VOLUME 2

Newsletter 2024

Department OF Pharmacology

GMC Kottayam

Reminiscence 2024

Professor and Head
Dr Sujatha MB
Associate Professors
Dr S P Dhanya
Dr Scaria Thomas P
Assistant Professors
Dr Neethu Soman
Dr Hyma V
Dr Jiyo Chacko
Dr Sreelakshmi Venugopal
Lecturer
Dr Anila E Mathew
Senior Resident
Dr Megha O Raj (Former)
Dr Rose Ninnya (Former)
Dr Aravind V (Former)
Dr Christy George T(Former)
Dr Neethu Mohan

Junior Residents
Dr Anurag T Alosyous
Dr Gnanaprakasam D
Dr Eva John
Dr Sruthy C
Dr Abey Abraham Joy
Dr Asif Haris
Dr Sherin Koloth
Lab Technician
Mrs Anazia Alavudeen
Junior Lab Assistant
Mr Vipin KunjanPillai
Full Time Sweeper
Mrs Mini K S
Part Time Sweeper
Mrs Philomina Kubelio

Department of Pharmacology
C Block, 4th and 5th floor
GMC Kottayam

CONTRIBUTORS

Front Cover Page Design: Dr Neethu Mohan
Drawn with IPad Notes

Back Cover Page:Dr Neethu Mohan
Source: internet

Department of Pharmacology, GMC, Kottayam

Contents

Message from the Principal

Dear Colleagues,

I am very pleased to learn that the Department of Pharmacology is bringing out a newsletter. I understand that this newsletter documents the curricular and extracurricular activities happening in the Department. Apart from the articles related to Pharmacology and Medical Education, the fact that creative literary works from the faculty and residents also find a place in its pages make it unique.

Documenting the official and academic work on one side and expression of creative thoughts , emotions and perceptions on the the other make this endeavour a pride of the Pharmacology Department and an envy for other departments. Definitely a model to be emulated.

Hope this Newsletter will come out in regular intervals with enhanced quality and ultimately evolve as an indexed journal in the near future.

Hearty congratulations to the team under the Head of the Department Dr Sujatha MB.

Best Wishes

Dr Varghese P Punnoose

Prologue

This newsletter is a showcase of activities of our department, the department which is situated on the top floor of C Block enduring the wrath of the sun and rain gods.

From student led seminars to postgraduate symposium, from part completion tests to journal clubs and role plays, from celebration of festivals to participation in awareness programmes,from thiruvathira to athapookalam, from group dances to fashion shows, from presentations in conferences to achievement of MRCP in Medicine from London, we beam with pride for what we do and what we envision.

When we brought out the first volume of Newsletter last year, in presence of Dr Sankar S, our former principal, we had ensured one of the best practices to be followed in the institution. Documentation of what has been done is a necessity in this era of accreditation. With the advent of Artificial Intelligence when a hidden hand does everything (or is a hundred thousand minds) in a jiffy I hope some elements of true action exist.

I am extremely thankful to Dr Varghese P Punnoose, our principal who has given a message for this newsletter. The different sections of the newsletter apart from last year's reminiscence include Educational corner that is centred around facts linked to Pharmacology, from history to dark secrets, from influence of drugs on artists to personalised medicine, from protein supplements to dark chocolates.

The Adverse Drug Reaction Monitoring Centre of the institution, situated in our department is steered forward by our head of the department Dr Sujatha M B, who is the Coordinator and Dr Jiyo Chacko who is the deputy coordinator.The hues of adverse reaction and the pharmacovigilance report of last year's activities itself speaks for the hard work and endurance behind the endeavour.

The educational corner on medical education starts with viewpoint on current and future of medical education strongly voiced through the impactful years of learning and experience in the medical education and profession. The future of integration of gaming with medical education has also been explored.

The current MBBS curricula with core subject in Pharmacology has been efficiently ccoordinated by Dr Hyma V and subsequently Dr Neethu Soman in 2024. They have reviewed and refined, reiterated the important concepts and refreshed the outlook towards Pharmacology in the institution offering one of the finest training and support to the students. Like every department which have residents, ours too is dependent on the commitment and hard work of our residents who are indispensable when it comes to ideas, activities, conferences and classes. The non teaching staff also involve in the departmental activities and provide immense support.

The literary corner though small is rich with a flow from the heart of the creative resident, a tribute to the renowned writer Shri M T Vasudevan Nair, who left us last year for the heavenly abode and a very charming quotation whicn stands out.

Until next year if I am here!

Dr S P Dhanya

Basic Training Workshop on Jamovi Software

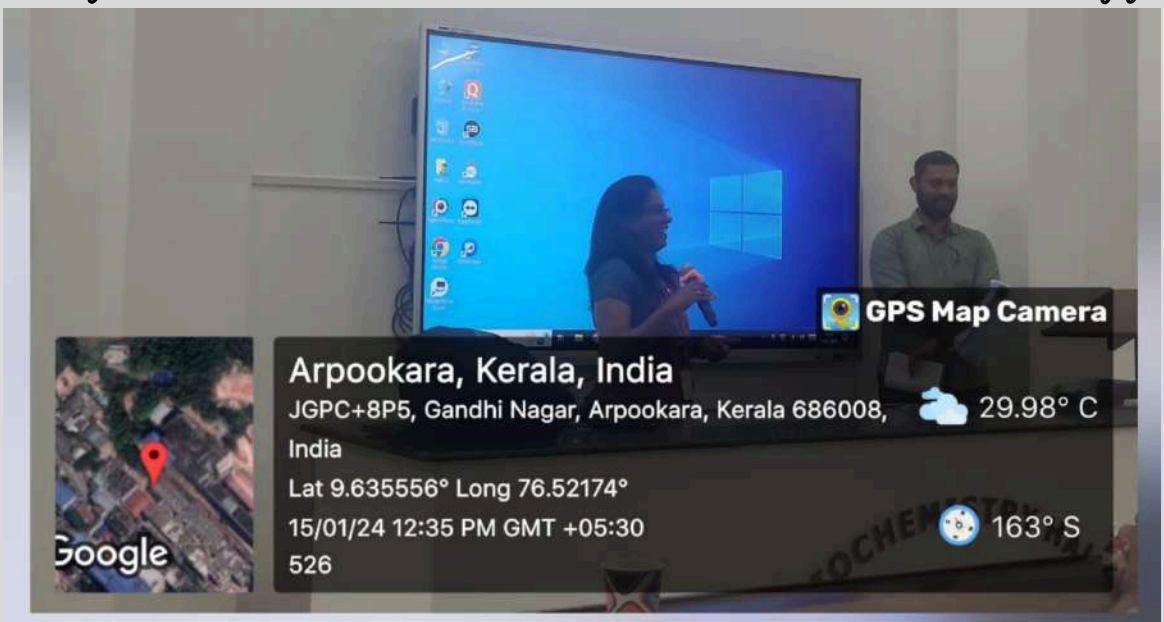
Jamovi is a free and open statistical software and spreadsheet available for facilitating research. Keeping abreast of the basics of the statistics help us to comprehend the data obtained through research and meaningfully interpret the results put forward by the software. This workshop conducted in collaboration with Department of Pharmacology and Central Library , GMC Kottayam was inaugurated by Principal Dr Sankar S and attended by 12 participants including faculty, residents of Pharmacology and Library staff

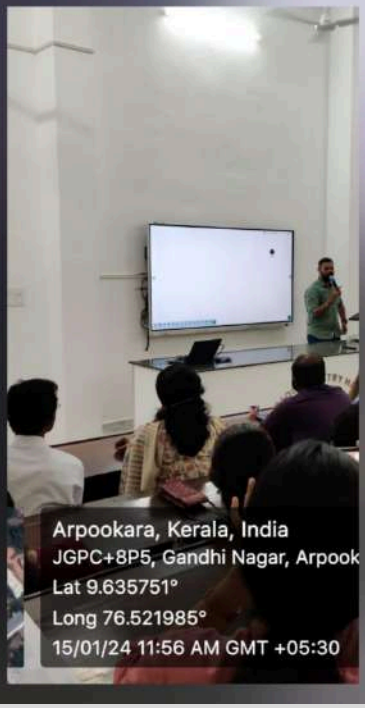
Pharmacology Fashion Fiesta- A Drug Themed Fashion Show

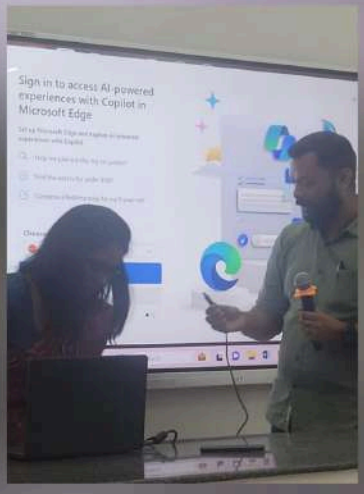
A drug themed fashion show was organisied in the department on January 12 2024, involving all Faculty, Residents and Non Teaching Staff as a part of the New Year Celebrations of the department. This fashion show highlighted the colour connected adverse drug reactions encountered with various drugs as well as drugs. An educational video based on the theme was released on youtube

Drugs and adverse drug reactions in colours we see around,
From the pink Vinca Rosea to the white Propofol,
Digoxin linked Xanopsia, Sildenafil's blue vision, the brown deposits with Latanoprost,
Syndromes they say, Chloramphenicol's Gray baby, Vancomycin's Red man and Warfarin's Purple Toe,
And finally, the reddish orange urine of Rifampicin and the melasma of Oral Contraceptives,
A fashion show we presented themed on these facts.

Orientation programme on Efficient Use of Smart Boards -
Coordinated by Phase 2 Coordinator of 2022 Batch from Pharmacology. Dr Hyma V







Newsletter 2023 Release

On April 24, 2024 the first Newsletter of our Department was released by Principal Dr Sankar S

#Best Practices

National Workshop on Clinical Trial Protocol Writing

ORGANISING TEAM

Organising Chairperson- Dr Sujatha M B

Organising Secretary- Dr S P Dhanya

Registration Committee- Dr Neethu Soman, Dr Anila E Mathew, Dr Anurag T Alosyous, Dr Gnanaprakasam K, Mrs Anazia Alavudeen

Scientific Committee- Dr Jiyo Chacko, Dr Hyma V, Dr Christy George

Food Committee- Dr Scaria Thomas P, Dr Aravind V, Dr Neethu Mohan

Travel Committee- Dr Abey Abraham

Inaugural Committee- Dr Eva John, Dr Sruthy C, Mr Vipin Kunjanpillai, Mrs Mini V S, Mrs Philomina Kubelio

CLICK HERE

Contact

9747263211

pharmacologykottayam@gmail.com

Golmedex Hall, 3rd Floor, C2 Block

OUR PATRON

Dr Varghese P Punnoose
Principal

MEDICAL COLLEGE KOTTAYAM

NATIONAL WORKSHOP ON CLINICAL TRIAL PROTOCOL WRITING

DEPARTMENT OF PHARMACOLOGY, GMC, KOTTAYAM

August 8 2024
GOLMEDEX HALL, C 2 BLOCK

Dear colleagues and residents,

We, the Department of Pharmacology, GMC, Kottayam, are pleased to welcome you to a workshop on "Clinical Trial Protocol Writing" on the 8th of August 2024. The journey of drug development and its appearnace in the market is long. It undergoes a rigorous process of scrutiny at each phase of clinical trial. A well written clinical trial protocol forms the corner stone for each new drug development.

With the advent of the new PG CBME curriculum, protocol writing skill is a core competency to be attained by an MD Pharmacology resident. This workshop would be useful for residents,their mentors, IRB members, interested clinicians and health professionals of allied specialities.

This workshop would provide key insights into the intricacies of Phase 1, 2 and 3 Protocol writing , Phase 1 subject management and Postmarketing Surveillance. There will be opportunity for presenting assigned protocols for selected postgraduates with mentoring by faculty with hands on experience.

Dr Sujatha M B,
Professor and Head
Organising Chairperson

Dr S P Dhanya
Professor(CAP)
Organising Secretary

National Workshop on Clinical Trial Protocol Writing

PROGRAMME SCHEDULE

08.30-9.15	Registration
09.20-10.00	PHASE 1 PROTOCOL WRITING Dr Deepasree S Assistant Professor, Pharmacology, AIIMS Kalyani, West Bengal
10.00- 10.30	Inaugural Function
10.30- 10.40	Tea Break
10.40-11.10	MONITORING & MANAGING PHASE 1 SUBJECTS Dr Scaria Thomas P Associate Professor, Pharmacology, GMC,Kottayam,Kerala
11.10- 11.50	PHASE 2 & 3 PROTOCOL WRITING Prof Dr Melvin George Head, Centre for Clinical Pharmacology SRMCH & RC, Chennai, Tamil Nadu
11.50- 12.10	POST MARKETING SURVEILLANCE Dr Hyma V Assistant Professor, Pharmacology, GMC, Kottayam, Kerala

MENTORING SESSIONS

12.10-1.10 PHASE 1 , 2 PROTOCOLS DIABETES

1.10-2.00 Lunch

2.00-2.30 PHASE 3 PROTOCOL DIABETES

2.30 -4.00 PHASE 1, 2, 3 PROTOCOLS HEPATITIS

4.00-4.30 Discussion &Valedictory Function

OUR RESOURCE PERSONS

Dr Deepasree S,
DM Clinical Pharmacology

Dr Scaria Thomas P,
MD Pharmacology
MD General Medicine

Prof Dr Melvin George,
DM Clinical Pharmacology

Dr Hyma V,
MD Pharmacology

National Workshop on Clinical Trial Protocol Writing

National Workshop on Clinical Trial Protocol Writing

The National Workshop on Clinical Trial Protocol Writing was organised by our Department and conducted on August 8 2024 at Golmedex Hall, GMC Kottayam. A total of 93 delegates attended the workshop of which 89 were participants and 4 were speakers. Of the four speakers 2 were external faculty and 2 internal faculty.

The workshop started at 9.00 am with a silent prayer to pay homage to the persons who lost life in Wayand disaster. The first session was by Dr Deepasree S, Assistant Professor Pharmacology, AIIMS Kalyani, West Bengal on Phase 1 Clinical Trial Protocol Writing.

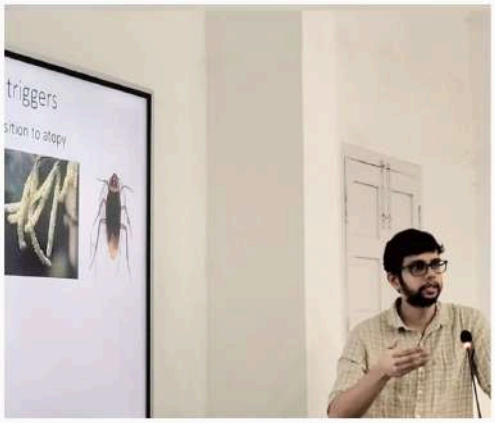
The inaugural function started with Welcome speech by the Organizing Chairperson Dr Sujatha M B, Professor and HOD Pharmacology. The was followed by lamp lighting and inaugural address by Principal, Dr Varghese P Punnoose. The vote of thanks was proposed by Dr S P Dhanya, Organising Secretary.

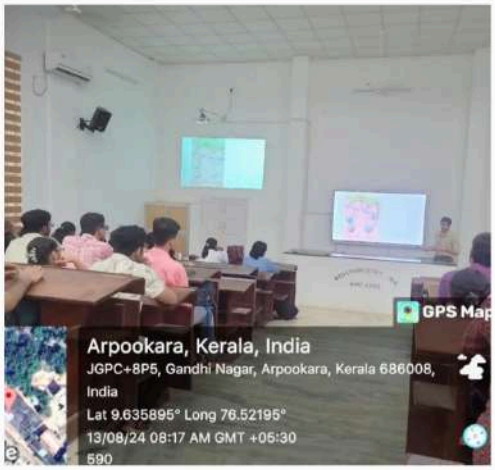
After the tea break there were 3 successive talks on Managing and Monitoring Phase 1 Subject by Dr Scaria Thomas P, Associate Professor, Pharmacology, GMC, Kottayam; Phase 2 and 3 Clinical Trial Protocol Writing by Dr Melvin George, Professor and Head, Centre for Clinical Pharmacology, SRMCH & RC, Chennai, Tamil Nadu; and Post Marketing Surveillance by Dr Hyma V, Assistant Professor Pharmacology, GMC, Kottayam. As a token of our appreciation and gratitude certificate, memento and certificate were handed over to the speakers at the end of each session.

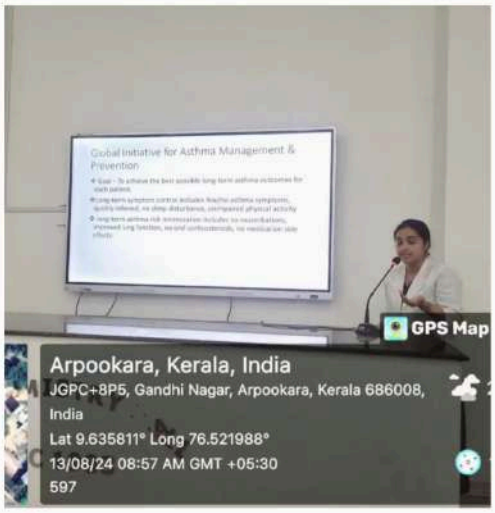
The Mentoring Sessions of Phase 1, Phase 2 and Phase 3 Clinical Trial Protocol Writing were handled by Dr Melvin George and Dr Deepasree S. A total of 6 protocol were presented and mentored Phase 1, 2, 3 of Diabetes Mellitus and Phase 1, 2, 3 of Hepatitis B in which a total of 16 Junior Residents, 3 each from GMC Kottayam, GMC Thrissur, GMC Thiruvananthapuram and SUT Medical College and 2 each from GTDMC Alappuzha and Pushpagiri Institute of MS& RC from the Department of Pharmacology prepared the Protocols and presented in the workshop. This was followed by a short brainstorming and doubt clearing session. The workshop ended at 4.45pm with National Anthem.

This Workshop was accredited with Two and Half Hours by KSMC C6/15421/2024/MC-CME dated 05.08.2024

PG Symposium on Bronchial Asthma







On August 13 2024 a PG Symposium on Bronchial Asthma was conducted in which topics were delivered by Dr Anurag T Alosyous, Dr Neethu Mohan, Dr Gnanaprakasam D, Dr Abey Abraham Joy and Dr Sruthi C and moderated by Dr S P Dhanya

Pharmacology Department, GMCK

28.08.24

One Day Trip

28.08.24
Location:Kumarakom
Boat:Amrutham

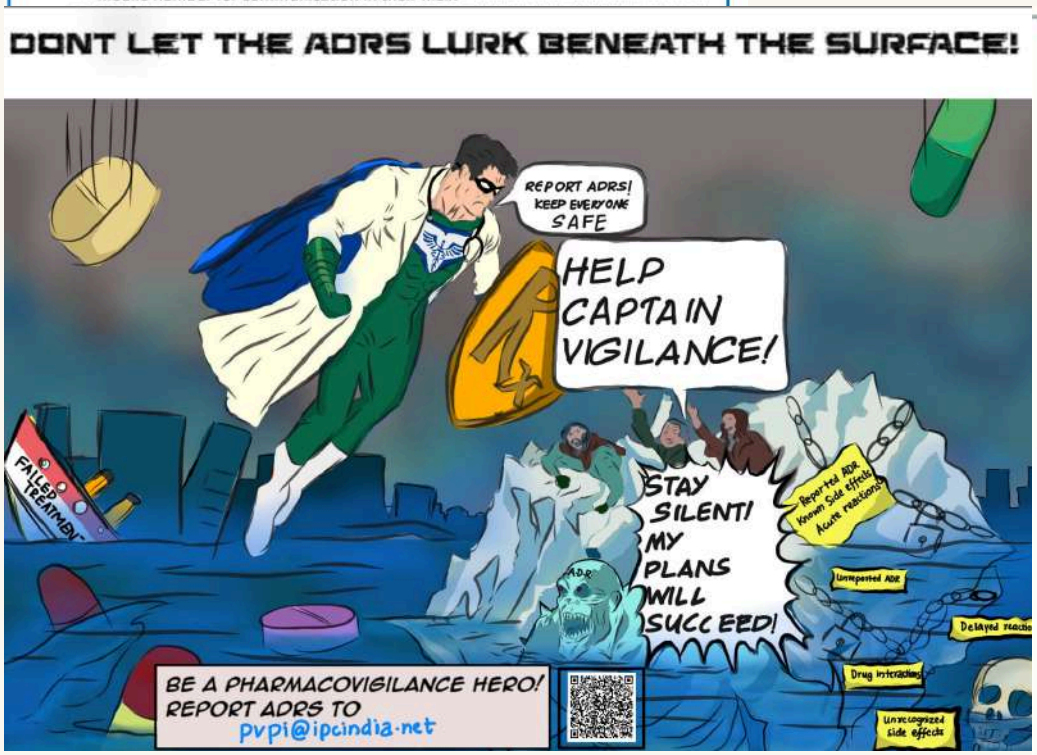
Togetherness,
Exotic food,
Hour spend with oneness
with lots of vigour we stood
A beautiful day filled with energy and excitement

Pharmacology Department,GMCK

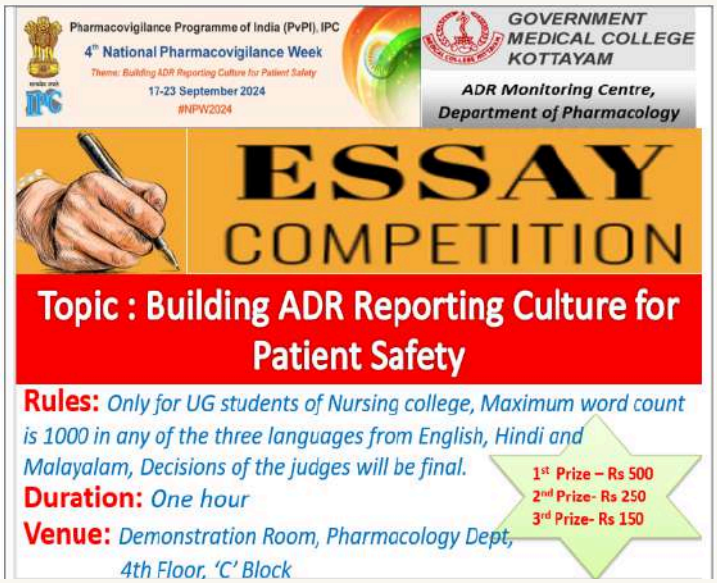
One Day Trip

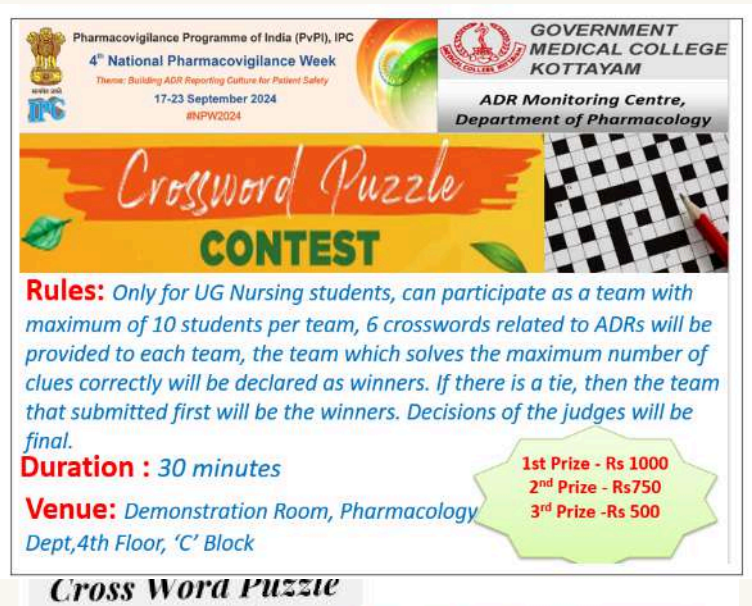
Pharmacovigilance Awareness Week 2024

As a part of the 4th Pharmacovigilance Week Celebrations under National Pharmacovigilance Programme of India several activities and competitions like the E-Poster competition, Crossword Solving Competition, Walkathon, Community Outreach Programmes, Hands on Training on ADR reporting and Dissemination of Posters in Nursing Stations were organised



Pharmacovigilance Awareness Week 2024



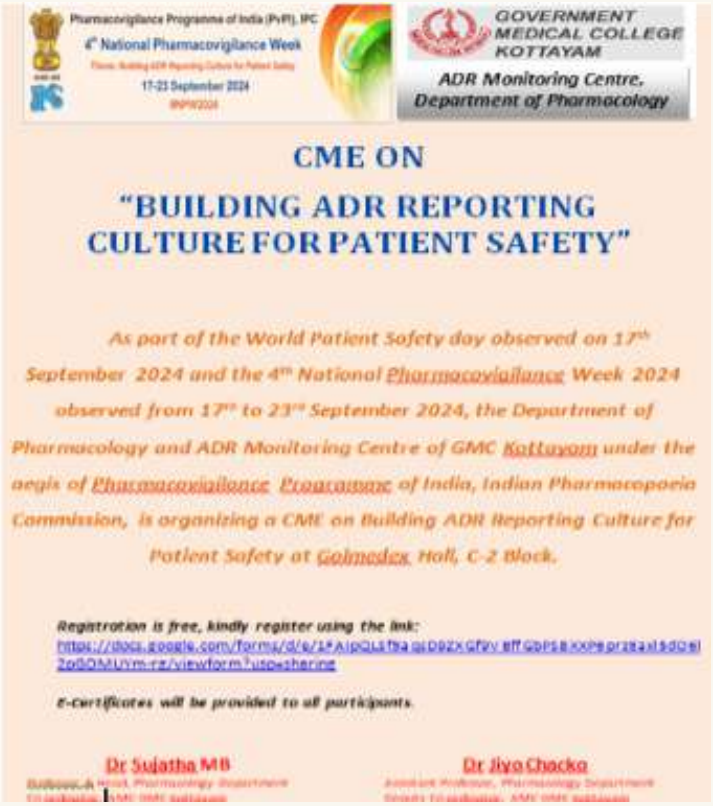


Pharmacovigilance Awareness Week 2024

Community Outreach-Pamphlet Distribution

Hands on Training on Fillling suspected ADR Form

Pharmacovigilance Awareness Week 2024



ADR Pamphlets at Nursing Stations

Celebrating the official festival of Kerala-harvest harmony and happiness

Onam 2024

World Antimicrobial Awareness Week 2024
Department of Pharmacology, GMC, Kottayam

Symposium

NEWER ANTIBIOTICS

November 13th

Time 01.00-02.00 PM

Biochemistry Lecture Hall

Against Gram Positive Infections I-
Dr GNANAPRAKASAM D, JR

Against Gram Positive Infections II-
Dr EVA JOHN,JR

Against Gram Negative Infections
Dr SRUTHI C L, JR

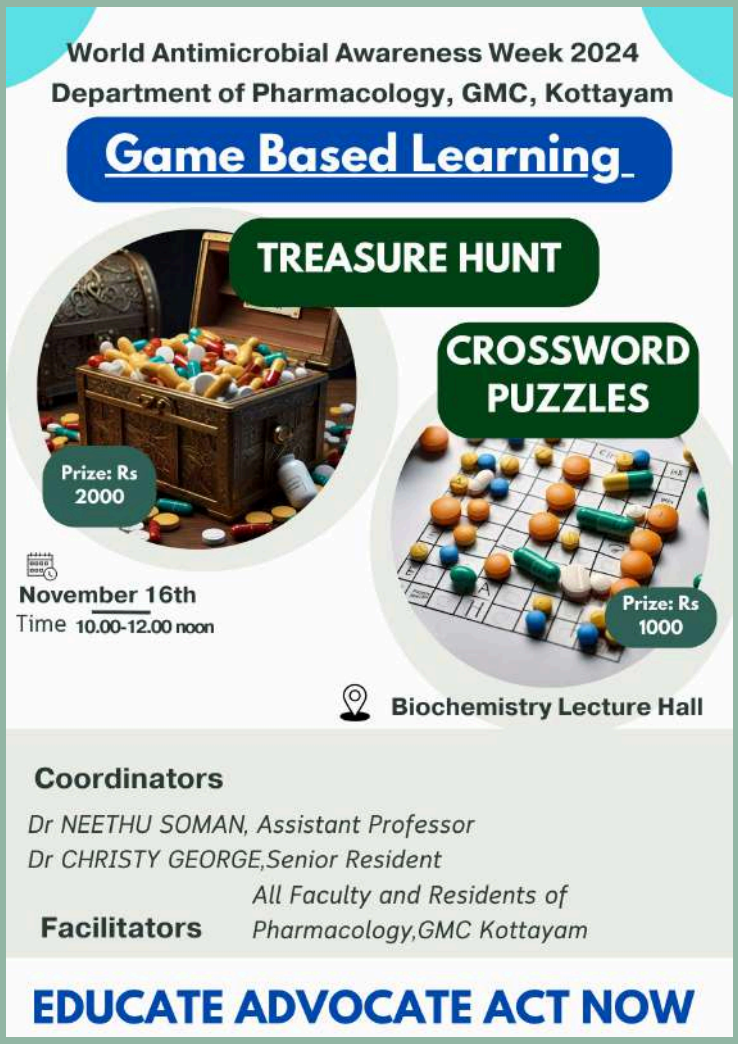
Against Gram Positive and Negative Infections
Dr ABEY ABRAHAM JOY, JR

Moderator: Dr SUJATHA M B,Professor & Head

CLICK HERE

EDUCATE ADVOCATE ACT NOW

World Antimicrobial Awareness Week 2024



World Antimicrobial Awareness Week 2024

Winners
Emil Mani Stephen
Carolin Martin
Aromal A
Arjun P
Devikrishna G

Winners
Abhay S
Aayisha Shanavas
Aleena Mariyam VP
Jithin Dev S
Shana Sherin PP

World Antimicrobial Awareness Week 2024
Department of Pharmacology, GMC, Kottayam

Journal Club

Halawa EM, Fadel M, Al-Rabia MW, Behairy A, Nouh NA, Abdo M, Olga R, Fericean L, Atwa AM, El-Nablaway M and Abdeen A (2024), Antibiotic action and resistance: updated review of mechanisms, spread, influencing factors, and alternative approaches for combating resistance. Front. Pharmacol. 14:1305294. doi: 10.3389/fphar.2023.1305294

November 20th

Time **09.30-10.30 AM**

Pharmacology Demonstration Hall

Presenter: Dr SRUTHI C L, JR

Moderator: Dr SUJATHA M B, Professor & Head

EDUCATE ADVOCATE ACT NOW

World Antimicrobial Awareness Week 2024
Department of Pharmacology, GMC, Kottayam

Awareness Talk

ANTIMICROBIAL STEWARDSHIP

November 20th

Time **12.00-01.00 PM**

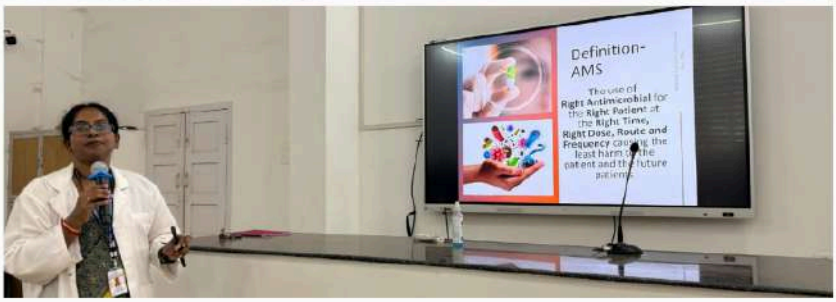
Pharmacology Demonstration Hall

Dr S P DHANYA, Professor (CAP)

Awareness Talk

Time **01.00-02.00 PM**

Biochemistry Lecture Hall



EDUCATE ADVOCATE ACT NOW

World Antimicrobial Awareness Week 2024
Department of Pharmacology, GMC, Kottayam

Student Led Seminars
Antimicrobial Prophylaxis and Superinfection

November 21st **November 22nd** **November 23rd**

Time **02.00-04.00PM**

Pharmacology Demonstration Hall

Topic	22.11.2024	23.11.2024	21.11.2024
Prophylactic use of antimicrobials	Akshay Ramesh	Giridhar Binukumar	Nisha Kumari
Prophylaxis of surgical site infection	Alan George	Gouri Lekshmi S	Prajith L
Superinfection	Aleena Jaison	Govind Sankar	Reema Nesrin

Moderators:

Dr Hyma V,Assistant Professor

Dr Sreelakshmi Venugopal, Assistant Professor

Dr Neethu Soman, Assistant Professor

I PLEDGE TO FOLLOW THE "4 D'S" OF OPTIMAL ANTIMICROBIAL THERAPY TO FOCUS ON TAILORING TREATMENT TO MAXIMIZE EFFECTIVENESS WHILE MINIMIZING RESISTANCE AND SIDE EFFECTS.

- RIGHT DRUG
- RIGHT DOSE
- DE-ESCALATION TO PATHOGEN-DIRECTED THERAPY
- RIGHT DURATION OF THERAPY

EDUCATE ADVOCATE ACT NOW

World Antimicrobial Awareness Week 2024
Department of Pharmacology, GMC, Kottayam

Report

*The Department of Pharmacology, organised various activities as a part of the WAAW 2024. A **Postgraduate symposium on "Newer Antibiotics"** moderated by Dr Sujatha M B, Professor and Head was conducted on the 13th November 2024 with an attendance of 185 participants including MBBS students, Residents and Faculty.*

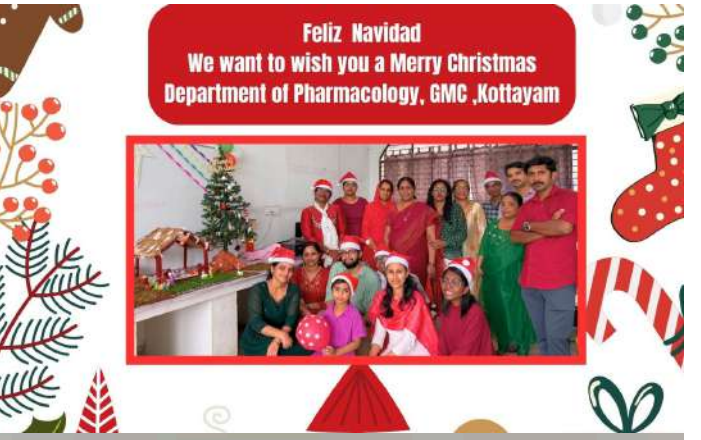
*To create enthusiasm and awareness about Antibiotics and Antibiotic Use among the medical undergraduates **Game Based Learning** on antibiotics was organised coordintaed by Dr Neethu Soman and Dr Christy George. A novel **Treasure hunt**-competition was organised for the 2023 MBBS students on 16th of November and a prize of Rs 2000 was announced for the winner. Five teams of five students each participated in the same and all the participants were awarded certificates and participation prizes. On the same day 150 medical undergrduates-30 teams of 5 students each participated in the **Crossword solving** competition and the winner received a cash prize of Rs 1000 and certificates. The second and third position winners were awarded consolation prizes.*

*On 20th November, A **Journal club presentation** was organised in the department for Junior residents moderated by Dr Sujatha MB. The article "Antibiotic action and resistance: updated review of mechanisms, spread, influencing factors, and alternative approaches for combating resistance. Front. Pharmacol. 14:1305294. doi: 10.3389/fphar.2023.1305294" was presented by Dr Sruthy C L.*

*On the same day **Awareness talk** on "Antimicrobial Stewardship" was delivered by Dr S P Dhanya for BSc Nursing Students and MBBS students. A total of 260 participants including students and residents attended the talk.*

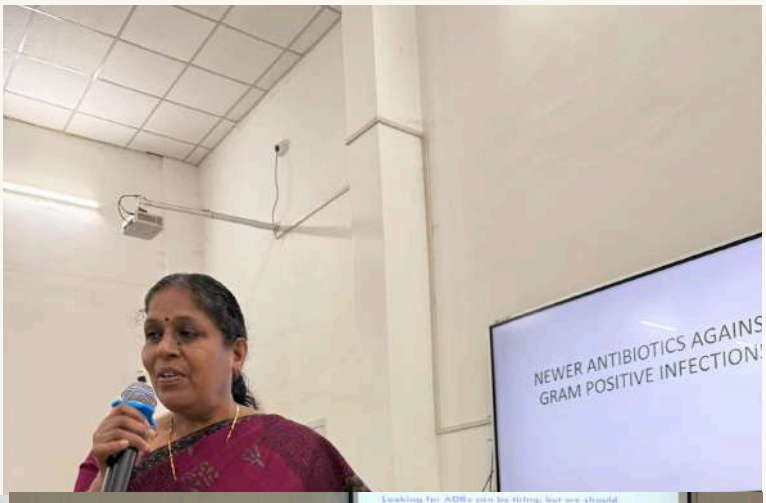
*On 21st, 22nd and 23rd November **Student led Seminars** were organised on the topic Superinfection and Antibiotic Prophylaxis moderated by Dr Hyma V, Dr Sreelakshmi and Dr Neethu Soman. A **poster** regarding Antibiotic use in Patients undergoing Caesarian Section and a **paper** regarding Questionnaire Validation of KAP of Antibiotic Use in Health Care Professionals was presented by Dr Gnanaprakasam D and Dr S P Dhanya respectively at a National Conference NAPTICON 2024 at AIIMS, Nagpur*

Merry Christmas
Department of Pharmacology
GMC Kottayam

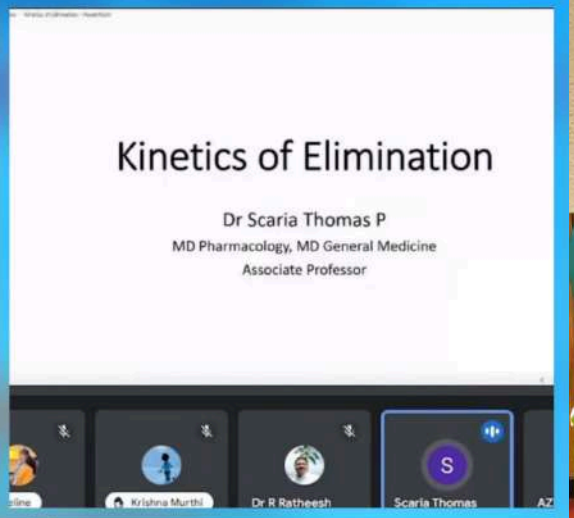

Feliz Navidad
We want to wish you a Merry Christmas
Department of Pharmacology, GMC ,Kottayam


Health
Triangle

Presentations by the faculty and residents of the department at various institutional, state and national Conferences



Presentations by the faculty and residents of the department at various institutional, state and National Conferences



Presentations by the faculty and residents of the department at various institutional, state and National Conferences

Academic Achievements

This is to Certify that

Scaria Thomas P

having satisfied the Examiners has duly been elected on

Saturday 30 November 2024

to the Membership of the

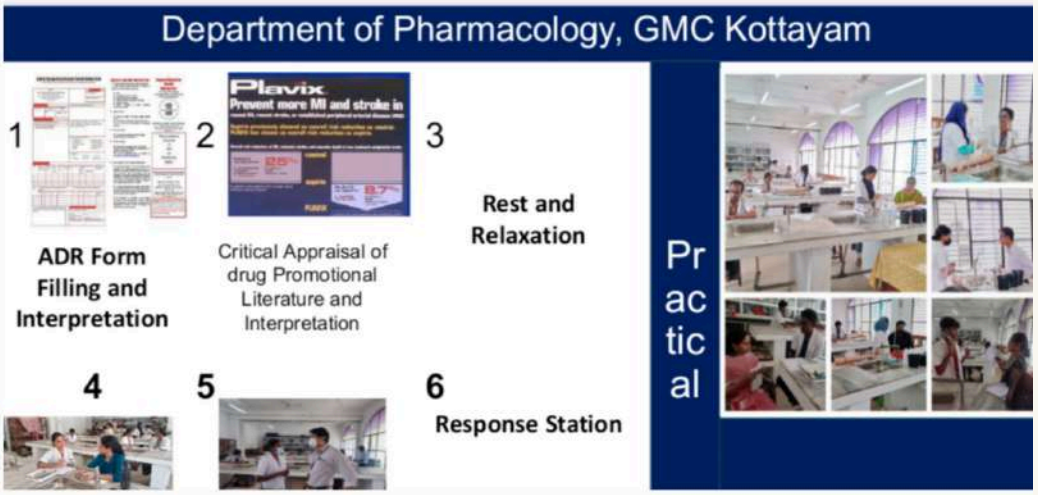
Royal Colleges of Physicians of the United Kingdom

President
Royal College of Physicians
of Edinburgh

Acting as
President
Royal College of Physicians
of London

President
Royal College of Physicians
and Surgeons of Glasgow

Glimpses of Assessment and Educational Activities



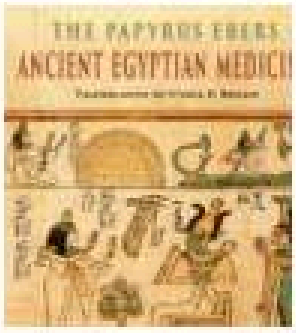
Educational Corner

Section-Pharmacology

Did you know???

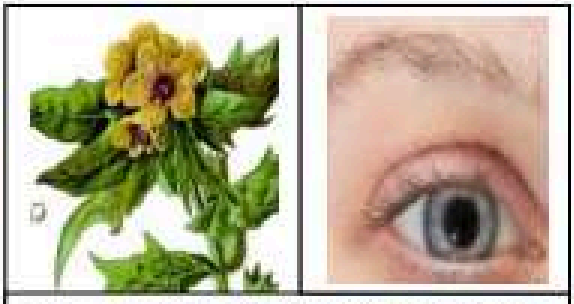
Here are some fascinating historical events in the evolution of Pharmacology

Opium from *Papaver somniferum*has been used since ancient times, as recorded in Eber's papyrus (1500 BC) and the writings of Theophrastus (300 BC) and Galen (2nd century AD). By 18th century, opium eating became a social custom in China. In 1806, Serturner isolated its active compound, naming it morphine after the Greek god of dreams-Morpheus. In US Civil war, its wide analgesic use as 'Soldier's joy' led to 'Soldier's disease'- Opiate addiction

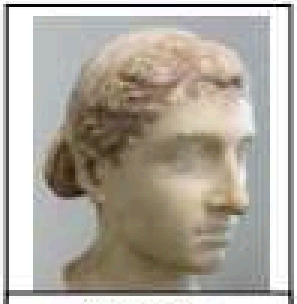


In 1924, a hemorrhagic disease in cattle fed with spoiled sweet clover hay, lead to the discovery of Bishydroxycoumarin, the toxic principle causing Prothrombin deficiency. Warfarin, derived from this compound, was initially used as rat poison; now widely used as oral anticoagulant

Egyptian Henbane atropine extracts were used by Cleopatra (last century BC) to dilate her pupils which made her more attractive



Hyoscyamus niger (Henbane) & dilated pupils



Cleopatra

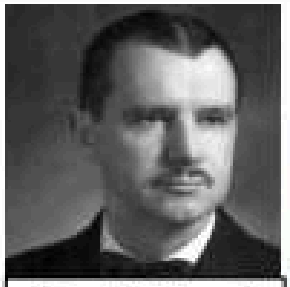
Before the invention of insulin, the diagnosis of diabetes was considered to be a death sentence. In 1921, Banting and Best discovered insulin and demonstrated its ability to lower blood sugar levels using pancreatic extracts following the degeneration of the exocrine pancreas. Leonard Thompson- a 14 year old serious diabetic patient was the 1st patient to be treated with Insulin.

Banting and Best with the first dog- Marjorie ever treated with insulin

Curare, derived from plants like *Strychnos toxifera* and *Chondrodendron tomentosum*, was historically used by South American tribes as arrow poison to paralyze animals during hunting. Claude Bernard demonstrated the action of Curare at neuromuscular junction. Its active compounds, such as tubocurarine, were developed as skeletal muscle relaxant in anesthesia

Sir James Black pioneered rational drug design & developed 2 important prototype drugs- Propranolol: a beta blocker & Cimetidine: H2 antagonist. This marked an important landmark in the management of heart disease & peptic ulcer

James Black- with his Nobel Prize for the invention of Propranolol & Cimetidine



Vincent du Vigneaud

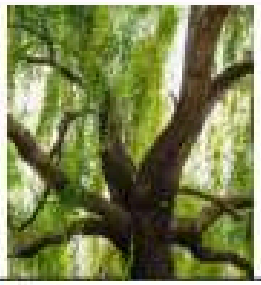
Pituitary extract was first used in labor in 1909. Later, in 1953, du Vigneaud separated Oxytocin and Vasopressin from the posterior pituitary .

The anticoagulant Heparin was first discovered in 1916 from the liver by a medical student, Mc lean and named by Howell and Holt in 1918. But it was purified for clinical use only in 1937.

Lithium was initially known for its property to dissolve urate stones in Gout. Its use in Psychiatric gouty patients resulted in their behavioural improvement. Later in 1950, the antimaniac effect of lithium was registered by John Kidd

In the 1930s, a substance in human semen was found to contract isolated uterine & other smooth muscle strips and lower blood pressure, initially believed to originate from the prostate and named prostaglandin. Bergström, Samuelsson, and Vane received the 1982 Nobel Prize for their research on Prostaglandins and related substances.

Samuelsson, Vane & Bergstrom

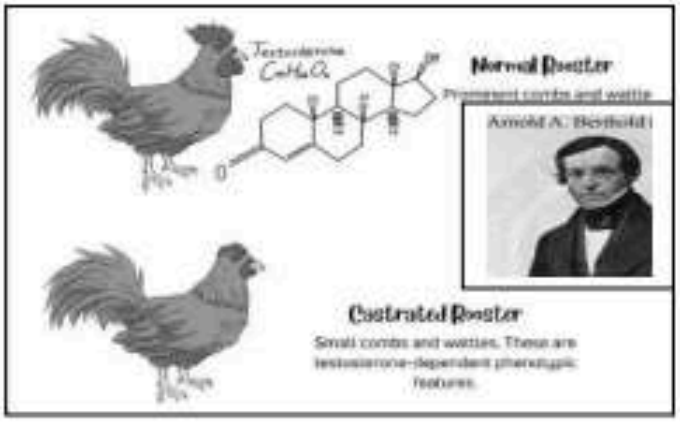


Willow Bark

Willow bark was historically used for fever and pain relief, from which Salicylic acid was prepared; leading to the development of Aspirin in 1899. The identification of COX inhibition as a crucial mechanism advanced anti-inflammatory treatments

Cocaine, extracted from Erythroxylon coca leaves native to the Andes, was historically used by locals for habitual chewing. It is a potent surface anaesthetic, rapidly absorbed through the buccal mucosa, with significant CNS effects that enhance endurance and mood. It was introduced as an ocular anaesthetic in 1884.

Androgens, responsible for secondary male sex characteristics, were identified as testicular hormones, with their endocrine role first established by Berthold in roosters in 1849. Testosterone was later isolated, its structure determined, and it was synthetically prepared by 1935.



Phocomelia

In 1938, "Elixir Sulfanilamide"- an antibiotic solution of sulfanilamide in diethylene glycol (a toxic solvent) resulted in deaths over 100 children. In 1960s, Thalidomide- introduced in Europe for morning sickness in pregnant women, was responsible for an epidemic- Phocomelia (a severe birth defect with seal limbs). The above incidents added to the development of stricter drug approval regulations

Histamine, a naturally occurring amine, is widely present in animal tissues and certain plants, with its pharmacology extensively studied by Dale in the early 20th century, when close resemblance between its action & allergic reaction manifestations noted. It was identified as a mediator of hypersensitivity reactions and tissue injury, now recognized for its crucial physiological roles.

Henry Dale

William Withering

Foxglove

William Withering, an English physician, discovered the effectiveness of foxglove extract (Digitalis) in treating dropsy (edema) and documented his findings in 1785. Later, it had widespread use in congestive heart failure (CHF) treatment.

Iron has been historically valued for its role in treating weakness and anemia, with early use in Ayurvedic medicine as *lauhabhasma*. According to Greek myth, Iron- which is dedicated to Mars (God of strength) was used to treat weakness

Mars

1st public demonstration of anesthesia using Ether

Before the mid-19th century, substances like alcohol, cannabis, opium and act of asphyxia, concussion were used to mask surgical pain. In 1844, Horace Wells, a dentist attempted anesthesia using nitrous oxide (N_2O), though it failed to provide complete pain relief. Morton, a dentist successfully demonstrated ether anesthesia in 1846, leading to its widespread use, while chloroform was introduced for obstetric procedures in 1847 despite safety concerns.

Early studies suggested that nerve transmission was electrical. Later, Elliott (1905) proposed that sympathetic nerves release an adrenaline-like substance & Dixon (1907) suggested the vagus nerve releases a muscarine-like chemical. Otto Loewi (1921) confirmed chemical transmission by demonstration of vagal stimulation in frog's heart

Otto Loewi

In the history of antimicrobials, empirical use of natural remedies were used such as chaulmoogra oil for leprosy, mercury for syphilis, mouldy curd for boils and cinchona bark for fevers. Paul Ehrlich revolutionized the field in the late 19th and early 20th centuries by developing dyes and organometallic compounds that selectively targeted microbes (magic bullet concept). He introduced the concept of "chemotherapy" and developed arsenicals for sleeping sickness and syphilis.

Paul Ehrlich

Minoxidil- which was initially approved as an antihypertensive, was found to raise issues of hypertrichosis in female patients. Later, it became the first drug to be approved by FDA for the treatment of Alopecia

Earlier insulin preparations, sourced from beef and pork pancreas, included approximately 1% of additional proteins like proinsulin and pancreatic proteins, which could cause antigenic reactions. These have since been replaced by highly purified pork/beef insulins, recombinant human insulins, and insulin analogues.

Insulin preparation in1920s

Allen & Doisy

In 1900, it was established that ovaries control female reproductive function via hormones, and Allen and Doisy (1923) demonstrated that an alcoholic ovarian extract could induce estrus in rodents. Estradiol, the active principle, was isolated in pure form in 1929.

Henrik Dam & discovery of Vit K

In 1929, Dam identified a bleeding disorder in chickens caused by a dietary deficiency of a fat-soluble factor later termed 'Koagulations vitamin' (Vit K), crucial for blood clotting. Later, Vit K1 was isolated from alfalfa grass & Vit K2 from sardine meal and natural production by intestinal bacteria.

The concept of antibiosis was first noted by Pasteur in 1877 with the inhibition of the urinary anthrax- bacillary growth by air-borne bacteria, and Fleming later demonstrated it in 1929 with Penicillium mould inhibiting Staphylococcal bacterial growth. Meanwhile, Domagk's work in 1935 on *Prontosil red*- a dye, to treat experimental streptococcal infection in mice, introduced sulfonamides as antibacterial agents. Waksman and his team identified Streptomycin from soil Actinomycetes in 1944, which became the key- stone in the treatment of tuberculosis. This discovery, along with Domagk's work, Fleming's earlier work on Penicillium and Chain and Florey's subsequent efforts, revolutionized antibiotic therapy, earning them Nobel Prizes.

Louis Pasteur

Alexander Fleming studies mould cultures in his lab

Waksman with his student- Discovery of Actinomycin

By the mid-19th century, the adrenal glands were recognized as vital for life, with the cortex identified as more important than the medulla. In the 1930s, Kendall and colleagues isolated steroidal compounds and elucidated their chemical structures. Hench demonstrated cortisone's effectiveness for rheumatoid arthritis in 1949, earning the Nobel Prize alongside Kendall and Reichstein the following year.

Kendall & Hench- Cortisone discovery

Corticosteroid therapy for rheumatoid arthritis by Hench &

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Dr Christy George T, Former SR

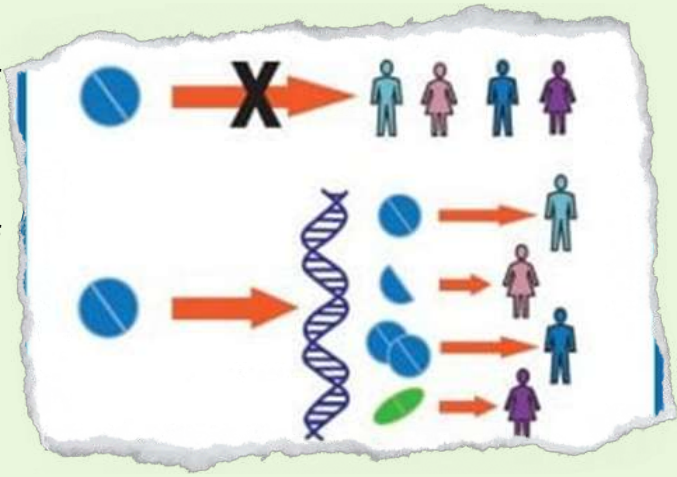
Personalized Medicine: An overview

Dr Hyma V, Assistant Professor

Imagine a scenario where shoe is available only in one size in the whole world. Some people can wear it too perfectly, but majority of people are at discomfort i.e it will be too big for some of them, but for others they cannot even negotiate to half through this. This is the scenario one can very much relate to the medications by Evidence based medicine. A prescribed medication works excellently for some persons suffering from a particular disease, at the same time offers little to no relief for others with the very same condition. This inherited "one-size-fits-all" approach of medicine serves disadvantages to people in the form of ineffective therapy, adverse drug reactions and high costs in the society. In this context, a modern approach known as personalized medicine has emerged aiming to transform healthcare by customising medical care by considering each individual's exclusive biology, lifestyle and disease presentation.

WHAT IS PERSONALIZED MEDICINE?

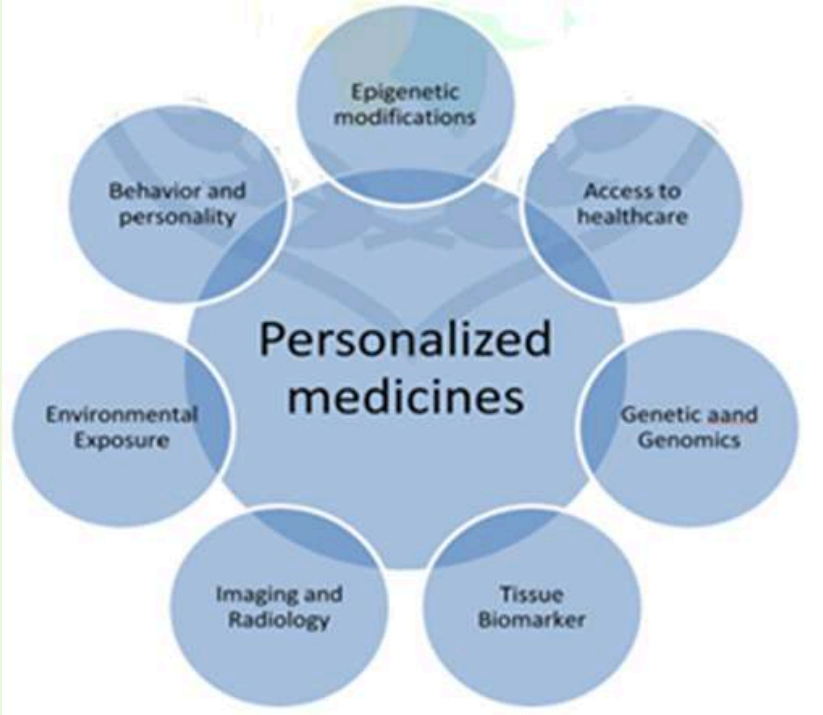
Personalized medicine is an approach that utilizes individual patient characteristics including genetic information to tailor medical care including prevention, diagnosis and treatment to optimize health outcomes and also minimize adverse effects. This involves understanding an individual's unique molecular and genetic profile to predict disease susceptibility, prognosis and response to treatments. This approach recognizes that healthcare is not a uniform entity but rather a highly individual experience influenced by a multitude of factors.The term "Precision medicine" is often used interchangeably with "personalized medicine". But precision medicine is frequently viewed as a subset of personalized medicine with a greater emphasis on utilizing genomic data and molecular information to develop more tailored therapies. This necessitates the use of advanced diagnostic tools to identify specific patient characteristics that can guide treatment decisions.



Personalized medicine takes into account a wide range of factors that contribute to an individual's health and disease state which include an individual's unique genetic makeup, the proteins their genes produce, their surrounding environment, their lifestyle and their comprehensive medical history. This holistic perspective recognises the complex interplay of these elements in determining an individual's susceptibility to illness, the course of their disease and their response to various treatments. By this approach, priority is given for classifying individuals into specific subpopulations based on shared characteristics such as genetic markers or disease subtype so that delivery of targeted treatments that are most likely to be effective for that particular group will be enabled. Personalized medicine is one of the foundations for P4 medicine which stands for predictive, preventive, personalized and participatory medicine. This concept expands upon the definition of personalized medicine by emphasizing the proactive aspects of healthcare like predicting disease risk, implementing preventive strategies, tailoring treatments and actively engaging patients in their own care.

HOW IT IS BEING USED: THE PRINCIPLES AND TOOLS

Personalized medicine employs a variety of sophisticated methods to individualise healthcare.



Genomics and Genetic Profiling: This basic method involves analysing an individual's genome to identify variations that can influence disease susceptibility, drug metabolism and treatment response. Techniques like genome sequencing and genetic testing are used to spot these specific genetic variations. For instance, in cancer, genomic sequencing of a tumour can reveal mutations that drive its growth, helping doctors choose the most effective targeted therapies. Genetic profiling can also identify individuals at higher risk for certain inherited diseases allowing for proactive preventive measures.

Pharmacogenomics: It concentrates specifically on how an individual's genes affect their response to medications. By analysing a patient's genetic profile, healthcare providers can predict how a drug get metabolized in the body and also the response of body to specific drugs. This knowledge aids in the selection of medications and dosages that are most likely to be effective and least likely to cause side effects. Pharmacogenomic testing is increasingly used in various fields including psychiatry, neurology, nephrology and also in oncology to optimize chemotherapy regimens.

Targeted Therapies: These type of treatments are designed particularly to target specific molecules or pathways that are involved in disease processes. By identifying genetic mutations or specific biomarkers, targeted therapies intend to attack diseased cells directly while minimizing damage to normal, healthy cells. This is tremendously used in cancer treatment, where drugs targeting specific mutations in cancer cells have shown significant success. Immunotherapy, which harnesses the body's own immune system to fight cancer, can also be considered a form of personalized medicine when guided by specific biomarkers.

Data Integration and Analytics: Personalized medicine generates vast amounts of data, including genomic information, medical records, lifestyle particulars and environmental exposures. Integrating and analysing this complex data is crucial for identifying patterns and making predictions about disease and treatment outcomes. Advanced analytical tools like artificial intelligence (AI) and machine learning play a key role in processing these large datasets to identify subtle correlations and provide clinicians with data-driven insights for personalized treatment decisions. AI can assist in early disease detection, foresee treatment responses, and even accelerate drug discovery.

Multi-omics: By integrating data from various "-omics" fields to gain a more comprehensive understanding of an individual's health at a cellular or molecular level. In addition to the genomics, it includes transcriptomics (study of RNA), proteomics (study of proteins), metabolomics (study of metabolites), epigenomics (study of heritable changes in gene expression), and microbiomics (study of the microbiome). By combining these different levels of biological information, researchers and clinicians can obtain a more holistic and dynamic view of biological systems and disease mechanisms, identify novel therapeutic targets and develop more precise and tailored treatment strategies. Integrating genomic and proteomic data in cancer research can provide deeper insights into tumour behaviour and can direct more effective treatment choices.

APPLICATIONS OF PERSONALIZED MEDICINE

The principles and tools of personalized medicine are finding applications across a wide spectrum of medical specialties, promising to transform the way diseases are prevented, diagnosed and treated.

Oncology: Personalized medicine has already made significant progress and is one of the most advanced fields using this approach. By identifying specific biomarkers and genetic mutations within a patient's tumour, oncologists can select targeted therapies that are most likely to be effective against that particular cancer in addition to the more accurate diagnosis, prognosis and prediction of treatment response. For example, in breast cancer, the presence of the HER2 protein guides the use of drugs like trastuzumab, while in lung cancer, mutations in the EGFR and ALK genes indicate responsiveness to specific tyrosine kinase inhibitors.

Cardiology: Genetic risk assessment could help in identifying individuals who are at higher risk for developing cardiovascular diseases. Furthermore, pharmacogenomic testing is crucial in guiding the treatment of conditions like hyperlipidemia and blood clotting disorders. For instance, genetic variations can significantly affect an individual's response to medications like warfarin and clopidogrel highlighting the importance of personalized approaches in cardiovascular pharmacotherapy.

Psychiatry: Exploring the potential of personalized medicine to improve the diagnosis and treatment of mental health disorders. Many researches are underway to understand the genetic basis of conditions like depression, bipolar disorder and schizophrenia. Pharmacogenomic testing have potential in tailoring the psychotropic medications with an aim to reduce the often lengthy and frustrating trial-and-error process of finding the right medication and dosage for each individual.

Infectious diseases: Genetic information can help understand why some individuals are more susceptible to certain infections or experience more severe disease. It can also identify antimicrobial resistance profile and sometimes leads to predictive modelling by combining pathogen and patient data. Moreover, pharmacogenomics can guide the selection of antiviral drugs, such as those used to treat HIV. Personalized approaches are also being explored to predict preventive measures like vaccination or infection control practices and to optimize antimicrobial therapies by considering both the host's and the pathogen's genetic characteristics.

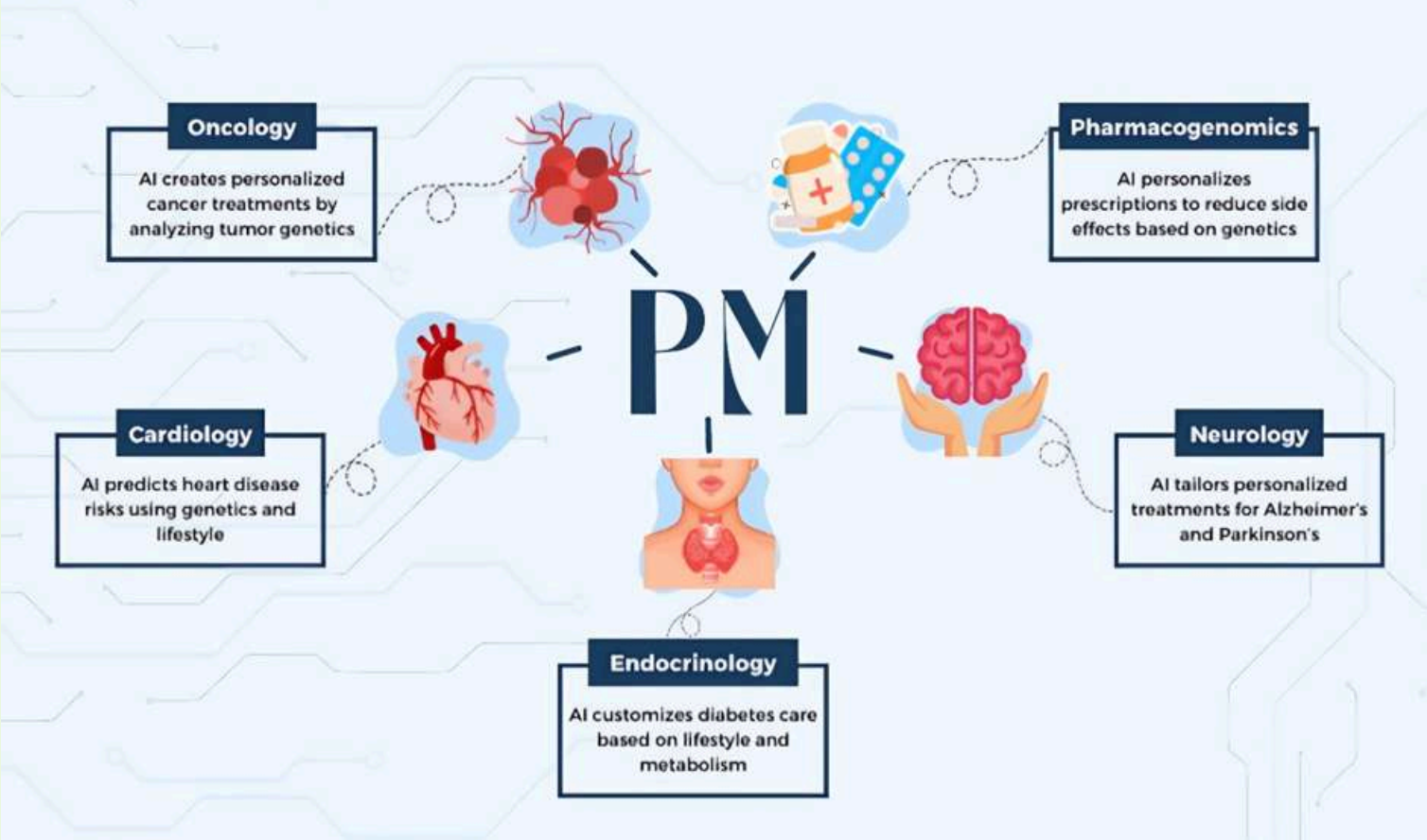
Rare diseases: Personalized medicine offers particular hope for individuals with rare diseases. Many rare diseases have a distinct genetic or molecular basis and genomic sequencing is often crucial for accurate diagnosis. The insights gained from understanding the underlying molecular mechanisms can pave the way for the development of targeted therapies including gene therapies and enzyme replacement therapies for conditions that previously had limited or no effective treatment options.

Preventive Medicine: Proactive preventive measures like lifestyle modifications, tailored screening programs and early interventions to reduce the risk of developing chronic illnesses such as cardiovascular disease and diabetes.

Patient Stratification in Clinical Trials: By enhancing the efficiency of clinical trials by identifying patient subgroups most likely to benefit from experimental treatments, this facilitates the development of novel therapies with greater efficacy and safety profiles leading to more successful clinical outcomes with less time, resources and cost.

Respiratory Medicine: Cutting-edge technologies like whole genome sequencing, proteomics aids in classifying disease subtypes, response to treatments, risk and biomarker identification of lung diseases like asthma, idiopathic pulmonary fibrosis.

Theranostics: It is an exciting field of diagnostic and therapeutic nuclear medicine where target biomarker is similar for both imaging and therapy, mainly used to treat a variety of cancers including prostate, breast, thyroid, bone, neuroendocrine etc. eg: radioactive iodine for thyroid cancer.



Advantages of Personalised Medicine

The advent of personalized medicine offers a multitude of potential benefits for both patients and the healthcare system as a whole.

·Predict the susceptibility of disease

·Shift from reactive treatment to proactive prevention improving long-term health outcomes

·Identify specific genetic markers and molecular patterns leading to earlier and more precise diagnoses

·Prevent disease progression

·Improved treatment efficacy through tailored therapies

·Reduced adverse effects utilizing the genetic inputs

·Save costs by reducing the health care costs and costs associated clinical trials

·Helps in rare disease addressing the unique genetic conditions by targeted therapies

·Results in patient empowerment by equipping them with their own care decisions

Limitations or Barriers of Personalised Medicine

Despite the numerous advantages, the widespread implementation of personalized medicine faces several significant limitations and barriers that need to be addressed.

·High cost associated with genetic testing, biomarker analysis and the development of targeted therapies

·Significant privacy and security concerns for the huge genetic and health data

·Ethical concerns like genetic predispositions based discrimination

·Challenges remain in standardizing testing procedures, validating the clinical utility and cost-effectiveness of biomarkers and establishing clear evidentiary standards for the widespread adoption of personalized medicine approaches in routine clinical practice

·Regulatory hurdles for establishing guidelines for the approval of personalized treatments, balancing the need for innovation with patient safety and efficacy

·Challenges in the interdisciplinary collaboration between healthcare providers, researchers, policymakers and technology experts

·Health Inequities might get exacerbated if access to cutting-edge treatments is disproportionately available to certain populations or regions

·Challenges in analysing and interpreting the vast amount of data requiring advanced computational and analytical techniques

·Needs uninterrupted patient education for empowering patients to make informed decisions about personalized treatments

FUTURE PERSPECTIVES: THE HORIZON OF PERSONALIZED MEDICINE

The future of personalized medicine is loaded with exciting possibilities driven by continuous advancements in technology and a deeper understanding of human biology.

Artificial Intelligence (AI) Integration: The integration of artificial intelligence (AI) is assured to play an increasingly transformative role. AI algorithms have the power to analyse vast and complex biological datasets, identify subtle patterns, predict disease risks with greater accuracy, discover novel drug targets, and ultimately personalize treatment plans to an exceptional degree. This synergy between AI and personalized medicine has the potential to significantly accelerate the speed of discovery and enhance the precision of healthcare interventions.

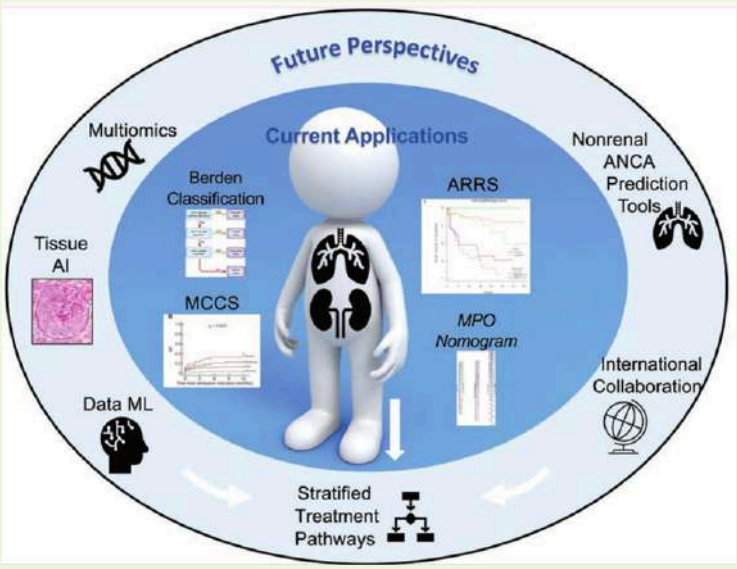
Advancements in Gene Editing Technologies: Advancements in gene editing technologies such as CRISPR-Cas9 offer another promising path for the future of personalized medicine. These revolutionary tools put forward the potential to correct genetic mutations at their source, offering long-term or even curative treatments for a wide range of inherited and other diseases. As gene editing techniques become more refined and safer, they are likely to play a vital role in personalized therapeutic strategies.

Continued Integration of Multi-omics Data: The continued integration of multi-omics data will also be a key trend in the future. By combining information from genomics, transcriptomics, proteomics, metabolomics, and other "-omics" fields, researchers and clinicians will gain an even more comprehensive and dynamic understanding of individual health and disease. This holistic approach will enable the development of even more precise and tailored therapeutic interventions moving closer to truly individualized healthcare.

Development of Digital Twins: The emergence of digital twins, which are virtual representations of individual patients, represents another exciting frontier. These sophisticated models can simulate disease progression and predict an individual's response to various treatments allowing the optimization of therapeutic strategies in a highly personalized manner. Digital twins have the potential to revolutionize treatment planning and the prediction of patient outcomes.

Integration into Routine Clinical Practice: Efforts are also underway to integrate personalized medicine approaches into routine clinical practice making it a standard component of everyday healthcare. Achieving this widespread implementation will require addressing the existing barriers related to cost, regulation, and data integration as well as encouraging greater collaboration among all stakeholders in the healthcare system.

Emerging Technologies: Emerging technologies such as microfluidics, nanotechnology and wearable sensors are contributing to the advancement of personalized medicine by enabling more precise diagnostics, continuous patient monitoring and targeted drug delivery systems. These innovations are further pushing the boundaries of what is possible in tailoring healthcare to the individual.



CONCLUSION

Personalized medicine is a rapidly evolving field with the potential to transform healthcare by tailoring treatments and prevention strategies to the unique characteristics of each individual. By utilizing advancements in genomics, biomarkers, targeted therapies and data analytics, it offers numerous advantages including more effective treatments, reduced side effects and improved disease management. While challenges related to cost, data privacy, regulation and accessibility remain, ongoing research and technological innovations are paving the way for a future where healthcare is more precise, proactive, and patient-centred. With the principles and advancements of personalized medicine, a new era of healthcare may be visualized that is truly tailored to the individual.

Starry Nights and Surreal Strokes: How One Drug Links Vincent Van Gogh and Salvador Dali, Two of the Greatest Painters Ever

Digoxin- The art and science

Digoxin is one of the oldest medications in the field of cardiology. Oddly, the drug links two of the most celebrated painters — Vincent van Gogh and Salvador Dali

The paintings of the Dutch post-impressionist Vincent van Gogh (1854–1890) are famous for their vivid colours, particularly the striking use of yellow, most evident in his later works such as Van Gogh, *Still Life: Vase with Fifteen Sunflowers*, 1888 and *The Reaper*, 1889

Vase with sunflowers, 1888

Van Gogh painted multiple versions of "Sunflowers" in a vase, primarily in Arles, France, in 1888 and 1889, to decorate his "Yellow House" and welcome his friend and fellow artist, Paul Gauguin. He considered the sunflowers a symbol of friendship

The Reaper, 1889

The reaper labours in the heat of the sun. The wheat, painted with thick gobs of yellow, undulates around him. For Van Gogh, wheat was a symbol of the eternal cycle of nature and the transience of life. He saw the reaper as 'the image of death, in this sense that humanity would be the wheat being reaped.'

He added, however, that this death was 'almost smiling. It's all yellow except for a line of violet hills – a pale, blond yellow. I myself find that funny, that I saw it like that through the iron bars of a cell.'

The night café (1888)

Van Gogh painted "The Night Café" in September 1888 while living in Arles, France, and the scene is based on the Café de la Gare

Starry night by Van Gogh, 1889

The Starry Night," painted by Vincent van Gogh in 1889, depicts a night sky and a village, inspired by the view from his asylum room window in Saint-Rémy-de-Provence, France, during his stay at the Saint-Paul-de-Mausole asylum

Wheatfield with crows, 1890

Wheat Field with Crows" is often viewed as a symbolic painting, filled with metaphors for life, death, and Van Gogh's own emotional journey. The wheat field may represent the cycle of life, while the dark crows and stormy sky suggest an impending end or crisis

The effects of digitalis intoxication have been suggested as the cause of Van Gogh's **"yellow period"** (roughly from 1886-1890)

In the last two years of his life, as his mental health declined, Van Gogh spent a significant amount of time in the St. Remy asylum in the South of France. It is highly likely that after admission to the asylum at Saint-Rémy in 1889, his physician, Dr Paul-Ferdinand Gachet, prescribed digitalis, which is why medical historiography strongly supports the hypothesis of van Gogh having suffered from digitalis-induced xanthopsia.

In *Portrait of Dr Gachet*, 1890, a foxglove plant (the source of digitalis) was displayed on the table, leading to speculation about its potential connection to Van Gogh's health and artistic style.

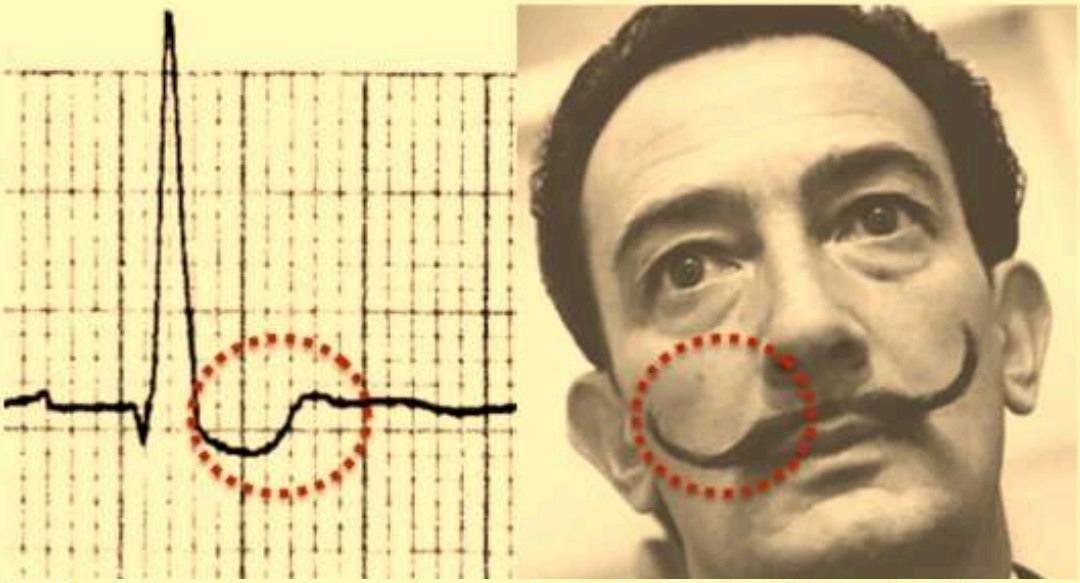
Digoxin and related compounds interact with the enzyme Na+/K+ ATPase. High concentrations of digoxin's target enzyme are found in the cone cells in retina of the eye. It is very rare, but some people taking digoxin and related drugs can experience haziness to their vision, or a yellow tinge to everything they see, known as xanthopsia. Occasionally, points of light may appear to have coloured

halos around them. Although rare, xanthopsia can also be caused by other drugs such as chlorothiazide, streptomycin, sulfasalazine

However, other experts argue that the connection between digitalis and Van Gogh's art is unlikely, citing the short duration of Van Gogh's treatment under Dr. Gachet, the fact that Gachet was known for careful drug usage, and Van Gogh's long-standing predilection for yellow colours.

Another sign of digoxin toxicity links the drug to the other great painter, Salvador Dali (1904 –1989), Spanish surrealist artist.

Along with changes in the T wave and arrythmias, a characteristic scooped-ST segment is an ECG finding observed in patients with digoxin toxicity. Since the scooped-ST segment has an uncanny resemblance to Salvador Dali's famed moustache, the ECG sign is also known as the 'Dali sign'.



Van Gogh's Yellow Period may have been influenced by more than just his emotional state and artistic vision. The possibility of digoxin-induced xanthopsia adds an intriguing layer to our understanding of his work, showing how a simple medical condition could shape the colours and feelings in his paintings.

"*There is a sun, a light that for want of another word I can only call yellow, pale sulphur yellow, pale golden citron. How lovely yellow is!* "

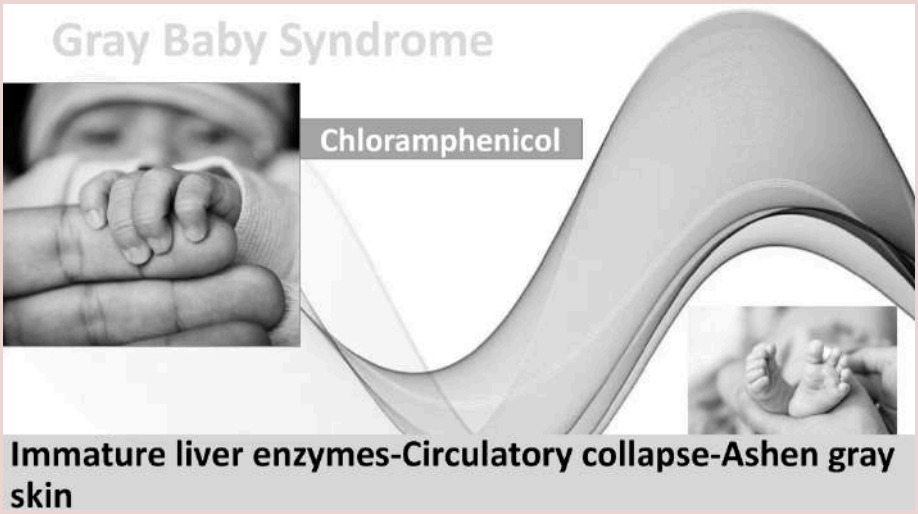
Vincent Van Gogh

Dr Neethu Soman
Assistant Professor

"The Hidden Hue: Understanding the Link Between Colors and Adverse Drug Reactions"

GRAY COLOUR:

Newborns especially those who are premature or of low birth weight have an immature liver enzyme system, hence chloramphenicol builds up in the body resulting in depression of the bone marrow, causing aplastic anemia. It can also affect the cardiovascular and respiratory systems, leading to hypotension, shock, and respiratory failure, leading to poor tissue oxygenation and the characteristic gray skin color.



RED COLOUR

Interestingly, Red Man Syndrome is not a true allergic reaction (like anaphylaxis), but more of a non-immunologic reaction involving histamine release. Vancomycin can trigger histamine release, especially when infused at a fast rate. Histamine is a substance produced by the body during immune responses, and when released in large quantities, it can cause the blood vessels to dilate, leading to the flushing and redness characteristic of the syndrome. The best way to prevent Red Man Syndrome is to infuse vancomycin slowly over 1-2 hours (or longer, depending on the dose) to reduce the risk of histamine release. It's important to note that Red Man Syndrome is not an allergic reaction, although it can appear similar. In Red Man Syndrome, flushing and erythema occur primarily on the upper body, often with itching and hypotension whereas true allergies involve immune system activation, so if a patient is experiencing difficulty breathing, swelling of the throat, or severe hypotension during vancomycin infusion, these could be signs of a more serious allergic reaction, such as anaphylaxis.

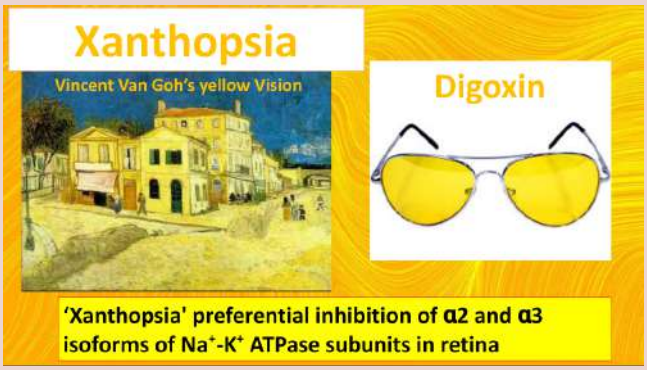
"The Hidden Hue: Understanding the Link Between Colors and Adverse Drug Reactions"

RED-ORANGE HUE

The color change occurs because rifampicin is excreted from the body in urine, feces, and other fluids. The red-orange hue is due to the chemical structure of the drug itself. Rifampicin is a hydrophobic compound, which means it does not dissolve easily in water, and when it is processed by the liver, it's released into the bloodstream and subsequently excreted through the kidneys and other excretory organs. The color change is not caused by toxicity and does not mean there is an issue with the drug itself. It is merely a cosmetic side effect and is typically not a cause for concern.

YELLOW COLOUR

Xanthopsia is a visual disturbance in which a person sees everything with a yellowish tint. It's a rare side effect, but it is associated with digoxin. The mechanism behind xanthopsia caused by digoxin toxicity is not entirely understood at a molecular level, but it is believed to be related to the toxic effects of digoxin on retinal function and the visual processing pathways in the brain.



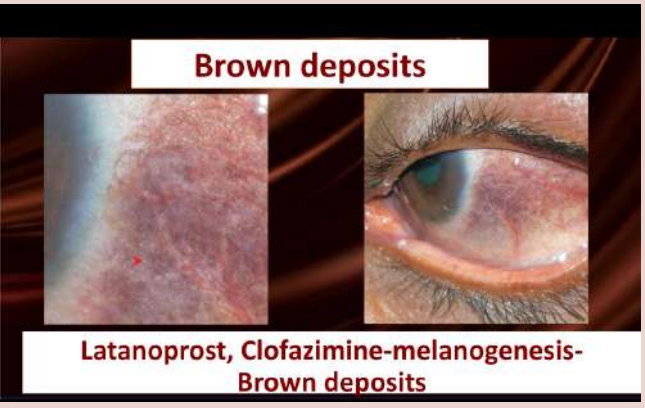
·BLUE COLOUR

Cynopsia, the condition where a person experiences blue-tinted vision, is a rare but recognized side effect of sildenafil. It occurs due to the drug's effects on the PDE6 enzyme in the retina, which leads to changes in color perception and visual disturbances. While generally temporary and harmless, the effect can be disconcerting. Bluish discoloration due to minocycline is a rare but known side effect that results from the deposition of pigmented complexes formed between the drug and melanin in the skin and mucous membranes. This discoloration is typically associated with long-term use and is usually harmless, though it can be persistent. The most common areas affected are the face, nails, and oral mucosa. If discoloration occurs, the dose may be reduced or the drug discontinued, although the pigmentation may not fully resolve in all cases.

"The Hidden Hue: Understanding the Link Between Colors and Adverse Drug Reactions"

PURPLE COLOUR

Purple Toe Syndrome is a rare but serious complication of warfarin therapy, caused by microembolism of cholesterol crystals from atherosclerotic plaques or clot formation. It presents as purple discoloration of the toes and is most commonly seen in patients with long-term warfarin therapy and underlying vascular disease. Paradoxically, while warfarin is an anticoagulant, there is a transient hypercoagulable state during the initiation of therapy (especially in the first few days). This is because warfarin initially inhibits protein C and protein S (natural anticoagulants), leading to a temporary increase in clot formation. These small clots can embolize to distant vessels, including the feet, causing embolism and resulting in purple toe syndrome. The condition is usually self-limiting and resolves once warfarin is discontinued or adjusted.



BROWN COLOUR

Latanoprost can cause gradual brown or darkening of the iris, particularly in people with lighter-colored eyes. This effect is due to increased melanin production in the iris, which is generally permanent. While eye color changes are not harmful and do not affect vision, they can be a cosmetic concern for some patients.

Clofazimine is associated with brownish or reddish-brown skin discoloration due to its accumulation in lipid-rich tissues such as the skin and fat. This effect is typically harmless but can be cosmetically concerning for patients. The discoloration is gradual and persistent, but it may fade over time after discontinuation of the drug.

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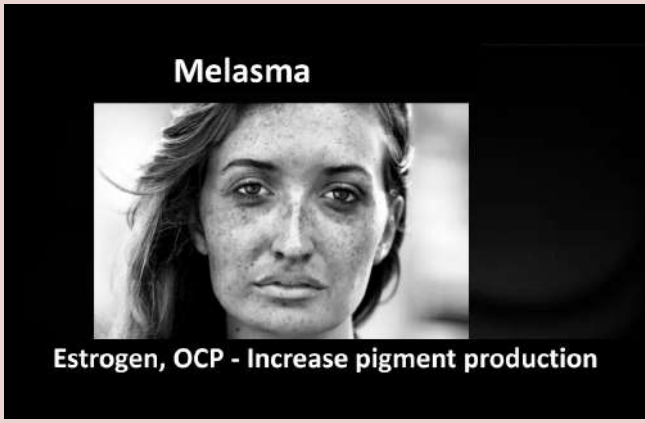
"The Hidden Hue: Understanding the Link Between Colors and Adverse Drug Reactions"

Melasma can be triggered or exacerbated by the use of oral contraceptives due to the hormonal fluctuations they cause. The condition results in brownish or grayish-brown pigmentation on the face, often made worse by sun exposure. Management strategies include discontinuing the use of OC pills, using sunscreen daily, and utilizing topical treatments such as hydroquinone and retinoids. In many cases, the condition can improve over time, but it may require ongoing management to prevent recurrence.



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Dr Jiyo Chacko
Assistant Professor

DARK SECRETS BEHIND THE DISCOVERY OF A WONDER DRUG

The wonder drug that we are talking about is Streptomycin. Yes, it was a ‘wonder drug’ because it was the first antibiotic effective against tuberculosis, bubonic plague, tularemia, brucellosis and other serious infectious diseases for which there had been no effective treatment. We all know that Selman Wakesman discovered Streptomycin. Is there anything we are missing? Let’s have a look at the untold story of a PhD student Dr Albert Schatz at Rutgers University in New Jersey, working in Waksman's lab. Waksman was a world expert on Actinomycetes species and a soil microbiologist by profession. In an effort to follow in Alexander Fleming's footsteps after discovering penicillin in the late 1930s, Waksman began looking for antimicrobial agents made by soil microorganisms that, in contrast to penicillin, would be effective against gram-negative organisms. He received assistance from the nearby Merck Laboratories in this endeavor. Eventhough he had some early successes with actinomycin and streptothricin, but these proved too toxic for use in man.

Dr. Schatz and Dr.Waksman in the Rutgers University laboratory

One day, Waksman gave Schatz the test tube containing the virulent strain of human tuberculosis that he had received from the Mayo Clinic. Then, far from the security of his third-floor office and lab, he sequestered Schatz in a basement laboratory.

Schatz experienced an "overwhelming compulsion" to discover a treatment for gram-negative bacterial infections as well as tuberculosis. He used to start working around five or six in the morning and work until midnight or later. He was testing and isolating everything that he could locate. Schatz was very cautious and took great pride in the fact that, despite working in very antiquated laboratory conditions that would not be acceptable today,

On October 19, 1943, he became aware that he had a new antibiotic. He discovered an antibiotic that effectively treated gram-negative bacterial infections and tuberculosis in just three and a half months of research. To bring home to his family, he sealed a test tube containing the organism that produced the antibiotic, which he named streptomycin. The Smithsonian Institute currently has this test tube on permanent display. After that, he put in a lot of overtime to make enough streptomycin for the Mayo Clinic's initial guinea pig toxicity tests. Scientists at the Merck Laboratories, close to Rutgers, oversaw the subsequent development of streptomycin.

Schatz was the first author of the two significant streptomycin publications that followed, and he and Waksman were jointly awarded a patent for the drug. Schatz's career peaked at that point. Waksman coerced Schatz into giving Rutgers University his portion of the streptomycin rights two years after the drug's discovery. Waksman claimed that he had already done so and threatened to "kill job chances" if Schatz refused. Waksman neglected to disclose that he had agreed to receive from Rutgers 20% of the net royalties. US$124 000 was his royalty payment for 1948 alone.

One year later in 1949, Schatz sued Waksman for his share after learning about the agreement. Ultimately, Waksman reached an out-of-court agreement. Waksman, meanwhile, made a successful effort to downplay Schatz's and others' contributions to the discovery of streptomycin. This was due to the fact that Waksman and his university wanted him to win a Nobel Prize.

In doing so, a significant issue arose. According to Alfred Nobel's will, no more than three people may share a Nobel Prize. However, Waksman was not the only person involved in the discovery and development of streptomycin; the other authors of the two original scientific papers, the Mayo Clinic researchers, and the Merck scientists may also have been involved. With the help of the public relations department at Rutgers, Waksman was able to minimize Schatz's and the other collaborators' contributions. The Nobel Assembly in October 1952 declared Waksman the sole recipient of the Nobel Prize for the "discovery" (without using the word "development") of streptomycin. Schatz and his friends' appeals were unsuccessful.

It wasn't the first time a postgraduate student had been denied a Nobel Prize, as Schatz's experience demonstrated. Charles Best was not given the Nobel Prize that Frederick Banting and John Macleod received in 1923 for discovering insulin. Banting became so furious and gave Best half of his prize money. Schatz was not as fortunate as Best, who went on to have a distinguished career. Schatz never found work as an independent scientist because of his unjustified reputation as a troublemaker. In 2005, he passed away as a bitter old man.

This tumultuous chapter in medical history is vividly described in Experiment Eleven. As a journalist, Pringle is skilled at keeping readers' interest. He has studied the story in great detail and approaches it as unbiasedly as he can.

Dr Neethu Mohan, Senior Resident

Rethinking Protein Supplementation: Scientific Insights and Common Misconceptions

Protein supplementation remains a hot topic in sports nutrition, frequently surrounded by myths and misunderstandings. Despite robust scientific evidence, many people still question the safety, effectiveness, and necessity of protein supplements. This article addresses key questions using updated research to clarify these misconceptions. One of the most widespread beliefs is that high protein intake harms kidney health. While excess protein can alter renal function markers, current research suggests this effect is not harmful in healthy individuals. Concerns mostly stem from clinical populations, such as those with chronic kidney disease, where dietary protein moderation may be beneficial. For the average healthy person, including athletes, consuming protein far above the recommended daily allowance (RDA) — up to 4.4 g/kg/day — shows no evidence of kidney damage.

Another myth is that eating excess protein leads to fat gain. Studies show that when calories are controlled, protein intake does not cause increased fat mass. In fact, higher protein diets often result in better body composition — increased lean mass and reduced fat mass — especially when paired with exercise. Even when protein consumption leads to higher total calorie intake, it doesn't necessarily increase fat storage, likely due to protein's higher thermogenic effect and satiety-inducing properties.

Bone health is another area of concern. The outdated acid-ash hypothesis suggests that high protein intake, especially from animal sources, causes calcium loss and weakens bones. However, modern studies disprove this, showing that higher protein intake supports bone density and strength — especially when combined with adequate calcium intake.

Vegetarians and vegans often face skepticism about meeting protein needs. While plant proteins tend to be lower in essential amino acids (EAAs), consuming a variety of plant sources or supplementing with products like soy or pea protein can meet the needs of active individuals. Research supports that when total protein intake and EAA content are adequate, plant proteins can be just as effective as animal proteins in supporting muscle gain and strength.

Another misconception is equating peanut butter or cheese with quality protein sources. While these foods contain some protein, they are also high in fat and calories, making them less ideal for those aiming to optimize protein intake without surplus energy. Lean meats, dairy, eggs, and protein powders are more efficient sources of protein.

There’s also confusion over whether eating meat causes chronic diseases. While processed meats have been linked to certain health risks like cardiovascular disease and cancer, unprocessed meats like chicken and fish do not carry the same risks and may even provide health benefits. Moderation, dietary diversity, and preparation methods matter more than simple food categorization.

Protein isn't just for bodybuilders. Even sedentary individuals need adequate protein to maintain muscle mass, support metabolic health, and prevent age-related decline. Evidence suggests that the Recommended Daily Allowance(RDA) of 0.8 g/kg/day may be insufficient for optimal health, and intakes of 1.0–1.2 g/kg/day may be more appropriate for non-active individuals. Many people believe that protein must be consumed immediately after exercise to maximize muscle growth. While this "anabolic window" idea is popular, recent research shows that total daily protein intake matters more than precise timing. Consuming protein within a few hours of training, whether before or after, appears equally effective for muscle repair and growth.

Endurance athletes also benefit from increased protein intake. While their primary fuel is carbohydrate, long-duration exercise increases protein oxidation. Protein intake post-training aids in recovery, reduces muscle damage, and supports immune health. Some studies also show that combining protein with carbs enhances performance more than carbs alone.

Do you need protein supplements? Not necessarily. Whole foods can meet protein needs if diet is well planned. However, protein powders offer a convenient, low-calorie, high-quality option, especially for athletes or those on restrictive diets.

Lastly, how much protein can the body use in one meal? While 20–40 grams per meal is often cited as optimal for stimulating muscle protein synthesis (MPS), newer research suggests the body can still effectively use larger doses (e.g., 100 grams), especially under stress or training. Thus, while spreading protein throughout the day is useful, going above "per-meal limits" isn't harmful.

In conclusion, most concerns around protein supplementation stem from outdated or misinterpreted science. When consumed appropriately, protein — whether from food or supplements — is safe and beneficial for nearly everyone, not just athletes. Clarifying these misconceptions empowers people to make better dietary decisions aligned with their goals and health status.

Dr Asif Haris
Junior Resident

Annual Report of Pharmacovigilance

The Pharmacology Department of Government Medical College, Kottayam has been enrolled as an AMC (ADR Monitoring Centre) for PvPI (Pharmacovigilance Programme of India) since 2012. Since then it has been contributing for the cause of patient safety by submitting Individual Case Safety Reports (ICSRs) to PvPI through vigiflow. Since then there has been tremendous progress in building the culture of reporting ADRs among the healthcare professionals in and around Kottayam District. Our AMC has received a total of 464 ICSRs from its different stakeholders in and around Kottayam District from 1st January 2024 to 31st December 2024 which has been submitted to PvPI for further evaluation. Currently there are around 1025 AMCs enrolled under PvPI across India. The details of AMCs are given on the website of IPC i.e. www.ipc.gov.in and can be assessed through the link https://ipc.gov.in/images/list_of_AMCs_under_PvPI.pdf

Healthcare professionals can submit the "Suspected Adverse Drug Reaction Reporting Form" available in the following link
https://ipc.gov.in/images/ADR-Reporting-Form1.3.pdf
Similarly consumers/patient can submit the "Medicines Side Effect Reporting Form (For Consumers)" available in the following link
https://www.ipc.gov.in/PvPI/adr/Malayalam.pdf
While submitting the above forms to the AMCs, please ensure to fill in atleast the mandatory fields which are patient initials, age at onset of reaction, reaction term(s), date of onset of reaction, suspected medication(s) & reporter information.
The filled forms may be sent as an email or whattsapp message to the AMC at GMC Kottayam, details of which as below:

E-mail ID of AMC located at GMC Kottayam : mckpharmacadr@gmail.com
Whatsapp number of Deputy Coordinator GMC Kottayam: 7558970809

Toll free helpline number (1800-180-3024) can also be used to directly report an ADR (All Working Days 9:00 AM to 5:30PM).
You can also report Adverse Drug Reaction through "ADR PvPI" Mobile app (android version) by it from Google play store by using the following link
https://play.google.com/store/apps/details?id=com.vinfotech.suspectedadversedrugreaction&hl=en&pli=
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Dr Jiyo Chacko
Assistant Professor

🍫 Dark Chocolate: A Delicious Shield Against Free Radicals

When it comes to indulging your sweet tooth, few treats are as satisfying — or as secretly healthy — as dark chocolate. Far from just a dessert delight, dark chocolate is a powerful antioxidant powerhouse that may offer surprising health benefits, all while satisfying your cravings.

🌟 The Antioxidant Advantage

Dark chocolate is rich in flavonoids, particularly flavanols, which are natural compounds with antioxidant properties. These antioxidants help combat free radicals — unstable molecules that can damage cells and contribute to aging and disease, including heart disease and cancer.

Dr Anila Philip
Lecturer

Studies suggest that the flavanols in dark chocolate can:

- Reduce oxidative stress
- Improve blood flow
- Lower blood pressure
- Support brain function

The key is moderation and quality. Choose dark chocolate that is at least 70% cocoa, with minimal added sugars or dairy. The higher the cocoa content, the more antioxidants you'll find.

🧁 Sweet Indulgence: The Healthier Way

Imagine biting into a moist, rich chocolate cake made with dark chocolate — decadent, yes, but also delivering a boost of antioxidants. You can even make it healthier with ingredients like whole wheat flour, olive oil, or natural sweeteners like dates or jaggery.

Educational Corner

Section-Medical Education

Medical education and Practice: present and the future

Dr Scaria Thomas P.
MD Pharmacology,
MD General Medicine,
MRCP (UK)
Associate Professor

Medicine is the art of probability and the science of uncertainty- Willliam Osler

With the commercialisation of medical education and the never ending want of parents to make their children doctors, smart business men are establishing more and more medical colleges. The MBBS and PG seats are minting money for these businessmen. Policies are also being made in favour of this golden egg laying goose. The requirements are being cut down, the regulations are being made lax, the examination pass mark and cut offs are being lowered. The regulators are pressing on educators to be more and more student friendly to a level that students are calling the shots. The new breed of students due to their feeling of entitlement don't feel or show respect to anyone, not to their parents, not to their seniors, nor to their teachers. They behave as though everything is their right, but conveniently forget the duties which accompany the rights.

The excessive media focus on institutions related to medical care, as well as the excessive influence of social media has resulted in each and every small incident being blown out of proportions. Students have sensed this opportunity and are using it to their advantage by claiming relaxations for every aspect which is critical in medical education. Excuses like mental stress, depression, suicidal tendency, being on meds etc are frequently misused by many to get undue advantage and at the same time, placing many good students at a disadvantage.

The standards of students undergoing medical education has deteriorated markedly but the pass rates are at an all-time high almost touching 100%. Guess it can't go up any further. The magnanimity of the teachers, due to multiple reasons, has definitely played a significant part in this. MBBS has become such an easy course that it is the go-to course of parents with enough money to finance the course. It doesn't matter if the student has aptitude, interest, intelligence or is willing to work hard to gain the level of knowledge and skill expected of a doctor. Once a student gets into the MBBS course, very minimal effort is needed to come out of the course as a doctor. They do this by hook or crook. Just like putting a ball into a horizontal pipe, with just a small push, the ball will roll out through the other end. Being a doctor, this person will have some social status and will earn a living. If this same student were to attend any other course, there is no guarantee of getting a job. Thus MBBS is the course which one should do to earn more with minimal effort. This is the only field which guarantees a job irrespective of the effort one puts in. Thats why inspite of everyone saying this field is saturated and is risky, there is a never ending demand for UG and PG seats.

In this era of arrogance, ignorance, and apathy, once in a while there comes a student who is still rooted to the ground, knows how to behave, takes effort to learn the intricacies of medicine due to interest, has a helping mentality and shows respect to teachers. They may or may not be the most brilliant in class, but such students are the ones who still give hope that all is not lost in this noble field.

As the glut of poorly skilled doctors increased and as the demand from society for better quality health care arose as a result of rising incomes of households, the healthcare industry boomed. The rising trend of eating out as well as the ease of food ordering via food delivery apps has also aided this boom in a large way. The consolidation of small hospitals to make way for corporate hospital chains owned and managed by non-medical people are exploiting doctors as well as patients. Doctors, both skilled and unskilled, armed with MBBS as well as PG / Superspeciality degrees are willing to work for low wages as well as take long and inhuman shifts. They are ready to cooperate with whatever demands their bosses ask of them. Even the skilled doctors are frequently made to toe this line too due to the ever-increasing violence as well as law suits against the doctors. To some extent, these big hospitals give some protection to doctors. But the doctors have to agree to their low wages as well as obey all the directions by the managements which may not be agreeable to their conscience.

The standard of care being delivered is nothing to write home about. The lack of attention to detail, the poor levels of communication, the missing empathy are all glaring in today's practice, not to mention the arrogance displayed by doctors both in and out of hospital. Incidents reported by friends/relatives and in mainstream media as well as social media are reminders of the rot which has set in. The falling standards of medical education are reflecting in the standard of medical care being delivered. Gone are the days when patients could select a doctor based on his degrees. Nowadays degrees don't matter. Social media rating of doctors which is being used by patients to select a doctor especially in the metros are completely manipulated by fake reviews. Finding a good doctor in an unfamiliar city has become a herculean task. In between all this is the onslaught of quacks who call themselves doctors publicly as well as in social media. These so-called doctors are attacking the scientific practices of modern medicine. Their social media following as well their societal approval is mind blowing.

When facing difficult to treat conditions, patients run from pillar to post seeking relief and often find the right doctor at the least expected of places. Such doctors who are masters of their craft, sincere and dedicated to patient care are often unassuming and down to earth. Their expertise and knowledge amaze everyone around and are frequently great teachers. If only the present day students could learn virtues from them !!!

Then comes the unknown threat of Artificial Intelligence. No one knows how this is going to affect medical education as well as the practice of medicine. Students are increasingly using AI tools to prepare slides as well as projects without verifying the correctness of matter generated by AI which as of now is highly error prone. Already the trend of using social media resources for learning medical subjects mostly towards the immediate pre-exam period is widespread. AI is steadily catching up in this area of medical education too. The weakness of these tools ie social media resources like YouTube videos and AI is that they don't understand the concept of probability as well as geographical variations in diseases and patient response to interventions. So, when a student wants to learn about the clinical features of a disease, online resources will list out all the clinical features of a disease without mentioning which are the common presentations and which are uncommon. Similarly, they will list out all the adverse effects of a drug not necessarily in the order of occurrence, often the rarest adverse effect will be on the top. From an exam point of view, online resources cannot provide the important areas to study, frequently repeated questions etc.

Given the wide spread use of smart phones, availability of cheap internet as well as ease of access to AI resources, the patients are finding it easier to understand about diseases and their treatments. Before the advent of AI, a patient needed to read a lot of pages shown in google search to get a good idea about the disease or its treatment. But now, AI is giving a summary after scanning thousands of pages. The patient just needs to go through the summary. As of now, the summaries given by AI are not very accurate. The human body and mind with its innumerable variations in health and disease is still making it difficult for AI to come up with accurate answers every time. The uncertainty in practice of medicine which makes doctors come up with decisions based on probability is an art as well a science. AI has not mastered this combination of art and science. Thats the challenge as well as beauty of medicine.

As years pass, AI will become smarter and accurate. Patients after reading opinions from future advanced AI tools are going to challenge more and more medical decisions by doctors and if they don't like the opinion of one doctor, they are likely to go doctor shopping. What the future holds nobody knows, the only thing to do is to be prepared. In addition to following recent advances in medical field, there is a new area which needs to be kept in the radar, i.e. advances in deployment of AI in medicine. Being trained in how to use AI to our advantage as well understanding it's weaknesses is the way to go.

Game Based Learning

The constant in life is change, and this applies to education as well. Traditional teaching methods are gradually being replaced by digital approaches, transforming the way knowledge is imparted. In medical education, game-based learning acts as a dynamic tool, enhancing student's enjoyment, fostering deeper understanding, improving knowledge retention, and encouraging active participation. The primary goal is for students to genuinely enjoy their subjects and gain knowledge that stays with them beyond exams.

It's about fostering a love for learning rather than focusing solely on exam preparation. In our department, we've implemented various engaging activities, including role plays, quizzes, Google-based games, treasure hunts, and puzzles. These initiatives aim to make learning interactive and enjoyable for students. In role-play activities, students act out pre-assigned case scenarios infused with humour, creating an engaging learning environment. Postgraduate students and faculty participate in reels competitions, showcasing creativity and collaboration. Group activities foster a sense of self-realization and unity among participants. Studies show that game based learning increased the student's engagement and decision-making. It empowers educators to discover innovative and practical teaching strategies, driving the transformation and enhancement of traditional didactic practices.

Digital learning faces challenges such as evaluation links, result storage, visual sharpness, general user experience, connectivity issues, the requirement for digital proficiency, and vision fatigue. The likelihood of addiction and distraction, along with physical inactivity, are additional challenges associated with digital learning. However, we cannot abandon it, as digitalization is both the present and the future.

CBME encourages students to actively participate in their own learning and development while fostering self-directed and lifelong learning habits. Being competency-driven, it prioritizes the development of specific, observable abilities and skills rather than mere knowledge acquisition. In our department, we organized a treasure hunt. The hints were hidden in the pharmacology lab, demonstration room, library, and lecture hall. Students thoroughly enjoyed answering Harry Potter-theme based pharmacology clues, and the winners discovered the treasure-the name of the an antibiotic within half an hour. It was not finding about treasure or winnig the prizes, it was all about active learning

Dr Gnanprakasam D
Junior Resident

Creativity Corner

കല്ലിൻ കൊത്തിയ ഹൃദയവും, മൃദുല മനസ്സും, വ്യത്യസ്ത ഭാവങ്ങളും
രൂപങ്ങളും, ഭാവങ്ങളും, പലതരമെങ്കിലും;
തരുമിതെന്നും ആശ്വാസത്തിന്റെ പൊൻകിരണങ്ങൾ.

അടിച്ചമർത്തപ്പെട്ട സ്വാതന്ത്ര്യം
അലിഞ്ഞില്ലാതാകുന്ന നിമിഷങ്ങൾ,
കണ്ണിനു പോലും കാണാൻ കഴിയാതെയുള്ള
പ്രയാണത്തിൽ, ആശ്വാസം പകരുന്നവർ,
ജീവരൂപമെങ്കിലും, നനവിന്റെ സ്പർശം
ഉൾക്കുളിരുമായി മാറി അലിയുന്ന നിമിഷങ്ങൾ,

ഏതു രൂപമെങ്കിലും, ഭാവമെങ്കിലും
പകരും ഞാൻ നിങ്ങൾക്കെന്നും
എൻ ആശ്വാസ ഭാവ മാറ്റങ്ങൾ.

ഇവ: ഇറവിൻ തുള്ളികൾ.

Dr Eva John
Junior Resident

A Tribute to Shri.M.T.Vasudevan Nair

Dr Sujatha M B
Professor and Head

1933 ജൂലായ് 15 ന് പാലക്കാട് ജില്ലയിലെ കൂടല്ലൂരിൽ ആണ് മാടത്ത് തെക്കെപ്പാട്ട് വാസുദേവൻ നായർ എന്ന ശ്രീ. എം.ടി. വാസുദേവൻ നായരുടെ ജനനം.

വിക്ടോറിയ കോളേജിൽ നിന്ന് കെമിസ്ട്രിയിൽ ബിരുദം. അദ്ധ്യാപകൻ, പത്രാധിപർ, കഥാകൃത്ത്, നോവലിസ്റ്റ്, തിരക്കഥാകൃത്ത്, സിനിമാ സംവിധായകൻ എന്നീ നിലകളിൽ പ്രശസ്തൻ.

പ്രധാന കൃതികളിൽ മഞ്ഞ്, കാലം, നാലുകെട്ട്, അസുരവിത്ത്, വിലാപയാത്ര, പാരിരാവും പകൽ വെളിച്ചവും, അറബിപ്പൊന്ന്, രണ്ടാമൂഴം, വാരണസി തുടങ്ങിയ നോവലുകളും ഇരുട്ടിന്റെ അത്മാവ്, ഓളവും തീരവും, കുട്ട്യേടത്തി, വാരിക്കുഴി, ബന്ധനം, സ്വർഗ്ഗം തുറക്കുന്ന സമയം, നിന്റെ ഓർമ്മയ്ക്ക്, വാനപ്രസ്ഥം, രക്തം പുരണ്ട മൺതരികൾ, ഷെർലക് തുടങ്ങിയ കഥകളും, ധാരാളം പ്രബന്ധങ്ങളും, തിരക്കഥകളും യാത്രാവിവരണങ്ങളും ഉൾപ്പെടുന്നു. പല കൃതികളും ഇംഗ്ലീഷിലേയ്ക്കും ഇതര ഭാഷകളിലേയ്ക്കും വിവർത്തനം ചെയ്യപ്പെട്ടിട്ടുണ്ട്.

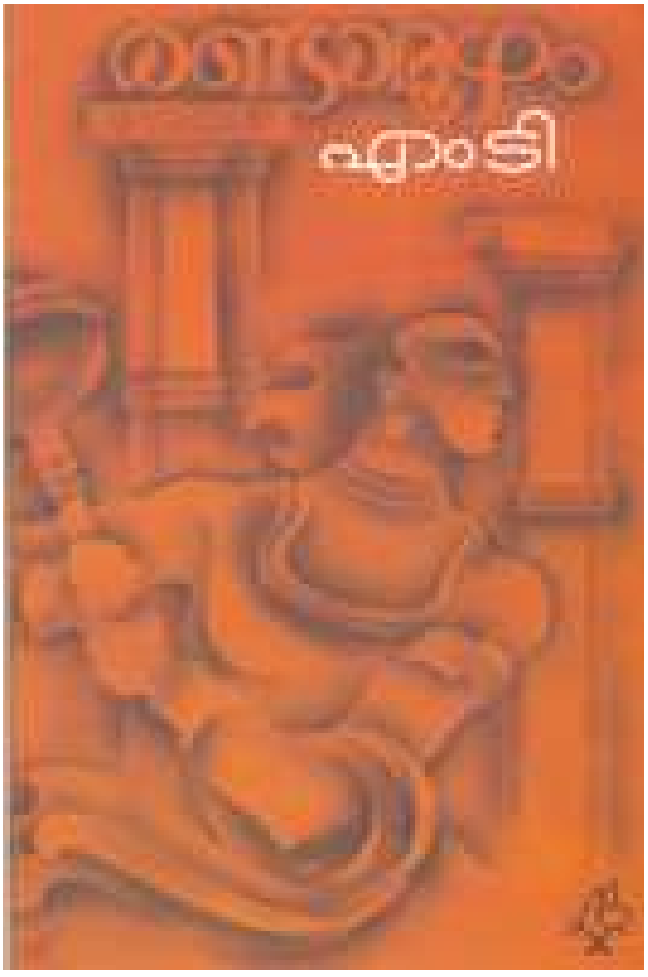
സർഗ്ഗസൃഷ്ടിക്ക് മൗനത്തിന്റെ വലിയ പിൻബലം വേണമെന്ന് വിശ്വസിച്ച എം.ടി. എവിടെയും മിതഭാഷിയായിരുന്നു. അദ്ദേഹത്തിന്റെ വാക്കുകൾ തീവ്രവും ആശയങ്ങൾ സ്ഫഷ്ടവുമായിരുന്നു. അദ്ദേഹത്തിന്റെ കഥാപാത്രങ്ങളിൽ പലതിലും മലയാളി അവനവനെതന്നെ കണ്ടു. ലോകത്തെവിടെയുമുള്ള മനുഷ്യർ പേറുന്ന വ്യഥകളും സംഘർഷങ്ങളും വൈകാരികതയും അദ്ദേഹത്തിന്റെ കൃതികളിൽ ചാലു കീറി കിടന്നു. അദ്ദേഹത്തിന്റെ കഥാപാത്രങ്ങൾ കനൽ പേറുന്ന ഏകാകികളും മാനം ഭക്ഷിക്കുന്ന ഒറ്റയാന്മാരുമായി.

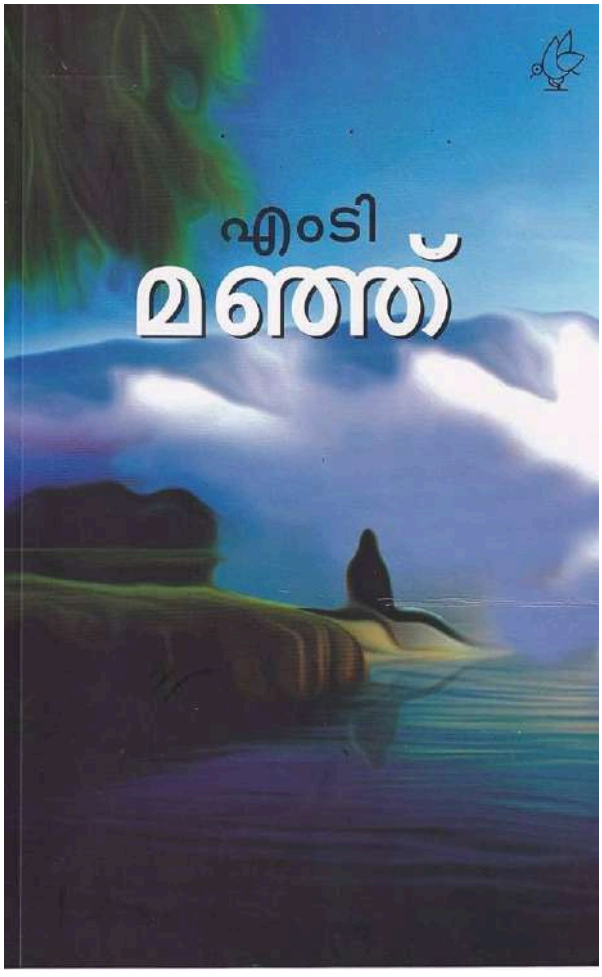
വ്യാസമൗനങ്ങളെ വാചാലമാക്കി ഭീമസേനന്റെ വീക്ഷണകോണിൽ നിന്ന് മഹാഭാരത കഥ പുനരാവിഷ്ക്കരിക്കുന്ന, എം.ടി. കൃതികളിൽ ഏറ്റവും ദൃശ്യാത്മക മായ, 'രണ്ടാമൂഴം' അദ്ദേഹത്തിന്റെ മാസ്റ്റർ പീസായി പരക്കെ അംഗീകരിക്ക പ്പെടുന്നു. ഒരു ജന്മം മുഴുവൻ എല്ലായിടത്തും രണ്ടാമൂഴത്തിനായി കാത്തുനിന്ന ഭീമൻ, കരുത്തുള്ള ശരീരത്തിലെ ആർദ്രമായ മനസ്സിനുടമയായി ചിത്രീകരിക്കപ്പെട്ടു.

മഞ്ഞുമൂടിയ നൈനിറ്റാളിന്റെ പശ്ചാത്തലത്തിൽ കാത്തിരിപ്പിന്റെ കാഴ്ചയാണ് 'മഞ്ഞ്'. സുധീർകുമാർ മിശ്രയുടെ ഓർമ്മകളുടെ മഞ്ഞാണ് വിമലയെ മൂടി നിൽക്കു ന്നത്. ഇവിടെ എം.ടി. കാത്തിരിപ്പിന്റെ മഞ്ഞുചൊരിയുന്നു. മനസ്സിലൊരു പിടച്ചിലി ല്ലാതെ 'മഞ്ഞെങ്ങനെ' വായിച്ചുതീർക്കും.

സാമൂഹിക വ്യവസ്ഥിതിയിലേക്കുള്ള എം.ടി.യുടെ വിമർശനാത്മക നിരീക്ഷ ണമാണ് 'നാലുകെട്ട്'. എം.ടി.യുടെ നാലുകെട്ട് ഒരു കെട്ടിടമല്ല. 'അതൊരു ലോക മാണ്'. അദ്ദേഹത്തിന്റെ കൃതികളൊന്നുപോലും മനസ്സിലൊരു നൊമ്പരപ്പാടുതീർക്കാ തിരുന്നിട്ടില്ല.

ചലച്ചിത്ര മേഖലയിലും എം.ടി. നിസ്തുലമായ കൈയ്യൊപ്പു പതിപ്പിച്ചു. നിർമ്മാല്യത്തിലെ വെളിച്ചപ്പാടും വിധിയോടു തൊടുത്തു തോറ്റ ഇളംതളിൽ മഠത്തിലെ ചന്തുവുമൊക്കെ (ഒരു വടക്കൻ വീരഗാഥ) എം.ടി.ക്കു മാത്രം സൃഷ്ടിക്കാ നാകുന്ന നായകരായിരുന്നു. അദ്ദേഹത്തിന്റെ കരസ്പർശനമേറ്റിട്ടുള്ള ചലച്ചിത്ര





പരിശ്രമങ്ങളിലേതിനെങ്കിലും പുരസ്കാരങ്ങൾ ലഭിക്കാതെ പോയിട്ടുണ്ടോ എന്നു സംശയമാണ്.

മലയാളിയെ വിശ്വസാഹിത്യത്തിലേക്കുയർത്തിയ ഈ എഴുത്തുകാരൻ പ്രഗല്ഭനായ ഒരു പത്രാധിപരും കൂടിയായിരുന്നു. നാളത്തെ സാഹിത്യം ഇന്നു കണ്ടെത്തുന്നതാണ് പത്രാധിപരുടെ ദൗത്യമെന്ന് അദ്ദേഹം കരുതി. അദ്ദേഹം പത്രാധിപരായിരുന്ന കാലത്താണ് മലയാള സാഹിത്യത്തിലെ നാഴികക്കല്ലായി മാറിയ പല എഴുത്തകാരുടെയും മികച്ച കൃതികൾ വെളിച്ചം കണ്ടത്.

കേരള സാഹിത്യ അക്കാദമിയുടെ അധ്യക്ഷൻ, കേന്ദ്ര സാഹിത്യ അക്കാദമിയുടെ വിശിഷ്ടാംഗം, തുഞ്ചൻ സ്മാരക ട്രസ്റ്റിന്റെ അധ്യക്ഷൻ തുടങ്ങിയ നിലകളിലും പ്രവർത്തിച്ച അദ്ദേഹം മികവുറ്റ സംഘാടകർ കൂടിയാണ് താനെന്നും തെളിയിച്ചു.

മലയാള സാഹിത്യമണ്ഡലത്തിൽ ഉത്തുംഗമായൊരു ഇരിപ്പാടം സ്വന്തമാക്കിയ ഈ മഹാപ്രതിഭയെ തേടി ഒട്ടേറെ അംഗീകാരങ്ങളും പുരസ്ക്കാരങ്ങളും എത്തി. കേരള, കേന്ദ്രസാഹിത്യ അക്കാദമി അവാർഡുകൾക്കു പുറമെ 1996 ൽ ഭാരത സാഹിത്യ രംഗത്തെ തന്നെ ഏറ്റവും ഉയർന്ന പുരസ്ക്കാരമായ ജ്ഞാനപീഠം അദ്ദേഹത്തിന് ലഭിച്ചു. 2005 ൽ രാജ്യം പത്മഭൂഷൺ നല്കി അദ്ദേഹത്തെ ആദരിച്ചു. 2011 ൽ എഴുത്തച്ഛൻ അവാർഡിനും അദ്ദേഹം അർഹനായി. ഇതിനുപുറമെ ഒട്ടേറെ അന്താരാഷ്ട്ര ബഹുമതികൾക്കും അദ്ദേഹം അർഹനായി.

ശ്രീ. സുഭാഷ് ചന്ദ്രന്റെ വാക്കുകൾ കടമെടുത്താൽ, 'സമകാലിക കേരളത്തിലെ സാംസ്ക്കാരിക ശരീരത്തിൽ ഹൃദയം ഒന്നേയുള്ളൂ. ഭൂമി മലയാളത്തിലെ അക്ഷര ശില്പിയായ ശ്രീ. എം.ടി'. എം.ടി എന്ന രണ്ടക്ഷരത്തെയോർത്ത് മലയാള ഭാഷയും മലയാളിയും എക്കാലത്തും അഭിമാനിക്കും. അതൊരു സ്വകാര്യ അഹങ്കാരമായി മലയാളത്തിന്റെ തലമുറകൾ മനസ്സിൽ സൂക്ഷിക്കും. ആ സൂര്യതേജസ്സിന് സാദരപ്രണാമം.

ശ്രീ എം.ടി.യാൽ അംഗീകരിക്കപ്പെട്ട, അദ്ദേഹം എഴുതിക്കൂട്ടിയ കുറെ വാക്കുകൾക്കു വേണ്ടിമാത്രം അദ്ദേഹത്തെ സ്നേഹിച്ച, വേറിട്ട, ഒരു ആരാധകന്റെ മകളെന്ന നിലയിൽ 'ആദരാഞ്ജലി' എന്ന പേരിൽ അദ്ദേഹത്തെപ്പറ്റി ഈ കുറിപ്പെഴുതാൻ കഴിഞ്ഞത് ഒരു മഹാഭാഗ്യമായി ഞാൻ കരുതുന്നു.

സാഹിത്യക്ഷേത്രത്തിലെ ദേവനായ താങ്കൾ സൃഷ്ടിച്ച ലോകങ്ങൾക്കൊക്കെയും നന്ദി.

ഡോ. എം.ബി. സുജാത

ഒരു ഫാർമക്കോളജിക്കൽ കൊട്ടേഷൻ

ഞാൻ തളരുകയാണ്. എന്റെ തീക്ഷ്ണതയേറിയ ഇന്ദ്രിയങ്ങൾ പരാജയം അറിഞ്ഞു തുടങ്ങിയിരിക്കുന്നു. ബലവത്തായിരുന്ന പേശീകലകൾ ആലസ്യപ്പെട്ടിരിക്കുന്നു. ഊർജ്വസ്വലമായിരുന്ന ശ്വാസോച്ഛ്വാസങ്ങൾ നേർത്തു തുടങ്ങിയിരിക്കുന്നു. ചുറ്റും പ്രതിരോധകവചങ്ങൾ എണ്ണമറ്റതുണ്ടെങ്കിലും എവിടെയോ ശത്രുസൈന്യം ഇരച്ചുകയറുന്നുണ്ട്. ആരെല്ലാമോ കീഴടക്കാൻ ശ്രമിക്കുന്നുണ്ട്.

എന്നെ സംരക്ഷിക്കാൻ പ്രതിജ്ഞയെടുത്ത ഒട്ടനേകം പോരാളികളിൽ പ്രതീക്ഷയർപ്പിക്കുകയാണ്. ആശ്വാസത്തിന്റെ ഒരു പൊൻകിരണം തനിക്കായി സൂക്ഷിച്ചു കൊണ്ട് അവർ പടക്കോപ്പു കൂട്ടുകയാവും. പടത്തലവന്മാർ യുദ്ധകാഹളം മുഴക്കി സജ്ജരാകുകയാവും. കിതപ്പുകളോടും പരാധീനതകളോടും ഉടനെ വിട പറയാം....

എന്റെ പടയാളികൾ കളത്തിലൊന്നിറങ്ങട്ടെ...

ആരോടെന്നില്ലാതെ വെല്ലു വിളിച്ചു ഞാൻ ...

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കണ്മുന്നിൽ പ്രതീക്ഷയുടെ വെള്ളിവെളിച്ചം സ്വപ്നം കണ്ട എനിക്ക് സാക്ഷിയാകേണ്ടി വന്നത് ഒരു ചതിയുടെ പദ്മവ്യൂഹമാണ്.

എന്റെ സ്വന്തം... എന്റെ വിശ്വസ്തർ ... എന്റെ സംരക്ഷകർ ...

അവർ പടപ്പുറപ്പാട് നടത്തിയത് എനിക്കെതിരെയായിരുന്നു...

അവർ ഇരമ്പിക്കയറി ഇഞ്ചിഞ്ചായി എന്നെ വലിഞ്ഞു മുറുക്കുകയാണ്.... അതിഭീകരമായ ചതി.... വിശ്വാസവഞ്ചന ....

നിരാശയുടെ പടുകുഴിയിൽ വീണു കിടക്കുമ്പോൾ ഞാൻ തിരിച്ചറിയുന്നു...

തോറ്റു കൊടുക്കാൻ വയ്യ...ചതിക്കപ്പെട്ട എന്റെ കോശങ്ങളെ തിരികെ കൊണ്ടുവരണം...നിസ്സഹായരായ എന്റെ രാസവാഹകരെ ഉത്തേജിപ്പിക്കണം...

ഞാനും കൊടുക്കുന്നു ഒരു കൊട്ടേഷൻ ....

NEOSTIGMINE FOR MYASTHENIA GRAVIS

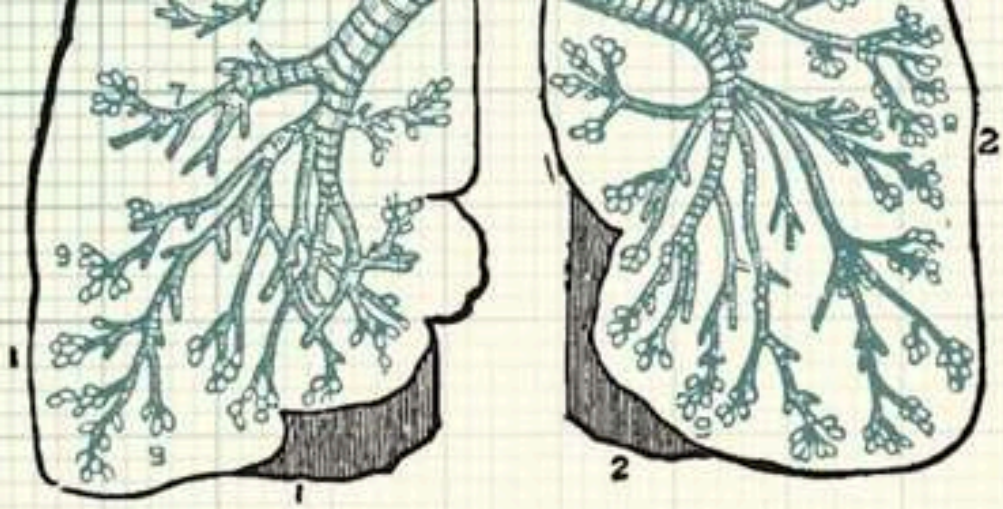
Dr Sreelakshmi Venugopal
Assistant Professor

An epilogue

It was my Anatomy first year presentation,
I was given the topic **Pronation and Supination.**
After this, 27 years have elapsed and I no longer remember its finer details
What I remember is the statement **" Kings Pronate, Beggars Supinate"**
Later, several friends have repeated this statement when
some causal talks arose around me.
It is a late realisation, a very late realisation
that, this statement don't hold true always
Some kings have supinated and become richer
and beggars I don't see them anymore asking alms
except at places of divinity
I do understand
All smiles are not smiles, all tears are not tears, all promises are not promises
And

All hands that pronate are not kings,
All hands that supinate are not beggars

Dr S P Dhanya
Professor CAP, Pharmacology



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PETER PRINGLE

Experiment Eleven

Deceit and Betrayal in the Discovery of the Cure for Tuberculosis