିବା ଶିଖ,
ପୂଜା ପାଠ ପରେ ଚନ୍ଦନ ମଥାରେ
ମାରିଣ ପରା ସେ ରଖ ।

ସୁଷମ ଖାଦ୍ୟକୁ ଭକ୍ଷଣ ଯେ କର
ଜଙ୍କଫୁଡ୍ ବାଏ ବାଏ,
ମିଠା ଠାରୁ ପିତା ଅଟେ ଉପକାରୀ
ରାଗ ଲୁଣ ଭଲ ନୁହେଁ।

ସବୁଜ ପରିବା କଞ୍ଚା ପରିବା
ସାଲାଡ଼ ତ ଅଟେ ଭଲ
ସାର ଦିଆ ଦ୍ରବ୍ୟ ସ୍ୱାସ୍ଥ୍ୟ କୁ ଖରାପ
ଏକଥା କେବେ ନ ଭୁଲ।

ଉଷୁମ ପାଣି ପାନ କଲେ ପୁଣି
ବହୁ ରୋଗ ନାଶ ହୁଏ,
ପ୍ରତିରକ୍ଷା ପଣ ବଜାୟ ରଖେ ସେ
ଉତ୍ତମ ପଥଟି ସିଏ।

ଗୀତା ର ବାଣୀକୁ କର୍ମ ରେ ଲଗାଅ
ଜୀବନ କୁ କରେ ସୁସ୍ଥ,
ଅନ୍ୟ ସବୁ ଏଠି ତୁଚ୍ଛ ପଡ଼ିଯାଏ
ଏହା ଅଟେ ପରା ଶ୍ରେଷ୍ଠ।

ପରିବେଶ କୁ ସୁରକ୍ଷା ପ୍ରଦାନ
ଅସଲ କର୍ତ୍ତବ୍ୟ ସେହି,
ଜଙ୍ଗଲ ସୁରକ୍ଷା ପାଇଁ ଶପଥ
ନେବା ଆମେ ମେଳି ହୋଇ।

ଏହାକଲେ ସୁସ୍ଥ ରହିବ ସମାଜ
ଶାନ୍ତି ହେବ ଧରା ପୃଷ୍ଠ
ହସର ଲହରୀ ଖୋଳି ଜୀବ ପୁଣି
ଅଶାନ୍ତ ହୋଇବ ନଷ୍ଟ।

ଇଣ୍ଟରନେଟ୍ ର କମ୍ ବ୍ୟବହାର
କରିବା ତ ଅମେ ସଦା,
ପୁସ୍ତକ ପଠନ ଭଲ ଅଭ୍ୟାସ ଟେ
ସେଥିରେ ନ ହେଉ ବାଧା

ପରିବାର ଖୁସି ଅଟେ ମୂଲ୍ୟବାନ
ପ୍ରତିଷେଧକ ଟି ସେହି,
ରୋଗ ଉପଶମ ସାଧନ ପୁଣି ସେ
ସଙ୍ଗୀତ ଶୁଣଇ ଯହିଁ।

ନୃତ୍ୟ ମଧ୍ୟ ସ୍ୱାସ୍ଥ୍ୟ ପାଇଁ ଉପକାରୀ
ଦେହକୁ ରଖଇ ସୁସ୍ଥ,
କପାଳ ଭାରତୀ କେତେ ଭଲ ପୁଣି
ଗଡାଏ ଜୀବନ ରଥ।

ଏମିତି ଲେଖିଲେ ସ୍ୱାସ୍ଥ୍ୟ ପାଇଁ ପୁଣି
ସରିବ ନାହିଁ ସେ କଥା,
ଭଗବତ ପ୍ରେମୀ ସର୍ବଗ୍ରେ ରହନ୍ତି
ନଇ ଯାଏ ସେଠି ମଥା।

ଶେଷରେ କାମନା ସୁସ୍ଥ ରହୁ ଏହି
ସମାଜ ଆମର ପୁଣି,
ମଙ୍ଗଳ ମୟ ମଙ୍ଗଳ କରନ୍ତୁ
ତାଙ୍କ ପାଖେ ଚିର ରୁଣି।

ରମ୍ୟ ରାମେଶ୍ୱରୀ
ଶ୍ରୀ ରାମ ଚନ୍ଦ୍ର ଭଞ୍ଜ ଭେଷଜ ମହାବିଦ୍ୟାଳୟ
ଓ ଚିକିତ୍ସାଳୟ, କଟକ

ଏଇତ ଜୀବନ

ଜୀବନ ଟା ଏକ ରାସ୍ତା ହେଲେ ମଣିଷ ଏଠି ବାଟୋଇ
ରାସ୍ତା ର ଆରମ୍ଭ ଜନ୍ମରୁ ହେଲେ, ଶେଷ ହୁଏ ମୃତ୍ୟୁ ହୋଇ।।

ଜନମ-ମରଣ ଏଇତ ମଣିଷ ଜୀବନ,
ସୁବୁ ଲୋଭ ମୋହ ରେ ମଣିଷ ମନ,
ଜୀବନ ଦେଇଛନ୍ତି ଭଗବାନ,
ଏ ଦୁର୍ଲଭ ଜୀବନ ଓ ସବୁ କିଛି ତାଙ୍କର ଦାନ।

ଜୀବନର ଚଲା ପଥେ କେତେ କିଏ ହୁଅନ୍ତି ଦେଖା,
ସେଥିରୁ କିଛି ଛାଡି ଯଆନ୍ତି, ଆଉ କିଛି ହୁଅନ୍ତି ସଖା।।

ଯିଏ ଆମ ସାଥିରେ ରୁହନ୍ତ ସେ ନିଜର
ଯିଏ ଛାଡି ଯାଆନ୍ତି ସିଏ ଭାବନ୍ତି ପର।।

ସବୁ ପରେ ବି ଆମ କୁ ଦୁଃଖ କୁ ନେଇ ବଞ୍ଚିବାକୁ ପଡେ,
କେବେ ଖୁସି ରେ ତ କେବେ ଦୁଃଖରେ ଆଖିରୁ ଲୁହ ଗଡେ।

କର୍ମମୟ ଜୀବନରେ ମଣିଷ ନିଜକୁ ଦେଇଛି ହଜେଇ,
ନିଜପାଇଁ ବି ସମୟ ନାହିଁ କାନ୍ଦେ ଭିତରେ ଦୁଃଖ ଲୁଚେଇ।।

ଦଇବ ଦଉଡି ମଣିଷ ଗାଇ,
ଯୁଆଡେ ଭିଡ଼ଇ ସିଆଡେ ଯାଇ
ଦୁଃଖ ବେଳେ ତୁଛାକୁ ନିଜ ମଥା ପିଟୁଥା।।

ଏ ଜନ୍ମ କର୍ମଫଳ ଏ ଜନ୍ମେ ଭୋଗିବା ଏହା ଜୀବନ ର ସତ
ଭୁଲ କର୍ମ ପାଇଁ ଦଣ୍ଡ ଗୋଗିବାକୁ କେହି ନଥିବେ ମିତ।।

କିଏ ଜାଣିଛି କାହା ଜୀବନ ଦୀପ କେଉଁ ଦିନ ଲିଭିଯିବ,
ଲିଭିବା ଆଗରୁ ସତ ମାର୍ଗ ଧରି ବାଟ ଚାଲିବାକୁ ହେବ।

ଦେଖା ଏ ସଂସାର ମଣିଷ କିପରି ପଶୁ ର ଜୀବନ ଜିଉଁଛି,
ହୀନ କର୍ମ କରି ବିବେକ ପାସୋରି ମୋହେ ବାନ୍ଧି ହୋଇ ମରୁଛି।

ମଣିଷ ହେଇ କି କରିବା ମହତ କାମ,
ଯେମିତି ମରଣ ପରେ ବି ରହିବ ଆମର ନାମ।।

ରଶ୍ମିତା ଖୁଣ୍ଟିଆ

घर

जब दुनिया थाडी भारी लगे
जब तू सोए कम और ज्याजा जगे
जब लब्ज बात न समझाए
तो घर चले जाना सही है

जब चाय में मिठास हो पर अदरक नहीं
जब न जान पाए तु गलत-सही
जब जो भी हो लगे ठीक नहीं
तो घर चले जाना सही है

जब तेरा जी थाडा ज्यादा घबराए
जब तू चाहे कोई ना मुझे समझाए
जब तू ही तुझको सताए
तो घर चले जाना सही है

पर घर पे भी अगर 'घर' न मिले
सब मिले पर 'तू' तुझको न मिले
जमाने भर के दर्द की घूंट जो तू पीले
''मुझे घर ढूंढना है थोडा और जी ले''
''मुझे घर ढूंढना है थोडा और जी ले''

-शुभलक्ष्मी

क्या तुम समझ पाओगे ?

क्या तुम समझ पाओगे ?
उस शेर को जो मौन है
जो भीतर बहती नदी सा
अशांत, न समझे वो कौन है।

हर सांस में छुपा एक सवाल
हर धडकन का अदुरा ख्याल है।
न समझु खुद से खुद की ये लडाई,
सोचूं जितना गहरा गगती उतनी पराई है।

वो घबराहट, वो बेमोल चीखे
जो बाहार आने की चाह में
दील के कोनो में सिमट जाती है
और धडकन में बस जाती है।

शब्दों में ढल न सके जो बातें,
चीखे जो हवा में गुम हो जाती है।
जो दिल के भीतर जख्म बना दे
और हर सन्नाटा घाव बढा दे।

क्या तुम सच में मुझे समझ पाओगे ?
मेरे अनकहे दर्द की बातें,
क्या तुम सच में मुझे समझ पाओगे ?
क्या तुम सच में मुझे समझ पाओगे ?

-पार्बती राउत
क्लास -बी फार्मा ४र्थ बर्ष
ड. आम्बेदकर इनष्टीच्युट अफ फार्मा स्विुटीकाल, राउरकेला

और कुछदेर ठहरजाए

आओ चले उन राहो से,
जहां ना कोई गुजरा हो,
जहां पे लम्हा ठहरा हो,
आओ कुछ देर ठहर जाए...

नील गगन को रंगने वाले,
फुलो को महकाने वाले,
नयिों में जल भरने वाले,
सुरज को चमकाने वाले,
उस प्रकृति के गुण गाए,
आओ कुछ देर ठहर जाए...

आसमान को छूने वाले,
धरती को उपजाने वाले,
परिन्दों को उडाने वाले,
उस सृजनहार के गुण गाए,
आओ कुछ दर ठहर जाए...

देखे ब्रह्माण्ड विस्तार को,
प्राणो के संचार को
प्रकृति के श्रृंगार को,
जीवन के सूत्रधार को
उस जगदीश्वर को शीश नमाए
आओ कुछ देर ठहर जाए....

-डा आशीश कुमार श्रीवास्तभ
एमडी होमियोपाथी
समबलपुर

TOTAL MEDICAL COLLEGE UNDER OUHS

1. Dharanidhar Medical College & Hospital, Keonjhar
2. Shri Jagannath Medical College and Hospital, Puri
3. Government Medical College & Hospital, Sundargarh
4. Fakir Mohan Medical College & Hospital, Balasore
5. Pandit Raghunath murmu Medical College & Hospital, Rangamatia
6. Saheed Laxman Nayak Medical College & Hpspital
7. Saheed Rendo Majhi medical College & Hospital, Bhawanipatana, Kalahandi
8. Bhima Bhoi Medical college & Hospital, Balangir
9. Acharya Harihar Post Graduate Institute of Cancer,Cuttack
10. MKCG Medical college & Hospital Berhampur, Ganjam
11. SCB Medical College , Cuttack
12. Jajati Keshari Medical College & Hospital Jajpur
13. PGIMER, BBSR
14. Hi-Tech Medical College & Hospital, Bhubaneswar
15. Hi-Tech Medical College & Hospital, Rourkela
16. Pabitra Mohan Pradhan Medical College, Talcher,Angul
17. Govt. Medical College Phulbani, Kandhmal

Total Dental College

1. Hi-Tech dental College & Hospital Bhubaneswar
2. SCB Dental College & Hospital, Cuttack

Total Ayurvedic College

1. Govt. Ayurvedic College & Hospital, Balangir
2. Gopabandhu Ayurveda Mahavidyalaya, Puri
3. Kaviraj Ananta Tripathy Sharma Ayurved College & Hospital,Berhampur,Ankushpur, Ganjam
4. Sri Sri Nrusinghnath Ayurveda College & Research Institute, Bargarh

Total Homoeopathic College

1. Dr. Abhin Chandra Homoeopathic Medical College & Hospital, Bhubaneswar
2. Orissa Medical College of Homoeopathy & Research, Sambalpur
3. Utkalmani Homoeopathic Medical College and Hospital, Rourkela
4. Biju Pattnaik Homoepathic Medical College & Hospital, Berhampur

Total Medical College

1. Abhinav Bindra Sports Medicine & Research Institute, Bhubaneswar
2. Academy of Management and Information Technology, Khurda
3. Ashwini College of Nursing, Cuttack
4. Aum Sai College of Paramedical, Berhampur
5. Bijupattnaik Medical Technology, Baripada
6. Blue Wheel Institute of Paramedical Sciences, Bhubaneswar
7. Chakradhara Institute of Rehabiliation Sciences, Puri
8. Franklin Institute of Medical Science, Bhubaneswar
9. Gayatri College of Physiotherapy, Sambalpur
10. Gayatri Institute of Paramedical Sciences, Sambalpur
11. Gurukrupa College of Medical Science, Nabarangpur
12. Hi-Tech College of Physiotherapy, Bhubaneswar
13. Hi-Tech Medical College & Hospital, Bhubaneswar
14. IMT Pharmacy College ,Puri
15. Institute of Health Sciences, Chandaka Village, Khurda
16. Institute of Nursing & Paramedical Sciences, Bhubaneswar
17. International Institute of Rehabilitation Sciences & Research, Bhubaneswar
18. Kairali Institute of Medical Science, Keonjhar
19. Kalahandi GNM College, Kalahandi
20. Kashinath Institute of Technological Education, Baripada, Mayurbhanj
21. Mahanadi Netra Chikitsalaya-Lepra Society, Subarnapur
22. Sai College of Physiotherapy, Jajpur
23. Sri Jagannath College of Physiotherapy, Nuapada
24. Swami Vivekanand National Institute of Rehabilitation Traning and Research(SVNIRTAR), Oltapur, Cuttack
25. Odisha Institute of Medical Science, Balasore
26. Prativa Institute of Medical Science, Bhubaneswar
27. Rourkela Senior Nursing College, Sundargarh
28. Sadguru College of Allied Medical Sciences, Cuttack
29. Trilochan Netralaya, Sambalpur
30. Vision Institute of Medical Science & Research, Cuttack
1. Affinity Institute of Medical Science, Khorda
2. Alex Institute of Medical Science, Kandhamal
3. Amit College of Nursing, Berhampur
4. Amit College of Nursing, Kanishi-Randha Road, Ganjam

5 Ananta Memorial College of Nursing, Jeypore
6 Anjana devi College of Nursing , Khorda
7 Aprize College of Medical Science, Sambalpur
8 Arun College of Nursing,Kendrapara
9 Aryan College of Nursing, Khorda
10 Ashwini College of Nursing, Cuttack
11 Asutosh Institute of Paramedical Science, Kundheigola, Deogarh
12 Aswasana College of Nursing, Deogarh
13 Aum Sai College of Nursing, Berhampur
14 B.B.Chhatoi College of Nursing , Nabarangpur
15 Badriprasad College of Nursing, Bargarh
16 Badriprasad Institute of Medical Science,Sambalpur
17 Baitarani College of Nursing, Keonjhar
18 Balabati Devi School of Nursing, Lingipur, Sishupalgarh, Bhubaneswar
19 Balaji College of Nursing, Balangir
20 Balaram Institute of Medical Sciences, Khordha
21 Balasore College of Nursing , Nilagiri , Balasore
22 Balasore College of Nursing, Balasore
23 Bapuji Academy of Medical Science, Ganjam
24 Bargaon Nursing College, Sundargarh
25 Berhampur School of Nursing ,Berhampur
26 Betnoti College of Nursing, Mayurbhanj
27 Bhagabati College of Nursing, Jajpur
28 Bhagabati Kousalya School of Nursing, Balangir
29 Bharati College of Nursing, Mayurbhanj
30 Bhubaneswar College of Nursing, Cuttack
31 Bijupatnayak College of Nursing ,Sonepur
32 Bijupattnaik B.SC Nursing College,Mayurbhanj
33 Bijupattnaik B.Sc. Nursing Training College , Mayurbhanj
34 Bijupattnaik M.Sc Nursing College , Baripada
35 Bijupattnaik P.B.B.Sc. Nursing Training College, Baripada
36 Biraja Nursing College , Jajpur
37 Binori College & School of Nursing, Balasore
38 Blue Wheel Institute of Nursing Sciences, Nayagarh
39 Boudh College of Nursing , Boudh
40 Brilliant BSC Nursing College , Keonjhar
41 Capital Academy of Nursing, Bhubaneswar

42 Care Institute of Medical Science & Technology, Nuahata, Banarpal, Angul
43 College of B.Sc Nursing Training, Mayurbhanj
44 College of Nursing,Berhampur
45 College of Nursing , Cuttack
46 College of Nursing Christian Hospital,Bissam Cuttack,Rayagada
47 College of Nursing Christian Medical Society,Nabarangpur
48 College of Nursing N.P.M. Institute of Medical Science & Research,Keonjhar
49 Compassion College of Nursing, Balangir
50 Cryogenex Institute of Medical Science & Research(CIMSAR) ,Malkangiri
51 Dhabaleswar Institute of Nursing , Cuttack
52 Dhaneswar School and College of Nursing, Cuttack
53 Dhenkanal Academy of Medical Science, Dhenkanal
54 Dibya College of Nursing, Anugul
55 Dibya College of Nursing, Bhubaneswar
56 Dibya College of Nursing,Sundargarh
57 Disha Institute of Nursing, Mantridi, Ganjam
58 Divine Institute of Medical Science & Research, Baripada, Mayurbhanj
59 Dr. Ambedkar Institute of Medical Science, Rourkela
Dr. Ambedkar Institute of Medical Science, Sundargarh
Dr. Ambedkar Institute of Medical Sciences, Sundargarh
60 Dristhi College of Nursing, Kalinga Nagar, Khurda
61 Franklin Institute of Medical Science , Bhubaneswar
62 Franklin Institute of Medical Science , Puri
63 Future Bright College of Nursing, Jajpur
64 Future College of Nursing , Soro, Balasore
66 Gandhi Institute of Nursing and Sciences(GINS),Ghangapatna,Bhubaneswar
67 Ganesh Institute of Health Science, Jajpur
68 Gayatri College of Nursing ,Baripada
69 Gayatri College of Nursing ,Sambalpur
70 Gayatri Institute of Science and Technology(GIST), Rayagada
71 GEC School of Nursing, Badaraghunathpur, Madanpur, Bhubaneswar
72 Ghadai Bsc Nursing College, Malkangiri
73 Gitanjali College of Nursing, Khorda
74 Gitanjali School and College of Nursing, Bhadrak
75 GKF Nursing Institute, Bhagabatipur, Khurda
76 GNEXT Allied Medical Institute, Mayurbhanj
77 Gopabandhu Institute of Medical Science & Reasearch, School & College of Nursing, Cuttack

78 Gopabandhu Institute of Medical Science & Reasearch,Cuttack
79 Gopinath College of Nursing,Nuapada
80 Gouri Institute of Medical Science, Lahunipada, Bonai, Sundargarh
81 Goutam Budha Nursing & Paramedical Science College, Puri
82 Govt College of Nursing ,Kandhamal
83 Govt. College of Nursing , Dhenkanal
84 Govt. College of Nursing Kalahandi
85 Govt. College of Nursing Nabarangpur
86 Govt. College of Nursing, Sundargarh
87 Gramyaprava College of Nursing,Nimapara,Puri
88 Gurukrupa College of Medical Science, Umerkote
89 Gurukrupa College of Nursing , Khordha
90 Gurukrupa College of Nursing, Balasore
91 Gurukul Institute of Medical Sciences, Sundargarh
92 Gurukrupa College of Nursing, Cuttack
93 Gurukrupa College of Nursing, Dhenkanal
94 HI-Tech College of Nursing, Rourkela
95 Hi-Tech College of Nursing, Rourkela
Hi-Tech College of Nursing, Rourkela,Sundargarh
Hi-Tech College of Nursing, Rourkela,Sundargarh95Hi-Tech School & College of Nursing , Bhubaneswar
Hi-Tech School & College of Nursing , Bhubaneswar
Hi-Tech School & College of Nursing , Bhubaneswar
96 IGKC College of Nursing, Bhubaneswar
97 IIMT College of Nursing , Shaktinagar, Sundargarh
98 Institute of Medical Science and Research, Balasore
99 Irma Institution of Medical Sciences, Kalahandi
100 Ispat School of Nursing, Jabaghat, Bondamunda, Sundargarh
101 Jaiprakash Hospital and Research Centre Pvt Ltd, Rourkela
102 Janakalyan Institute of Nursing & Health Science, Ganjam
103 Jeypore College of Nursing, Koraput
104 Jhadeswar College of Nursing , Balasore
105 Kairali College of Nursing , Keonjhar
106 Kalahandi GNM college , Kalahandi
107 Kalam College of Nursing, Govindapur, Ganjam
108 Kalinga Nursing School, Bhubaneswar
109 Kamalakanta Nursing & Health Science College, Kesinga, Kalahandi
110 Kandhamal College of Nursing, Kandhamal
111 Kasturaba College of Nursing, Berhampur

112 Khurda School of Nursing, Khordha

113 Koraput B.Sc Nursing College,Janiguda,Koraput
Koraput B.Sc Nursing College, Janiguda,Koraput
Koraput B.Sc Nursing College,Koraput
Koraput B.Sc. Nursing College, Janiguda, Koraput

114 Koraput College of Nursing, Koraput
Koraput College of Nursing, Koraput

115 Koshal College of Nursing , Sambalpur

116 Krishna Vikash College of Nursing and Allied Health Sciences, Bargarh

117 Kuntala Devi College of Nursing, Khurda

118 Kumudini School of Nursing, Ranapur, Nayagarh

119 Lions Institute of Pharmaceutical Sciences, Odapada, Dhenkanal

120 Lord Jagannath Mission's College & School of Nursing, Bhubaneswar

121 Maa Bhandaragharani College of Nursing,Nabarangpur

122 Maa Dakhineswari Institute of Medical Science, Bhadrak

123 Maa Majhighariani Institute of Nursing,Rayagada
Maa Majhighariani Institute of Nursing, Nandika Bhawan,J.K Pur Road, Rayagada

124 Maa Samalai Nursing College, Sambalpur

125 Maa Tarini College of Nursing, Sailong, Keonjhar

126 Maharani Premkumari College of Nursing, Mayurbhanj

127 Mahasri College of Nursing , Denkanal

128 Mahavir College of Nursing ,Bargarh

129 Maheswari Nursing College, Bargarh

130 Mahima College of Nursing, Jagatsingpur

131 Mamata devi College of Nursing , Jajpur

132 Manikeswari Senior Nursing College, Hill Town, Bhawanipatna, Kalahandi

133 Manjari Devi College of Nursing, Balakati, Bhubaneswar
Manjari Devi College of Nursing,Bhubaneswar
Manjaridevi College of Nursing, Khurda

134 Mary Eliza School and College of Nursing tirtol,Jagatsingpur

135 Mayurbhanj College of Nursing ,Mayurbhanj
Mayurbhanj College of Nursing,Baripada

136 Mayurbhanj College of Nursing, Indapahi, Laxmiposi, Baripada, Mayurbhanj

137 Minakshi College of Nursing, Deogarh

138 Mother Teresa College of Nursing, Bhawanipatna,dist-kalahandi

139 Mother's College & School of Nursing, Bhubaneswar
Mother's College and School of Nursing, KalingaNagar,Ghatikia,Khordha

140 Mukti College of Nursing, Puri

141 Nabapravat Academy for Management Education, Cuttack

142 Nabarangpur College of Nursing , Nabarangapur

143 Narayani College of Nursing, Jagatsinghpur
144 Narmada School & College of Nursing , Cuttack
145 Neelachal Institute of Medical Science , Bhubaneswar
146 Netaji College of Nursing , Bhubaneswar
147 NIST Institute of Medical Sciecne, Balasore
148 Nucleon Institute of Medical Science,Baripada Sadar, Mayurbhanj
149 Odisha Academy of Medical Science, Nabarangpur
151 Odisha College of Nursing, Cuttack
152 Odisha College of Nursing & Medical Sciences, Dhenkanal
153 Odisha Institute of Medical Science , Balasore
154 Odisha Nursing College , Bhadrak
155 Om BBS College of Nursing, Ganjam
156 Om Sai Institute of Paramedical Sciences, Mayurbhanj
157 Padmashree Krutartha Acharya College of Nursing,Bargarh
158 Padmalaya School and College of Nursing, Koraput
159 Patitapabana College of Nursing , Khurda
160 PC College of Nursing,Nimapara, Puri,
161 Prabhupada Institute of Nursing Sciences, Puri
162 Pragati Institute of Medical Education, Bhawanipatna, Kalahandi
163 Prathiva Devi College of Nursing, Bhubaneswar
Prathiva Devi College of Nursing,Niladri Vihar, Bhubaneswar
Prativa Devi College of Nursing, Bhubaneswar, Khordha
164 Prativa Academy of Nursing, Bhubaneswar, Khordha
165 Prativa Institute of Holistic Health Care , Bhubaneswar
Prativa Institute of Holistic Health Care, Khordha
Prativa Institute of Holistic Health Care, Khordha
166 Premier College of Nursing, Khordha
167 Priyadarshini College of Nursing, Jaseibad, Kuchei,Kuliana, Mayurbhanj
168 Priyanka Devi College of Nursing ,Puri
169 Puri Saraswati Institute of Medical Science, Balasore
170 Puri School & College of Nursing, Puri
171 Radhakant College of Nursing, Cuttack
172 Radharaman College of Nursing, Kendrapara
173 Rajdhani Nursing College, Bhubaneswar
174 Ramadevi Institute of Medical Science & Research, Bhubaneswar, Khurda
175 Ramarani Medical Academy, Kuruda, Balasore
176 Rensum Institute of Nursing ,Barhampur
177 Ritayani College of Nursing, Mayurbhanj
178 Rosalia Nursing Academy, Bolangir

179 Rourkela Institute of Nursing, Rourkela
180 Rourkela Senior Nursing College,Sundargarh
181 Royal Group Medica Aradichhak, Bhadrak
182 Sarala College of Nursing, Kalahandi
183 Sai Nursing College, Balasore
184 Sabarmati College of Nursing,Cuttack
185 Sadguru College of Nursing, Jagatpur, Cuttack
186 Sahayoga College of Nursing, Rayagada
187 Sai College of Nursing , Jajpur
188 Sai College of Nursing ,Kandhamal
189 Sai Medica Group, Kendrapara
190 Sai Nursing School, Burla, Sambalpur
191 Sai Stiti Institute of Medical Science, Khordha
192 Sailabala Institute of Nursing and Medical Science, Koraput
193 Sailashree School and College of Nursing, Balasore
194 Sairudra College of Nursing ,Kendrapara
195 Sambalpur Nursing College , Sambalpur
196 Santi College of Nursing , Bhadrak
197 Sarada Devi Institute of Medical Sciences, Khordha
198 Saradadevi School & College of Nursing, Baripada, Mayurbhanj
199 Saraswat College of Nursing, Kerenda, Bajapur, Khurda
200 Saraswati College of Nursing, Nuagaon, Khorda
201 Saraswati Nursing College, Kalahandi
202 Satyanarayan College of Nursing ,Malkangir
203 Satyanarayan College of Nursing, Koraput
204 SCB College of Nursing , Cuttack
205 Seva College of Nursing , Angul
206 SGI School of Medical Sciences,Nachhipur, Cuttack
207 SGI School of Medical Science, Kalahandi
208 Shaikh College of Nursing ,Mayurbhanj
209 Shanti College of Nursing, Jajpur
210 Shanti Institute of Medical Science and Technology, Jharsuguda
211 Shibanshi Institute of Medical Science, Nayagarh
212 Shree Jagannath College of Nursing, Khordha
213 Shree Jagannath College of Nursing, Salipur, CuttackShree Mandir College of Nursing, Puri
215 Shree Ram College of Nursing, Khordha
216 Sibaram Prasad College of Medical Sciences ,Koraput
217 SIEMS College of Nursing, Bhadrak

218 SIEMS College of Nursing, Khurda

219 Similipal College of Nursing , Rairangpur, Mayurbhanj

220 SOS College of Nursing, Kendrapara

221 Sparsh College of Nursing & Allied Sciences, Bhubaneswar

222 Sradha Institution of Health Science, Cuttack

223 Sri Baladevjew College of Nursing,Kendrapara

224 Sri Jagannath B.Sc Nursing College, Puri

225 Sri Jagannath College of Nursing, Nuapada

226 Sriram Institute of Medical Science and Research, Kendrapara

227 Statesman Academy of Medical Science, Khurda

228 St. John College of Nursing and Paramedical, Balasore

229 St. Thomas College of Nursing, Kuruda, Balasore

230 Subarnapur Nursing School ,Subarnapur

231 Subham College of Nursing, Bhadrak

232 Sulagna Institute of Medical Sciences, Balasore

234 Sundargarh College of Nursing, Rourkela,sundargarh

235 Sundargarh Nursing College , Sundargarh

236 Sunnayana College of Medical Science, Malkangiri

237 Supreme Task General Hospital & Netraniketan, Balangir

238 Surya Institute of Medical Science & Research Centre , Keonjhar

239 Sushree Institute of Technical Education(SITE)-A College of Nursing, Balangir

240 Susila Devi College of Nursing, Nuapada

241 Swarnalata College of Medical Science, Purunabaripada, Khunta, Mayurbhanj

242 Swarnalata School of Nursing, Konark, Puri

243 Swarnalata School of Nursing, Mayurbhanj

244 Synergy College of Nursing, Dhenkanal

245 Tarini College of Nursing, Keonjhar

246 Tejas College of Nursing Paramedical Science, Sambalpur

247 Trisha Nursing Centre , Cuttack

248 Vidya College of Medical & Hospital &Training, Jajpur

249 Vijayanjali College of Nursing, Gadabhanga Khantapada, Balasore

250 Vikash College of Nursing, Mayurbhanj

251 Vikash B.Sc. Nursing College, Balasore

252 Vikash Nursing College , Kalahandi
Vikash Nursing College, Bhawanipatna, Kalahandi

253 Vikash Nursing College , Sambalpur

254 Vikash Nursing College, Bargarh
255 Vinayak College of Nursing, Bhubaneswar
Vinayak institute of medical science ,Nabarangpur
257 Vision Institute of Medical Science & Research,Cuttack
Vision Institute of Medical Science and Research, Bhubaneswar
258 Vivekananda College of Nursing, Bhubaneswar
259 Vivekananda Institute of Health Science, Mayurbhanj
260 Vivekananda Institute of Social Work and Social Sciences(VISWASS), Khordha
261 Xavier College of Nursing, Khordha
262 Xavier Nursing College ,Jajpur
263 Xavier Nursing College, Puri

Total Pharmaceutical College

1 Akash Institute of Pharmaceutical Education & Technology, Kendrapada
2 Aurosri lnstitute of Pharmaceutical Education & Research, Cuttack
3 Batakrushna College of Pharmacy,Nuapada
4 Bhubaneswar College of Pharmacy,Khordha
5 College of Pharmaceutical Sciences, Berhampur
6 College of Pharmaceutical Sciences,Puri
7 College of Pharmaceutical Sciences,Tamando
8 Dadhichi College of Pharmacy,Cuttack
9 Dhabaleswar Institute of Pharmacy, Radhadamodarpur I.E.,Athgarh,Cuttack
10 Dibya College of Pharmacy,Sundargarh
11 Dr. Ambedkar lnstitute of Pharmaceutical Sciences,Rourkela
12 Einstein College of Pharmacy, Bajapur,Khurda
13 Ganesh Institute of Pharmaceutical Science,Jajpur
14 Gayatri College of Pharmacy,Sambalpur
15 Gayatri lnstitute of Science and Technology(GIST),Gunupur,Rayagada
16 Gurukrupa College of Medical Science,Umerkote,Nabarangpur
17 Hi-Tech College of Pharmacy,Bhubaneswar
18 IMT Pharmacy College,Puri
19 Jeypore College of Pharmacy, Jeypore,Koraput
20 JRG College Of Pharmacy,Khurdha
21 Kairali Institute of Pharmacy,Keonjhar
22 Kalinga Institute of Pharmaceutical Sciences,Balasore
23 Kanak Manjari lnstitute of Pharmaceutical Sciences,Rourkela
Kanak Manjari lnstitute of Pharmaceutical Sciences,Rourkela

24 Keonjhar Institute of Medical Science & Research,Keonjhar
25 Koustuv Research Institute of Medical Science,Bhubaneswar
26 KT School of Pharmacy, Jatani,Khordha
27 lndira Gandhi lnstitute of Pharmaceutical Sciences,Bhubaneswar
28 lnstitute of Pharmaceutical Sciences,Balasore
29 lnstitute of Pharmacy & Technology,Salipur
30 Institute of Pharmaceutical Science & Technology,Bahugram,Cuttack
31 Luckky College of Pharmaceutical Sciences,Bhubaneswar
32 Maa Vaishnodevi College of Pharmacy,Balasore
33 Maruti Pharmacy College,Bargarh
34 Mayurbhanj Medical Academy,Baripada
35 Nityananda College of Pharmacy, Balasore
36 Om Sai Institute of Paramedical Sciences, Mayurbhanj
37 Om Sai College of Pharmacy & Health Sciences, Berhampur, Ganjam
38 Orissa College of Pharmaceutical Sciences, Dhenkanal
39 Paradeep Pharmacy College, Tirtol, Jagatsinghpur
40 Roland Institute of Pharmaceutical Sciences, Berhampur, Ganjam
41 Royal College of Pharmacy & Health Sciences,Berhampur
42 Santoshi lnstitute of Pharmaceutical Education & Research,Cuttack
43 SaradaDevi Institute of Medical Sciences,Sarakana,Balianta,Bhubaneswar
44 Saraswat Pharmacy College,Saraswati Vihar,Bajpur,Khurda
45 Seemanta lnstitute of Pharmaceutical Sciences,Mayurbhanj
46 SGI School of Medical Sciences,Nachhipur,Cuttack
47 Sri Jayadev College of Pharmaceutical Sciences,Bhubaneswar
48 The Pharmaceutical College,Barpalli,Bargarh
49 VIMTAS School of Pharmacy,Koraput
50 Xavier College of Pharmacy,Puri
51 Xavier Pharmacy College,Jajpur

OUHS FACULTIES DEVELOPMENT PROGRAME AT
SHREE JAGANNATH MEDICAL COLLEGE, PURI

MOU SIGNING CEREMONY

INITIATIVE OF PROFESSOR EMERITUS OF OUHS