API DK Lahari

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THE ART AND SCIENCE OF CLINICAL MEDICINE

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PRESIDENT'S MESSAGE

Respected members.

We have so many achievements under the activities taken up by API -DK chapter in the past years. Adding another feather, this year we have received best performing award in the recently concluded KAPICON. The credit goes to all the members of the API.

The present addition of LAHARI with theme THE ART AND SCIENCE OF CLINICAL MEDICINE has come out very well. I do agree that in the past two decades there has been lots of changes in approaching patient's problems. Presently treatment is guided by the imaging and laboratory investigations. The dependence on clinical medicine is slowly eroding. This has been seen in even post graduate teaching. I feel there needs to be balance.

I thank Dr. Raghavendra Bhat for accepting to be guest editor for present edition of LAHARI. He has given us so many articles in this theme from national and international authors. Looking forward to see the journal in both digital and printed format.

Thanking You
Dr. Suresh G
API-DK Chapter - President

SECRETARY'S REPORT

Dr.SHAMA PRAKASH K

Greetings from API D.K. Chapter.
The monthly meeting of July 2022 was held on 15th at Hotel Ocean Pearl at 8pm. A panel discussion on ''Nutrition in Critically Ill Patients'' was conducted. Dr.Jayaprakash, Consultant Intensivist, Dr Janardhan Kamath, Consultant Nephrologist, Dr Lakshmi Nagendra, Consultant Endocrinologist and Mrs Arun Mallya, Senior Dietitian were the panellists. Dr Smitha Bhat, Professor of Medicine was the moderator. The talk was followed by discussion and dinner. Meeting was attended by 35 members.

API DK Chapter was awarded the BEST PERFORMING BRANCH OF API KARNATAKA CHAPTER 2022 during the KAPICON 2022 held on 19th to 21st August at Hassan Institute of Medical Sciences, Hassan.

The monthly meeting of August 2022 was held on 26th at Hotel Ocean Pearl at 8pm. Dr. Suresh Karanth, Consultant Haematologist and Bone Marrow Transplant Physician, A J Hospital Mangaluru gave a talk on Approach to Myeloproliferative Neoplasms. Meeting was attended by 38 members.

The monthly meeting was held on 16th September 2022 at Hotel Gold Finch at 8pm. Dr. Sajjan Shenoy N, Consultant Rheumatologist gave a talk on Impact of Method, Technique and Immunological Factors in the Interpretation of tests in Rheumatology. The talk was followed by discussion. It was followed by onstage release of printed version of API DK LAHARI, the magazine of API DK Chapter. Then there was dinner. Meeting was attended by 55 members.


Mangaluru
Karnataka, India


API DK Chapter
Association of Physicians of India
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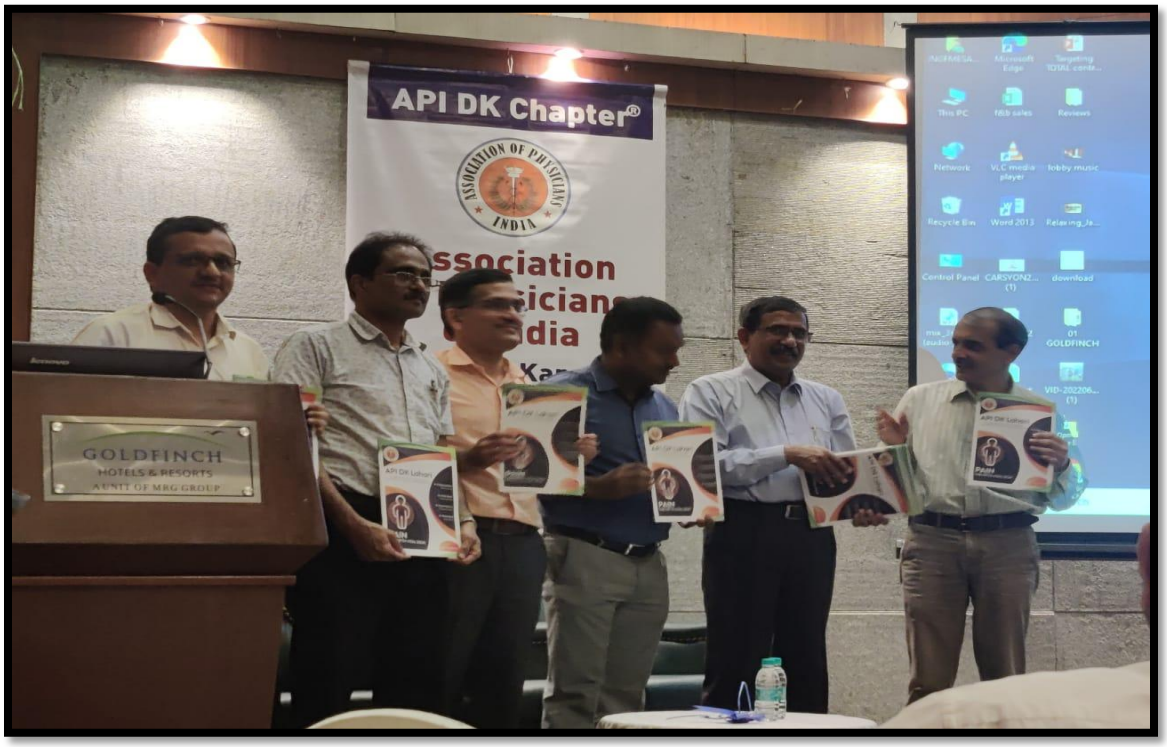
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A UNIT OF MRG GROUP

Dr Shama Prakash K
Secretary, API DK Chapter 2022-23
Professor, Department Of Internal Medicine,
KSHEMA, Derallakatte, Mangaluru

EDITORIAL

The practice of clinical medicine with its daily judgments is both science and art. It is impossible to make explicit all aspects of professional competence. Evidence-based decision models may be powerful, but they are like computer-generated symphonies in the style of Mozart—correct but lifeless.

Medicine is more of an applied science. The process of evaluation does not change, but the database of knowledge does. What we did yesterday may be grossly inappropriate today

Experts consider messy details, such as context, cost, convenience, and the values of the patient. “Doctor factors” such as emotions, bias, prejudice, risk-aversion, tolerance of uncertainty, and personal knowledge of the patient also influence clinical judgment. The art of caring for patients, then, should flourish not merely in the theoretic or abstract gray zones where scientific evidence is incomplete or conflicting but also in the recognition that what is black and white in the abstract often becomes gray in practice, as clinicians seek to meet their patients' needs. In the practice of clinical medicine, the art is not merely part of the “medical humanities” but is integral to medicine as an applied science.

Though many sciences can be taught from the textbook, medicine cannot. The ability to listen to the heart and recognise heart sounds, murmurs, and their significance, comes from painstaking repetition. The ability to understand from hearing the heart and deduce that the patient is improving, is the purview of an experienced physician. This does not come from reading a textbook or looking at reports - a failing of most doctors today.

In this volume of API DK Lahari, we delve into the Art and Science of Clinical Medicine . We are thankful to our Guest Editor Dr. Raghavendra Bhat for compiling the views regarding the topic from across the world. In the postgraduate section we investigate Medical Eponyms and this time its Jean-Martin Charcot

Have a wonderful reading …

Dr. B Sadananda Naik & Dr. Archith Boloor

GUEST EDITORIAL

Dr. Raghavendra Bhat, MD FRCP**,**
Professor of Internal Medicine &Chairperson Skills Lab, RAKMHSU

I deem it an honor to be invited to be the guest editor for a month for a theme very close to my heart. I am writing this article in 2 parts – The Theme and The Team. That is why I have named only a very few people in the first part.

CLINICAL MEDICINE – THEN AND NOW – THE THEME

"Transformations in Clinical Medicine "

As a young high school student, I was very much impressed by the ability of doctors to examine a patient, give an opinion, and treat the patient. They seemed to have some magic in them. Doctors were held in high esteem by the patients who sincerely thanked them with gratitude. My father being a doctor gave me a ring side view of the life of a doctor. I could also watch some then great doctors like Dr MV Chari, Dr M Keshava Pai during their house visits. What impressed me was their passion to serve and they really enjoyed what they were doing. To be able to do like them first of all I had to become a doctor. When I had obtained a merit seat at KMC, I developed a sense of security. Only when the classes started did started to realize what the "slip between the cup and the lip" is all about! I had to cross two seemingly impossible barriers in the guise of humble subjects – Anatomy and Physiology. There was a belief among students – There were two possibilities – You get to forcibly like these two subjects and mug them up and they will allow you to go past them or you ignore them and they start liking you so much that you will never go past them! We got through the horrors of Anatomy where we learnt even the dead can fail a medical student and Physiology which proved the supremacy of lowly cockroach and frog and their ability to change the fate of an unsuspecting medical

student. Thankfully, Biochemistry had not developed fully yet thereby allowing souls like me to slip int Clinical years.

The first day at the clinics wearing the white apron and a new stethoscope we were all on the lookout for the most sought-after thing – a murmur. We made friends with senior students, junior teachers and even the orderlies in order to get to the then Holy grail of clinical postings. Finally, one day we got a tip off that one of the patients indeed has a murmur, we rushed to him and requested him to remove his shirt. Being a seasoned patient of rheumatic heart disease, he could easily sense that we were junior students. Probably out of pity for us, he allowed us to auscultate. The realization suddenly dawned up on us – we needed someone else to explain things to us. In the chain of learning of clinical medicine, there are 3 links – The willing to learn student, the willing to teach faculty and a willing patient. There were so many patients that it became a joke in later years that "simulated patients are being used to teach and assess students in the West"! There was no dearth of patients, all with exciting observations termed "findings". We would slip through the queues, wade through the "floor bed" patients and pounce on the patients. Some were kind. Some reprimanded us and shooed us away. On the eve of the exam, the junior students were in high demand for they could still visit patients likely to be used for the clinical examination and get to know the findings. But there was a snag – conveying the identity of the patient to the candidates before the exam – the thin lady in green sari has mitral stenosis; the tall. thin man with a shirt in blue lungi has TB; the boy in red short pants has cystic fibrosis; and the young unshaved man had hepatosplenomegaly. We were very sure as we had seen all these and more on the eve of the examination. Little did we know that the thin lady would change her sari to a blue one, thin man wore a new lungi, the young boy got discharged and the young man with hepatosplenomegaly shaved. Needless to say, we hid from our seniors for many days after that!

The clinics were a sight to our eager eyes and music to our waiting ears – we were in the peripheral circle of students gathered around the patient. To get to see the student who can examine the patient was a reward in itself for the junior students. Each unit would have different clinics and we would tell our friends in other units about the mitral stenosis we saw – censoring the fact that we only saw the patient and the terrified student presenting the case from afar. Some of us would beg the seniors to discreetly show us these findings in the evening or night when no other faculty was around. Though it was tough to begin with, I realized that clinical medicine is "pattern recognition'. It was an out of the world experience to "diagnose" neurofibroma in front of a restaurant and an achondroplasiac dwarf in the circus. We would discreetly ask the vegetable vendor (who just got discharged after a life and death battle with diabetic ketoacidosis) whether he has "polydipsia, polyphagia, polyuria"? While in senior years we would wait for a relative to discuss a biochemical report with us. We would happily accompany a friend to a doctor's clinic – any opportunity to learn was welcome.

Another unforgettable experience is the “Grand rounds”. The Professor would be accompanied by his assisting faculty in varying degrees of seniority, the Post graduate students of various years, the Interns, the Undergraduate students and see complicated patients, diagnose with apparent ease and suggest treatment. It was a sight to be seen. Sometimes 2 such groups crossed each other with exchange of pleasantries laced with humor mixed with sarcasm.

The unit system had some advantages – understanding the hierarchy, access to seniors with greater experience, valuable discussions and opportunity to freely discuss clinical problems seen in daily practice – particularly useful for junior physicians. I remember being the junior most staff member helping all seniors in the unit. Slowly with time I rose in the hierarchy and as the unit chief all my junior colleagues would help me. Irrespective of the seniority the department head was respected, and his orders were executed. Sadly, this element of combined rounds and the practice of hierarchy is becoming rare today.

There were not many fancy gadgets. One could only measure height, weight, BP heart rate, respiratory rate and temperature. X rays were available and used regularly. Regular ECG and cardiac monitoring had just come in. There were no DM trained cardiologists and other specialists. Dr AV Shetty was making the history taking and clinical examination look like a child’s play arriving very logically at the diagnosis. His black board classes involved color diagrams and were excellent and educative even before the computers came. His hand drawn diagrams would have put the modern color pictures in text books and animations to shame. All modern gadgets put together cannot replace his skills!

Dr KR Shetty was the face of systematic neurologic examination. I cannot forget the meticulous examination repeated testing to make sure an important clinical sign (like an unilateral extensor plantar) is present or absent. Only when I tried to mimic him independently did I realise that both eliciting a sign and interpreting it are not always easy tasks. I remember accompanying my father to the home of a young patient who had developed a stroke. I was a medical student. After taking a history, I could make out that this started suddenly in the bus stop when he was about to board a bus. I could make out he had deficits. At my dad’s request Dr KR Shetty came to house of the patient. He took a detailed history, examined the patient very meticulously and concluded that there was no organic basis for this hemiplegia. I really go to see how a master with the same data comes to a very different but accurate conclusion.

Thus the clinical examination was purely clinical unadulterated by the machines and gadgets.

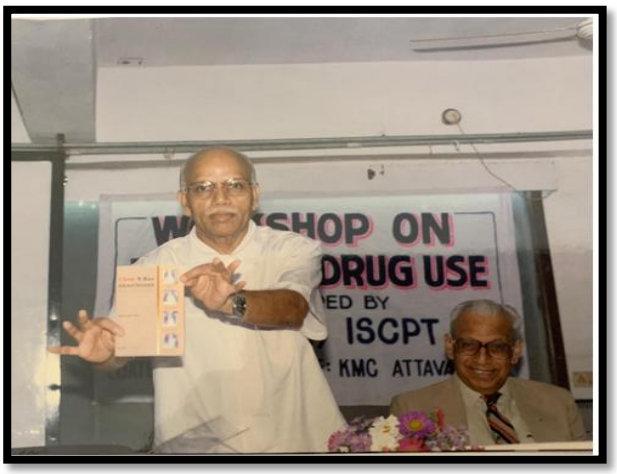
Slowly the things changed. The investigations came in initially with the idea of confirming the diagnosis or ruling it out. This led to more tests. Imaging was getting better and started to dominate the process of clinical examination. I remember an instance where a patient was brought with an acute stroke and the non-contrast CT scan (then a new diagnostic modality) came back as normal. The patient’s bystanders started packing the bags thinking they can take the patient back home. They had to be educated that despite the imaging being normal there is

a need to keep the patient in the hospital and offer him proper treatment. Obviously, the clinical medicine was beginning to falter. Thankfully Google was not that powerful and the doctor still had a role to play.

I clearly remember an episode during evening rounds of Dr BM Hegde during my Residency – We requested him to come over as there was a very severely ill patient with acute congestive cardiac failure not responding to the standard treatment – he came over and said this is Beri Beri – No Point in giving him too much diuretics - Give him IV Thiamine. Being immature, we comforted him with out text book knowledge. He simply said "Look at the whole picture' he is a malnourished alcoholic. Stop giving diuretics and give on ly thiamine as of today ". Reluctantly we agreed and did that. The patient had a massive diuresis followed by a magical recovery. The Clinical Medicine stood apart!

Things got worse when doctors started to do procedures to confirm or rule out the diagnostic possibilities. With the new gadgets being used the patients who were reluctant to pay the consultation fees, were more than willing to pay more and even happily do so. For a while the going looked good. Somewhere along the line, the gadgets were being used probably more often than needed and it was convenient for the doctors and patients. The chain of clinical medicine now had acquired a new link – Procedures.

Sometimes considering the seriousness of the situation, it became necessary to admit the patients for observation and or procedures and treatment. Again this was tempting as it offered more financial benefits. As the economic benefits were increasing (though many sincere doctors refrained from doing all this) it paved way for the non-doctors to adulterate the system and become links in the chain of clinical medicine. Two new links came into the chain of Clinical medicine largely uninvited – the hospital admintrators mostly MBAs without the ABC of clinical medicine or hospital practice. Their formula was simple "grab the piece of the pie before anyone grabs it – patient and doctor be damned. Soon they started to dominate dictating how the doctor could generate more money for the institution – suddenly the patient care became "Product", the doctor became a "Care giver" and the patient, a "Care receiver". The gadgets and procedures became good methods to squeeze more money from the patients. Suddenly the humble MBA had become a Frankenstein created by us doctors- we did not want to take care of ourselves because we thought we were "too busy". Soon he decided how to manipulate the doctors to earn more. Insurance waiting in the wings was ready to enter. It grew and became very powerful even before we could understand it properly. It started to see how the doctors' payments can be capped and effectively reduced. With 6 links in the chain, the proportion of doctor's emoluments to the total hospital bill was greatly reduced. The funny part is that the patient thought at least 50% if not more went to the doctor – who was the face of treatment. In reality it was not even 5% of the total bills (excluding the special procedures done by a few).



A rare photo – With both my mentors – Dr BM Hegde and Dr KP Ganesan .Release of my first book on chest x rays – went on to be a best seller

Almost at the same time, the fee structure, entry into the course and the methods of training evolved too. The medical education became a "Product" with the seats (other than top merit) would be grabbed by those willing to pay large sums. As expected, those students may not be very keen on doing difficult duties and work in unclean places with unattractive environment. Naturally after paying so much one cannot expect sympathy and empathy in charging the patients.

With every other new link of the chain of Clinical medicine showing significant growth, the brunt of the burden of dissatisfaction had to be borne by the doctor. The patient never bothered about the "larger picture" and blamed the doctor for anything that went wrong form their views. If a person dies of a bus accident due to "pot hole dance" forced on him, only the doctor was targeted. The road maker, the engineer, the bus driver, all got away scot free. While the doctor was busy dodging the blows the MBAs were merrily running all the way to the banks – almost so. This is not because the patients are that dumb but because the doctors are easy targets.

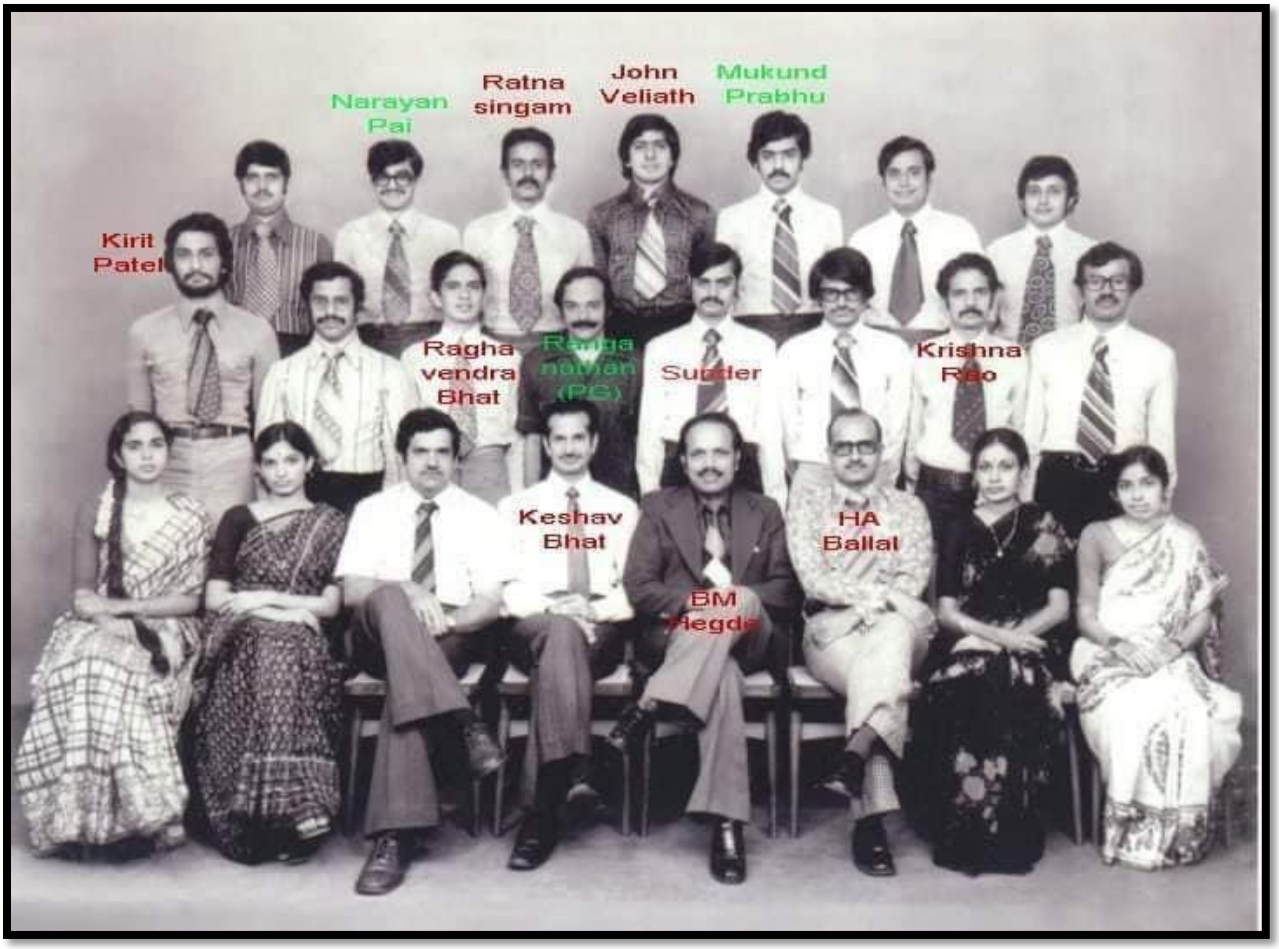
I just cannot forget the 2 more links that joined in quietly and quickly – the big Pharma and the Unscrupulous Lawyers. The doctors were tempted to use new expensive drugs instead of good old drugs which still worked well. One might ask – "whether the doctor had a choice"? I must say a large majority of doctors steered clear of these links and my special respects to them. I was fortunate to have such colleagues and teachers which is why I adore each one of you. The "accident chasing lawyers" joined the fray instigating the patients and telling the patients that they could pay only if they won the case (a hefty part of the compensation though).

The latest link in the chain which proved to be almost the last nail in the coffin for clinical medicine came in the form of Covid-19. The consultation went online, patients realized they can pay less or not at all. The salaries of doctors went down. The expectations from those doctors who decided to work in the from sacrificing their lives went up. Some institutions offering Covid Care pounced on this opportunity hiding behind one of the oldest proverbs – "Make hay while the sun shines".

Now dear friends this is clinical medicine now – bogged down by the chain with 8 links pulling it down. It is little wonder; therefore, we get to see less and less of it.

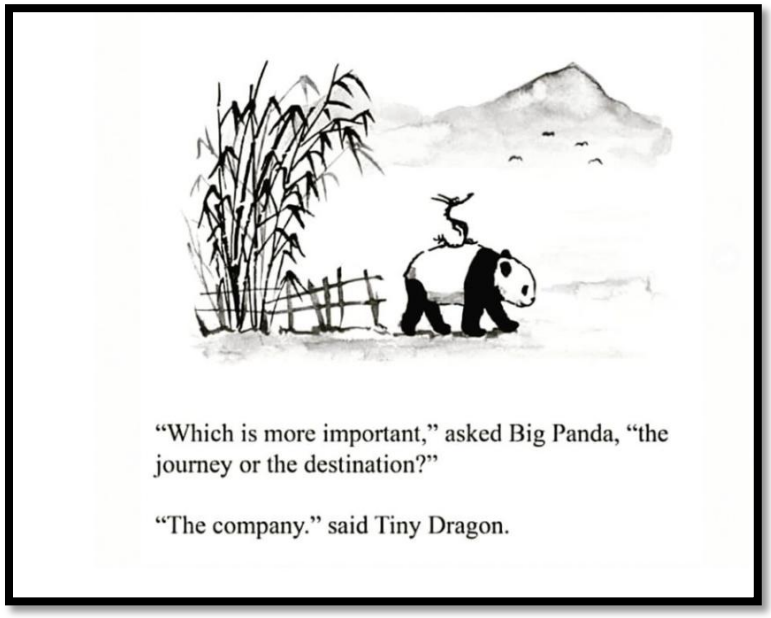
Is there any way out of this by which we can at least to some extent get the clinical medicine to its good old for one would urge some doctors to specialize in hospital administration, some in medical law and all doctors from the chosen field to build hospitals together and cooperate. I am sure hospital built by physicians would offer the best medical care and the one built by the surgeons would offer the best surgical care. A hospital run by doctors occupying positions at all levels can offer the services at most competitive prices.

I do not say all is lost. Before things go out of hands, we doctor must voluntarily mend thinks that are bringing unpleasantness in the system. I am very optimistic that some changes like bulk purchase of drugs and devices and supplying these at affordable rates (of course with a decent profit margin) would rebuild the patient's confidence in the doctor. It is important to educate the patients about their illnesses and situations as a routine so that they have realistic expectations. Despite all advances and modern gadgets and devices, the medical science is not a perfect science and will never be. Also, it will be a good idea to spend more time with each patient particularly when the outcome does not look favorable. Reminding the patients that doctors are not Gods or agents of Gods is essential. Time has come to compare the treatment costs in India with similar treatment offered abroad particularly in the west an exercise to be performed with each patient in each situation. Every patient must be made to understand this. Finally, it would be a great idea to save the clinical medicine at eh earliest as this would bring back the old glory of the doctors.


Narayan Pai
Ratna singam
John Veliath
Mukund Prabhu
Kirit Patel
Ragha vendra Bhat
Ranga nathan (PS)
Sudder
Krishna Rao
Keshav Bhat
HA Ballal
BM Hegde

The Team

"The Mentors and Soldiers of change" Mentors"

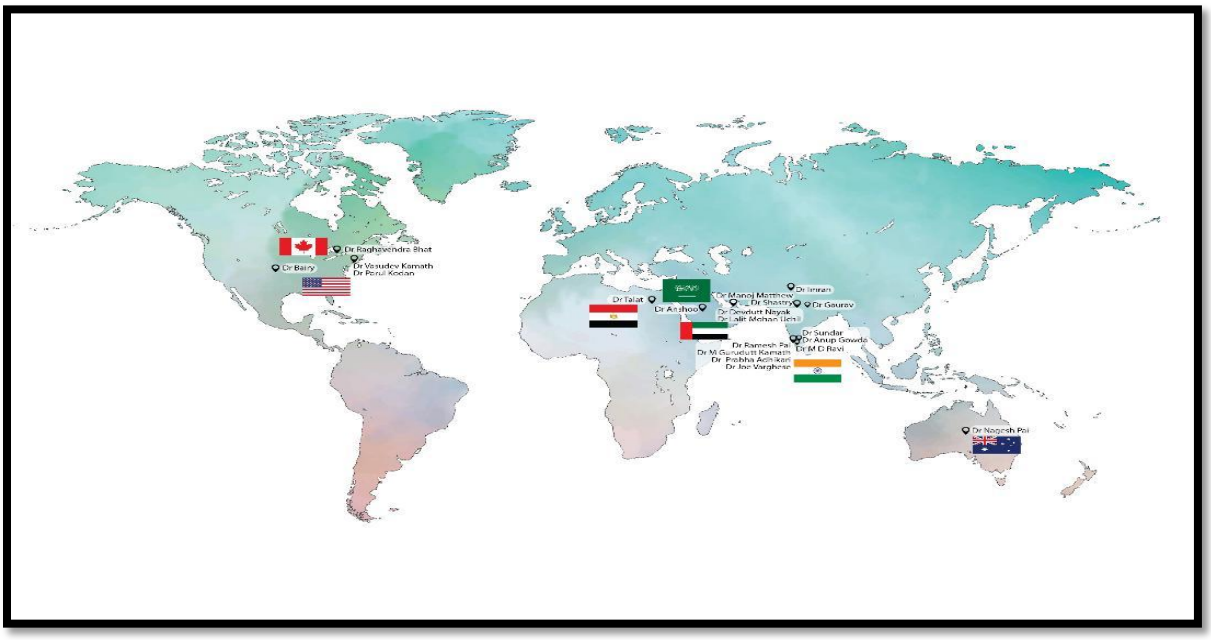


Being offered to be the Guest Editor for a well-balanced journal is a great opportunity. The theme of the current issue "The art and science of clinical medicine" gives the author a wide choice to express his opinion and deal with the facts. I selected about 40 doctors from various fields who I thought had some concrete experience and opinions and an ability to convey them clearly. About one hlaf of them responded positively to the message requesting them to participate as authors. The basis for the selection was passionate involvement in whatever they did. Hard work with an expectation of a reward or recognition is good. The it is the passion induced efforts even without rewards reflect the true involvement.

A word about each person who contributed to the journal. It is of course impossible to make justice by highlighting only one point about each – I have made a sincere effort.

Dr Ramesh Pai is the face of hard work – fortified with commitment and laced with humor he discovered a great recipe for Administration. Once he ran all the way from his home at dead of the night to attend an emergency in a small hospital because his car had broken down – showing that he believed in hard work and results rather than excuses.

Dr Laxminarayana Bairy has the special skill of being unperturbed in any situation however adverse. Gifted with great common sense and long and varied experience, he can rise to an occasion which is indeed a requirement for leadership. His involvement in Yoga, Meditation and fitness have helped him a lot too.



Dr Sundar Sankaran has been able to seamlessly transform from a committed student to a committed Professional. He has grown with and contributed richly to the filed which literally gives a man a “second life”. He is loved and revered by his patients and students alike. He ahs been receiving a spate of awards justifying his tireless efforts in the fields of teaching and treating patients in Nephrology.

Dr Shasthry is a young Gastroenterologist – the next Gen doctor who has grown with innovations and almost magical transformations – witnessing the transformation of Gastroenterology from approximate art to almost an exact science and being a part of it in a world-famous organization.

Dr. Nagesh Pai is the epitome of perfection of meticulous Professionalism. Naturally he rose form an excellent student to one of the best-known Psychiatrists in Australia. One of the best qualities I appreciate in him is to still remain a student and open to earning which has helped him be a great teacher.

Lt col (Dr) Gaurav Kulshrestha is the face of Compassion in clinical practice. This quality of his was first brought ot my notice by my mother when he helped her as an intern while she was hospitalized. Recently one of my current students expressed exactly the same opinion about him (as her child’s pediatrician). His serving in the armed forces is another feather in his cap and a matter of pride to all of us.

Dr Imran Rashid Rangaraze is a prized colleague – the “Right hand” of the department at the RAK. His commitment and skills have made him very popular with the students and colleagues alike. From “Switzerland of India” he reflects the beautiful culture of Kashmir in his personal and professional relationships.

Dr Devdutt Nayak is one of the best-known names in Neurology in the UAE. Behind the mask of simplicity hides the responsibility of being a mandatory signatory of the declaration of brain death and suitability of the donor organs from Northern Emirates for the ambitious organ transplant program at UAE. He is also responsible for selecting (by interview) and welcoming the new Neurologists to the Northern Emirates of UAE.

Dr Talat Tadross is the face of Psychiatry in the Northern Emirates of UAE. His special unmatched skill is to amalgamate philosophy into Psychiatry. He can dive deep into the mind of the patient during the interview a rare quality in the current era of tightly "clocked consultations". He adores every opportunity for learning new things from other fields and professionals and using these for his practice.

Dr M Vasudeva Kamath is gifted with great communication skills which match his excellent academic skills. His ability for meticulous observation and memory for events make him a natural Historian whom you can approach for refreshing the memory and updating the knowledge and sequence of past events.

Dr Anoop Gowda has transformed from a reliable, dedicated student to a compassionate, highly skilled, hard working Nephrologist. His commitment and passion seen during the days of his Residency have multiplied manifold making him a valued addition to the team of Next Gen Nephrologists.

Dr Joe Varghese is the epitome of a dashing hero with a masterly communication laced with humor and sarcasm dipping alternatively into Science and Religion. The roles of being a Brilliant practitioner, an excellent teacher, a masterly orator, a responsible administrator all come naturally to him.

Dr MD Ravi has always been the best in everything he did. No wonder he could seamlessly transform in his career from being the top student to a top Pediatrician to a Top Admintrator doing his best at all times. He is the face of Dedicated Hard work converting the impossible into possible.

Dr Manoj P Mathews was a friendly trusted colleague during my Attavar days. Hidden behind his charming, million-dollar smile is great sense of responsibly and in-depth knowledge of basics and protocols in Medicine. No wonder he is a great teacher, excellent professional and a much sought-after Doctor!

Dr Gurudutt Kamath a long-term friend and colleague of many years (like Dr Devdutt Nayak) – my official Ophthalmologist and well-wisher – knows a lot about almost everything – hopefully he will not tell you things about me which you do not know. I get my updates every week through chats with him which I eagerly look up to

Dr Anshoo is a very highly loved teacher of Pathology with a worldwide presence. She is liked loved by all her students present and past. She is a house hold name in excellent teaching among the students of UAE, Saudi Arabia, India, Malaysia and many other countries. She ahs contributed significantly to the building up of the Pathology departments where ever she

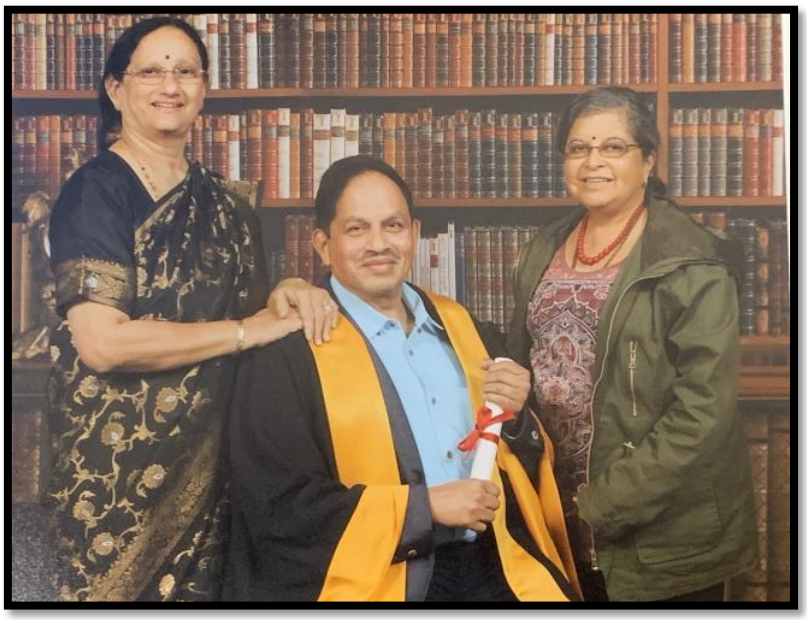
worked. With a dep knowledge of Learning – Teaching and assessment techniques and quality matters, she is the natural trainer for teachers.

Dr Parul Kodan is a versatile genius. An excellent student, very good researcher churning out journal articles regularly, winner of many awards. In getting the most coveted international awards, she beats the chance factor too! Currently planning to pursue a fellowship in the US she is a pleasure to work with and never refused to help me!

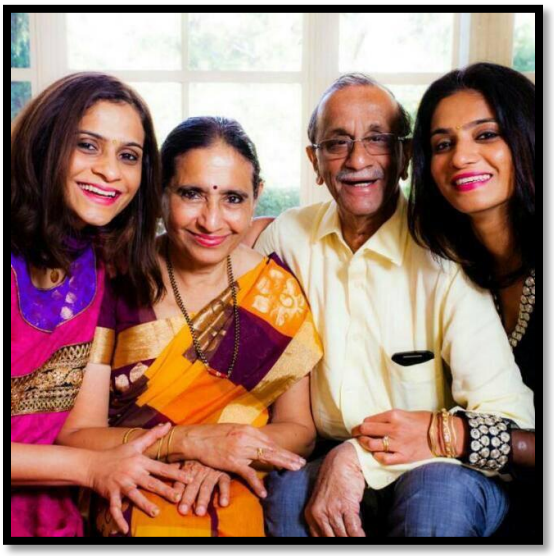
Dr Lalit Mohan Uchil was and continues to be the face of subtle humor. He with his best friend Dr Sujit Vasudevan were a inseparable pair during the Post-graduation. They were very well known for their academic excellence and witty pranks.

Dr Prabha Adhikari is the embodiment of dedicated passionate involvement in whatever she does. She succeeds in her efforts and exceeds expectations with excellence. She is the face of Geriatrics in Mangalore I saw the specialty start, evolve and bloom with her efficient, personalized handling giving a different dimension for Clinical Medicine

Finally, there is one team member who worked relentlessly behind the scenes to put things on order and in place .I must sincerely thank and congratulate Dr Archith for his “silent efficiency” and helping me at every stage - reminding me of the same qualities during his Residency with me.



A TRIBUTE TO OUR MENTORS AFTER FIVE DECADES OF GRADUATION



Dr. Ramesh Pai. Professor of Medicine, AJIMS & RC , Mangalore

We the 1966 batch of KMC students had the best of teaching both in in Manipal and Mangalore. I joined the batch in 1967 July-August as a direct entry to I MBBS. The eighteen months spent in Manipal transformed us from the ordinary science students into budding future doctors. All this was possible because of great teachers in Anatomy , Physiology and biochemistry.

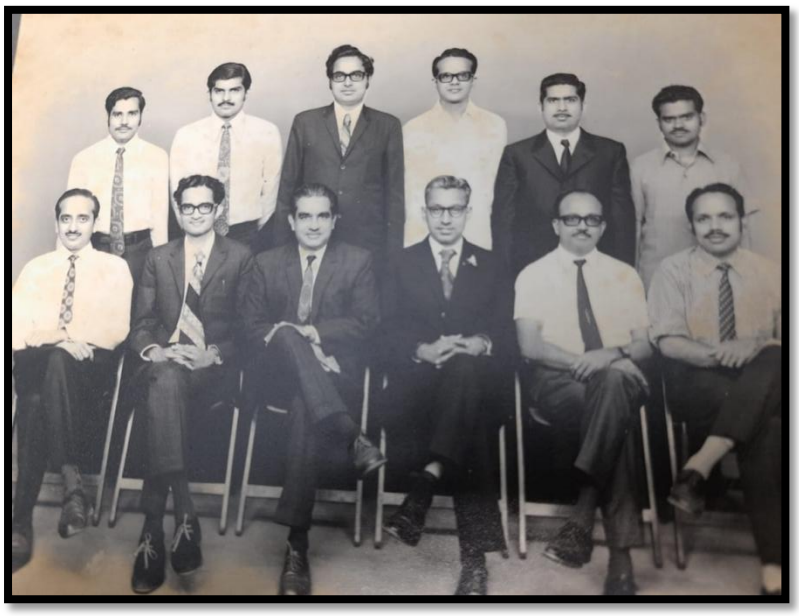
Professor Krishna swamy referred to as Mama was HOD of anatomy was an avid teacher.

To instill love for the subject he created a post of prosectorship, wherein the senior students with merit in the terminal examination were made to teach the dissection of cadavers for the junior students. That made us earn and learn and the remuneration was rs. 125/ - month, a big money by any standards those days. He was ably supported by Professor Raj Gopal Rao, Professor Manghir Malani and walking encyclopedia of Anatomy in the form of T Umesh Ray Pai(Subsequently he migrated to the US , passed his Board Examination in Anaesthesiology. Then he died at the ripe age of 80 in the US).

Dr. Krishna Rao, THE DEAN, for more than 3 decades in Manipal taught us Physiology. Very strict disciplinarian but with a love for the students and teaching. He readily agreed to keep the central library open till 1AM on our request. He talked to us on Parkinsonism , when he joined us in 2008 for our 42nd class reunion . On our request he even demonstrated the posture and gait of parkinsonian patients and as he did in 1967.

He was supported ably in teaching by Professor Kireeti and Ms. Gore. When we entered the Government Wenlock hospital in 1969, we were trained in clinical skills by the stalwarts in their

fields , like Dr. M.V.Chari, Dr. K.P.Ganesan, Dr. Keshava Pai, Dr. A.V .shettyDr.K.R.Shetty,Dr. B.M.Hegde and Dr.B.N.Gadiyar.

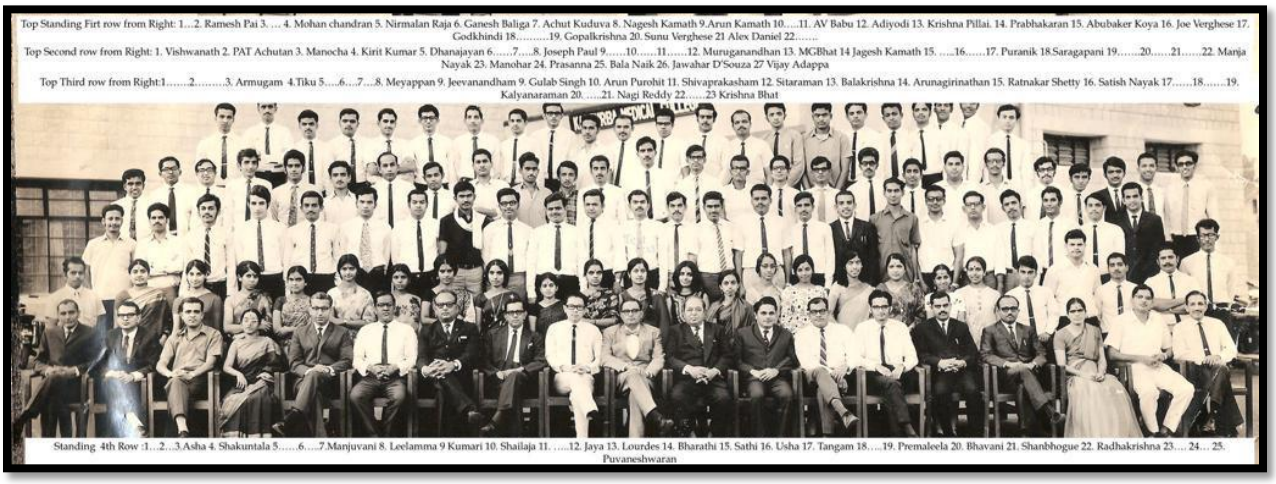


They were so dedicated in teaching undergraduates and post graduates , we were eagerly waiting for their bed side teaching on a stipulated day. They were non corrupt, they were known for their self less service to humanity , punctuality in their hospital work and lecture classes.

Professor Dr. V.R.Bhat to whom I have an extra affinity because I had seen him from close quarters from my young age. He was our family physician and by looking at the way he conducted himself while treating our family members I took a liking for the profession . He taught us basics and finer aspects of diagnosis and management of tuberculosis.

Dr. M.P. Pai, Dr. M.V.Shetty, Dr. M. Srinivasan, Dr. U.K. Kini, Dr. K.K.MadhavanNambiyar and Dr. C.R . Ballal, they taught us approach to a surgical patient.

Dr. H.T. Manorama Rao, Dr. G.Radha, Dr. R.S. Mahale and Dr. Bharathi Kamath taught us Obstetrics and gynecology.



All these great teachers moulded us into what we are today. There were no superspeciality department in Govt. Wenlock Hospital and senior teachers like Dr. K.R. Shetty, Dr. S.R. Ullal, Dr. K.R. Ballal and others formed a Mangalore Medical relief Society , to start all the superspeciality subjects like pediatric surgery, cardiology, cardiothoracic surgery, Neurology, Neurosurgery. Thus helping the poor public of south kanara and neighbouringdistrics the benefits of the speciality treatment. Thanks to all of those and professor S.R. Ullas conducted open heart surgery with T.A. Bailur , as a Pumpologist with able anesthetist Dr. T.A Koshi . It was the first successful open heart surgery done in Mangalore.

Simultaneously hemodialysis was started for chronic renal failure patients

DR. M. KESHAV PAI

Ruggedly handsome with a bewitching smile and bushy eyebrows giving stern look but with a soft and golden heart. He took keen interest in teaching students with subtle humor always.

After joining KMC Mangalore in the dept. of Medicine, he proceeded to the UK to pursue higher studies and acquired MRCP, DTM and H and FRFPS. He obtained gold medals in these exams. He could talk for on tropical diseases for hours like Malaria, Typhoid, Tick borne diseases etc. Thorough in clinical examination and most of the time he could give a clinical diagnosis by history alone.

I had the fortune of passing through his unit as an undergraduate student and by rotation as a post graduate student and as an assistant till he retired from the department.

Anecodotes: An young boy with bilateral ankle joint swellings was admitted with high fever, constituitional symptoms and dysuria. Dr.Keshav Pai enterd the ward , after listening to the history he asked whether his gleet was examined . Next morning gleet was examined and the report came as gonococcal urethritis. I asked how he could clinically say gonococcal arthritis. He in his inimitable style experience my boy , NOT PERSONAl BUT PROFESSIONAL.

There was a time scarcity of i.v. fluids in Govt.Wenlock hospital. Innovitively he made post graduate student Dr. Hire Gowdar start tender coconut water directly through i.v. route. Today we dare not do this heroics , mind you, all the gastroenteritits patients including those with cholera recovered without any side effects of direct infusion of tender coconut water.

Another innoviative treatment he postulated was to administer orally paste of pumpkin seeds to treat tape worm infestation.Fecal matter examination of those patients showed the entire tape worm having been expelled.

DR. K.R.SHETTY

Another professor branched out as a neurologist when the superspeciality started, introduced myelogram to diagnose cord compression and other spinal disturbances like Intervertebral disc prolapse. I had the privilege to assist him initially and there after I used to inject the dye Myodil through the LP needle and wait for him to position the pt. and shoot an x ray. – This was done because there were no CT or MRI available in those days.

!967 to 2022 has been a satisfactory journey in the art and practice of medicine, with ups and downs, bouquets and brick bats. Humbly and with lot of gratitude I salute all these great teachers.

The art and science of clinical medicine

The factors that make Clinical Medicine more effective

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Introduction

The medicine aids in a person's recovery from a condition. Man has been battling numerous human ailments since the beginning of life. The advancement of medicine has allowed for improved management of human disorders because of the growth of numerous scientific fields. Due to diverse cultures and civilizations, ancient medicine varied around the world. Later, the blending of cultures from across numerous racial, cultural, and geographic boundaries strengthened this. Due to these enormous changes, the definition of medicine itself has experienced numerous mutations.

Medicine: Science or Art?

It has been asserted that medicine is both a science and an art. Many professionals believe that this phrase has a "either/or" clause. It hardly needs to be stated how closely scientific and artistic endeavors resemble one another. A scientist's persuasive demonstration may be as aesthetically pleasing as a piece of art. An insightful statement made by an artist frequently foreshadows a much more precise one made by a scientist. One can speculate about the enigmatic connection between science and the arts and how each sheds light on human existence in a distinctive manner [1]. Science is obligatory in order to study diseases. When nature is unable to heal herself, consummate art is needed to bring about a remedy.

Medicine can be considered a science due to its reliance on knowledge derived from in-depth research and testing. It is an art because how well doctors and other medical personnel utilize this knowledge while interacting with patients depends on their expertise. Scientific truths are not always accurate, contrary to what is believed to be true in the field of medicine. What is true today might be foolish tomorrow. In medicine, truth has a short half-life. Art is not just a part of the "medical humanities," but is also fundamental to clinical medicine as applied science. The study of medicine should be a scientific endeavor, and its application an artistic endeavor [2]. According to Warsop, science is undoubtedly important to medicine but it cannot

be solely equated with it or even with applied science [3]. The clinical listening and advocacy skills used in consultations are ultimate, what makes up the art of medicine.

Art of healing

The strong foundation of clinical practice continues to be the art of healing. It has evolved over time in accordance with human values and instincts and is eternal. Its major objective is to ease patients' anxiety and comfort them in every circumstance. If doctors had the human qualities of heart and mind required to support the patients' innate ability to heal, they may have been as useful in society as everyone from quacks to the most skilled practitioners of clinical medicine. Quacks who lack any scientific expertise treat the sick even in the countryside. They are accessible and compassionate toward the sick therefore people still accept them. The art of comfort and care remains the cornerstone of medicine, driven by millennia of common sense as well as a more recent methodical approach to medical ethics. Without these humanistic traits, the application of the current science of "medicine" is ineffective, harmful, or even harmful.

Empathetic listening skills, a relaxed demeanor, and a demonstration of an active interest in the patient's uniqueness are all characteristics of an "excellent bedside manner" [4]. Most of the time, medical professionals merely treat patients. The majority of the time, doctors only assist, safeguard, or promote a patient's innately healing processes. Although sometimes doctors alter or obstruct natural processes, most of the time, they just swap one sickness for another. Cardiologists frequently "rescue people from a relatively sudden death from myocardial infarction only to inflict upon them a more prolonged death from progressive heart failure" [5]. The rigid application of medical knowledge eventually runs out of options when it comes to preventing death or pain. However, the healer always has something to offer in the form of attention, understanding, compassion, and possibly even knowledge.

Some patients may truly value and need good bedside manners, while others may only need access to technical expertise. Doctors can assume a variety of roles depending on the desires and needs of their patients who are influenced by a range of elements like their social support, education, personality, degree of comfort, and familiarity with the medical system. Some patients prefer that doctors carry out their obligations in a straightforward manner and leave displays of compassion and empathy to close friends and family; others do not want their doctor to be thoughtful and empathic. Differentiating between these patients and others who are "putting up a good front" but are actually extremely afraid or suspicious might be difficult.

The latter type of patient requires a good bedside demeanor, and the art of medicine surely includes the ability to identify them. When a patient's condition deteriorates and they begin to wish for their doctor's compassion, they may lose the attributes that make them well supported, self-assured, and judicious.

Scientific proficiency

People usually do not visit the doctor for social reasons. Patients typically place their trust in their doctor's scientific proficiency. During the first patient-doctor interaction, the doctor's scientific knowledge is recognized. No matter how politely a doctor behaves, their patient's trust in them will be damaged, and this will make it more difficult to establish a therapeutic connection. Those claiming to practice the healing arts but lacking the necessary technical expertise are charlatans, not healers. This is not meant to imply that a lack of knowledge or expertise makes effective healing impossible. In order to assist in the recovery of a kid who requires extensive surgery for a congenital heart defect, a general practitioner must be able to refer the patient to a reputable surgeon and provide ongoing primary care within his/her area of specialty. Of course, such a patient has to be treated with compassion and age-appropriate preventive care.

“Heads” of the medicine

Every cricket game begins with the umpire tossing a coin to decide who will do the batting first. Every coin has two sides, but the two sides of proper medical care are not heads and tails. Both art of healing and scientific proficiency has a well-established history in medicine and are considered "heads" of the field. A lack of information and scant evidence supporting the effectiveness of treatments plagued the technical side in the past. The doctor frequently had nothing more to offer than a good bedside manner. There is still much to be done in terms of technical expertise. However, in our current ambition to advance science, we must not abandon the art of healing. The effective doctor polishes both sides of the medical care coin, despite the fact that they attract attention from different angles, apply to different patients to varying degrees, and are tested and measured in various ways.

Doctor-patient relationship

Medicine's core is the relationship between the doctor and the patient. The art of medicine compacts with the entire array of doctor-patient relationships. In addition to communication skills, the doctor-patient connection also demands the doctors to be kind and empathic [6]. We believe that all patients should have a personal relationship of trust with their doctors and desire to have their identities upheld when they are ill. Doctors have recently come under criticism, abuse, and mistreatment from the patient side. Here, the issue is not with the doctors' lack of understanding; rather, it is with their callous behavior and complete disregard for the emotional stress experienced by the sick person and their family members. The doctor should not let ethical considerations and the desire for empathy be subordinated to scientific medical practice.

Conclusions

A doctor must keep in mind the principles of beneficence, nonmaleficence, justice, and respect for autonomy concerning their patients. Doctors are anticipated to be at the forefront of fusing the science and art of medicine with the practice of genuinely shared decision-making to advance medical practice. The practice of medicine blends art and science. A doctor needs artistic talent as well as a foundational understanding of science in order to practice clinical medicine successfully.

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The Art and Science of Clinical Medicine

Role of Clinical Medicine in the Art of Healing

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"The practice of medicine is an art, not a trade; a calling, not a business; a calling in which your heart will be exercised equally with your head." Sir William Osler

The often-repeated question , much discussed in the present post covid Digital Era amongst doctors , patients, health care workers and administrators is ,has practice of Clinical Medicine become more a science and less of art?

Prof Dr Raghavendra Bhat, a dear friend, brilliant clinician and teacher par excellence, requested me to write on my thoughts on this topic. As a clinician in practice for over 4 decades, and having been in the medical field for over 50 years, let me run through my own experience and thoughts on this subject.

I was trained in the science and art of internal medicine by Padma Vibhushan Prof. Dr BM Hegde who now holds extreme views, that modern medicine is ailing, and quotes figures from USA which shows that medical errors is the third most important cause of death after heart attacks and cancer. He is of the opinion that in developing countries like India, one should not ape the western medicine and concentrate on our indigenous system of medicine like Ayurveda.

On the other side, we have many doctors who are scientists and researchers , who argue that Clinical medicine is ,and should be, more of science than an art. Advocates of scientific clinical

medicine say we practice Evidence Based Medicine (EBM) and they even say absence of Evidence is not Evidence of Absence!!

Medicine as a science is easily understood, even though it is an inexact science unlike mathematics, where 2 +2 is 4 .In my opinion and experience ,in medical science , it can be 3 , 4 or even 5!!

What about Art of Medicine? What does it involve? According to my former colleague and a brilliant clinician Dr Arvind Kasrgod, in his TED talk, Art of Medicine involves clinician to have Empathy, Integrity, Humility and most important of all Patient Advocacy .

The recent COVID 19 pandemic has been good, bad and ugly. Lots of scientific papers on its origin, treatment and vaccines have been published which is the good. The false data and so-called clinical trials from prestigious institutes and journals ,which later turns out to be totally cooked up, is the bad part. Countries and government playing dirty politics on the origin of covid and distribution of vaccines is ugly.

As a Nephrologist specialised in kidney transplant, I cannot thank science enough. But for the invention of the Dialysis Therapy, no one would be alive with severe kidney failure. Kidney Transplant is now accepted as a miracle cure for End Stage Kidney Disease.

Medical science over decades has helped us to eradicate small pox, polio, save millions of lives with treatment of Diabetes, infections including HIV, etc. The list is endless and we as doctors should be grateful to Medical Science.

Paul E Stepansky, in his book, In the Hands of Doctors (Touch and Trust in Medical care), says, “Two centuries of medical progress we don’t get sick and die. Now we get sick, get medical help which actually helps.”

Be it Insulin for saving people with Diabetes, or antibiotics to treat severe infection, or young women not dying during child birth, are due to marvels of medical science.

In my clinical practice over decades, I find Trust between the patient and doctor is the essence of cure. It is our duty as health care workers to get the Trust back into modern day medicine. I see this Trust slowly vanishing due to frequent litigations and fake news, especially in the easily available internet and social media.

So, is clinical medicine only science and no art involved? To answer this question, one only needs to read and listen to Indian origin, renowned Physician from Stanford University, Prof Abraham Varghese.

The blog from Stanford University says that Art is an adventure into the unknown.

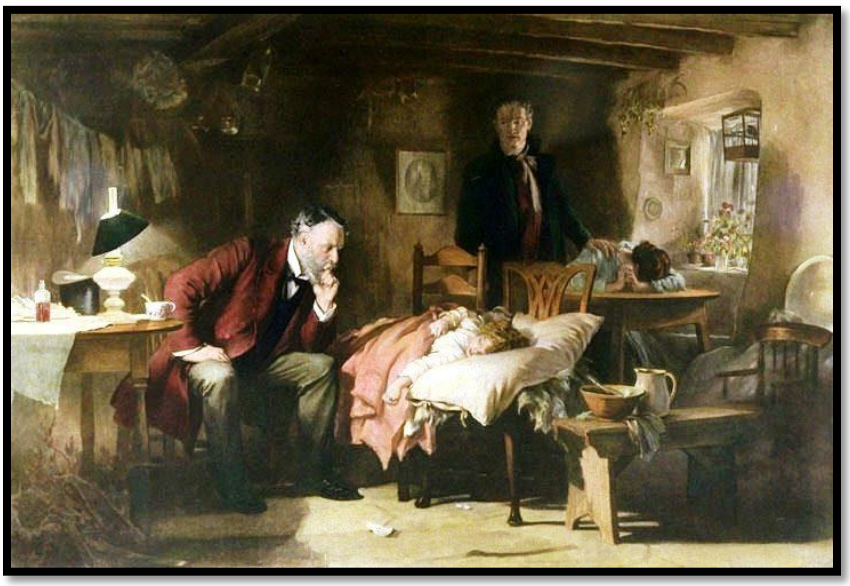
Dr Verghese practices this art of clinical medicine and teaches this to his students. This art is slowly getting extinct especially due to the Covid Era where tele medicine, video consults and cloud physicians have become ubiquitous and sine qua non with so called modern digital medicine.

Prof Verghese says “When we shorten the physical exam, we are losing the ritual that I believe is transformative, transcendent and at the heart of the physician patient relationship. He adds that “A physician’s role is to touch, comfort, diagnose and bring about treatment”.

American Physician Francis Peabody in his book **The Care of the Patient** says, (from Peter Stepansky’s book)

“Disease in man is never exactly the same as disease in an experimental animal, for in man the disease at once affects and is affected by what we call the emotional life. Thus, the physician who attempts to take care of a patient while he neglects this factor is as unscientific as the investigator who neglects to control all the conditions that may affect his experiment.” He needs to know his patient through and through, for, as has been quoted so many times in what soon will be a century, **“the secret of the care of the patient is in caring for the patient.”**

This picture borrowed from Prof Abraham Verghese talks



The Doctor is an 1891 painting by Luke Fildes that depicts a Victorian doctor observing the critical stage in a child's illness while the parents gaze on helplessly from the periphery. It has been used to portray the values of the ideal physician and the inadequacies of the medical profession

This is in 1891 is but still holds good in 2022 as medical science still cannot save and cure everyone despite advances in genome science, epigenetics, precision medicine, Artificial Intelligence and Machine Learning etc.

AI (Artificial Intelligence) and Machine Learning (ML) are the current buzz words in modern day clinical practice. The frequent question asked to me is will AI and ML replace us doctors and my answer is that AI and ML will certainly replace doctors who don't use AI and ML.

Over the last 50 years from the time, I joined medical school medical science has advanced in leaps and bounds and helped us to save lives, alleviate pain and suffering in our patients but the Art of medicine still remains the same since the 1800s when DrEdward Trudeau, founder of a tuberculosis sanatorium said.

"To cure sometimes, to relieve often, to comfort always,"

I summarise by saying that there is art in the science of medicine and science in the art of medicine.

As I am a Nephrologist and I end by quoting my favourite poet, philosopher Renal Physiologist

Dr Homer Smith

"Superficially, it might be said that the function of the kidneys is to make urine; but in a more considered view one can say that the kidneys make the stuff of philosophy itself.

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" ALCOHOLIC HEPATITIS – WHAT'S NEW IN MANAGEMENT?"

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Introduction:

Alcohol is a commonly used, the most socially acceptable and the longest available hepatotoxin known to mankind. Improved socio-economic status, changing lifestyles, and availability of better treatments for the non-alcoholic liver conditions (viral hepatitis), have all lead to the changing spectrum of liver diseases globally including India with increase in proportion of the liver diseases due to alcohol to nearly 50% of the total cases of chronic liver diseases[i]. The burden of alcoholic liver disease has rapidly increased in the past two decades and is expected to increase further in the coming years. The spectrum of alcoholic liver disease ranges from fatty liver, steatohepatitis, compensated/ decompensated cirrhosis, to hepatocellular carcinoma. Alcoholic hepatitis is the most florid presentation of alcoholic liver disease, with a substantial morbidity and mortality. History of significant alcohol intake and onset of clinical jaundice along with specific signs of hepatitis are all essential for the diagnosis of alcoholic hepatitis although laboratory and histological features are currently inseparable in the armamentarium for ruling out other etiologies.

Severe alcoholic hepatitis had significant financial and healthcare burden with limited treatment options[ii].For the last four decades, treatment of severe alcoholic hepatitis (SAH) has not changed much and steroids have remained standard of care in a carefully selected cohort of (SAH) with reasonable safety and limited efficacy. For those who are steroid ineligible, intolerant or unresponsive, no other specific options are unavailable. The current standard of care of alcoholic hepatitis and upcoming areas of research and potential future therapies have been discussed in this write up.

Definition of alcoholic hepatitis:

Alcoholic hepatitis (AH) has varied presentations ranging from -few signs, or clinical symptoms to liver failure. Clinical diagnosis* of AH is done by the following features –

- onset of jaundice within the prior 8 weeks,
- ongoing alcohol consumption [40 (female) 60 (male)g per day for ≥6 months] with <60 days of abstinence before the onset of jaundice
- AST>50 IU/ml, AST/ALT>1.5, and both values <400 IU/ml
- Serum total Bilirubin > 3mg/dl

Other clinical features like prolonged PTINR, ascites, hepatic encephalopathy, deep jaundice, spider navi, bilateral parotid enlargement, palmar erythema, tachycardia, fever may be present in various combinations. AH per se is a 'clinical syndrome' with a distinct histopathological corelates of 'alcoholic steatohepatitis' (ASH). Histological features of ASH- lobular inflammation, ballooning degeneration, Mallory Denk bodies, steatosis, pericellular fibrosis, with often coexistent presence of varied levels of fibrosis/ cirrhosis, may be present even in patients with minimal/no clinical symptoms or laboratory parameters. Liver biopsy is not essential for the diagnosis of AH, but it would be helpful in resolving clinical dilemmas and also to establish consistency in clinical trials. Accordingly, AH has been recently categorized into three categories-

1. Definitive AH- clinically diagnosed* and definite biopsy proven
2. Probable AH- Clinically diagnosed* without potential confounding factors
3. Possible AH- clinically diagnosed with potential confounding factors[†] (require biopsy for confirmation of AH)

[†]Confounding factors for diagnosis AH

- possible ischemic hepatitis, metabolic liver disease (wilson's disease/ alpha 1 antitrypsin deficiency)
- possible drug induced liver injury (drug intake within 30 days of onset of jaundice)
- Uncertain alcohol use assessment (denying history with strong clinical suspicion)
- Atypical laboratory tests (e.g. AST< 50 or >400 IU/ml, AST/ALT <1.5, ANA >1:160, ASMA >1:80)

Severity assessment of alcoholic hepatitis:

Many validated lab-based scoring systems have been in use to assess the severity and short-term prognosis of AH (table 1). The Maddrey's discriminant function (MDF)- **(4.6 x (prothrombin time- control time)) + Serum bilirubin in mg/dl**, has been the time-tested one and a score of >32 identifies high mortality (30-50% at 28 days) and a score of <32 identifies those with very low risk of short-term mortality. Additionally, MDF >32 identifies patients as severe AH, who would benefit from corticosteroids and a universal inclusion criterion for inclusion into clinical trials[iii]. Glasgow alcoholic hepatitis score (GAHS), is validated in UK, with a score >9 identifying severe AH patients who would benefit from corticosteroids. A MELD score of ≥21has been proposed to initiate corticosteroids, although it has not been validated[iv]. Lille score[v] is a dynamic model which incorporates change in bilirubin at day 7 after starting of steroids to assess steroid response (Lille score <0.45) and assess the benefit of continuing steroids while non-response (Lille score >0.45) predicts

poor prognosis and supports discontinuation of steroids and consideration of inclusion into clinical trials or liver transplantation. Combining static and dynamic models have been shown to outperform individual models and combination of MELD and Lille model outperforms other combinations such that for a patient with MELD of 21 with Lille score of 0.45 had a 1.9 times more risk for 2 month mortality compared to one with MELD of 21 and Lille score of 0.16[vi]. Other prognostic models using liver biopsy parameters have been formulated like AHHS score[vii] (using degree of fibrosis, degree of neutrophil infiltration, type of bilirubinostasis, and presence of megamitochondria, Histological activity score[viii] using semiquantitative scoring of Mallory Denk bodies and ballooning degeneration and Gene signature plus MELD (gsMELD) scoring[ix] system combining expressing pattern of 123 genes with MELD score have been shown to be useful in predicting the short term mortality. Other factors like presence of AKI, SIRS at admission, multi organ failures, infections or continued alcohol consumption are associated with poor short-term outcomes[x].

Table 1. Characteristics of Lab-Based Prognostic Scores in Alcoholic Hepatitis

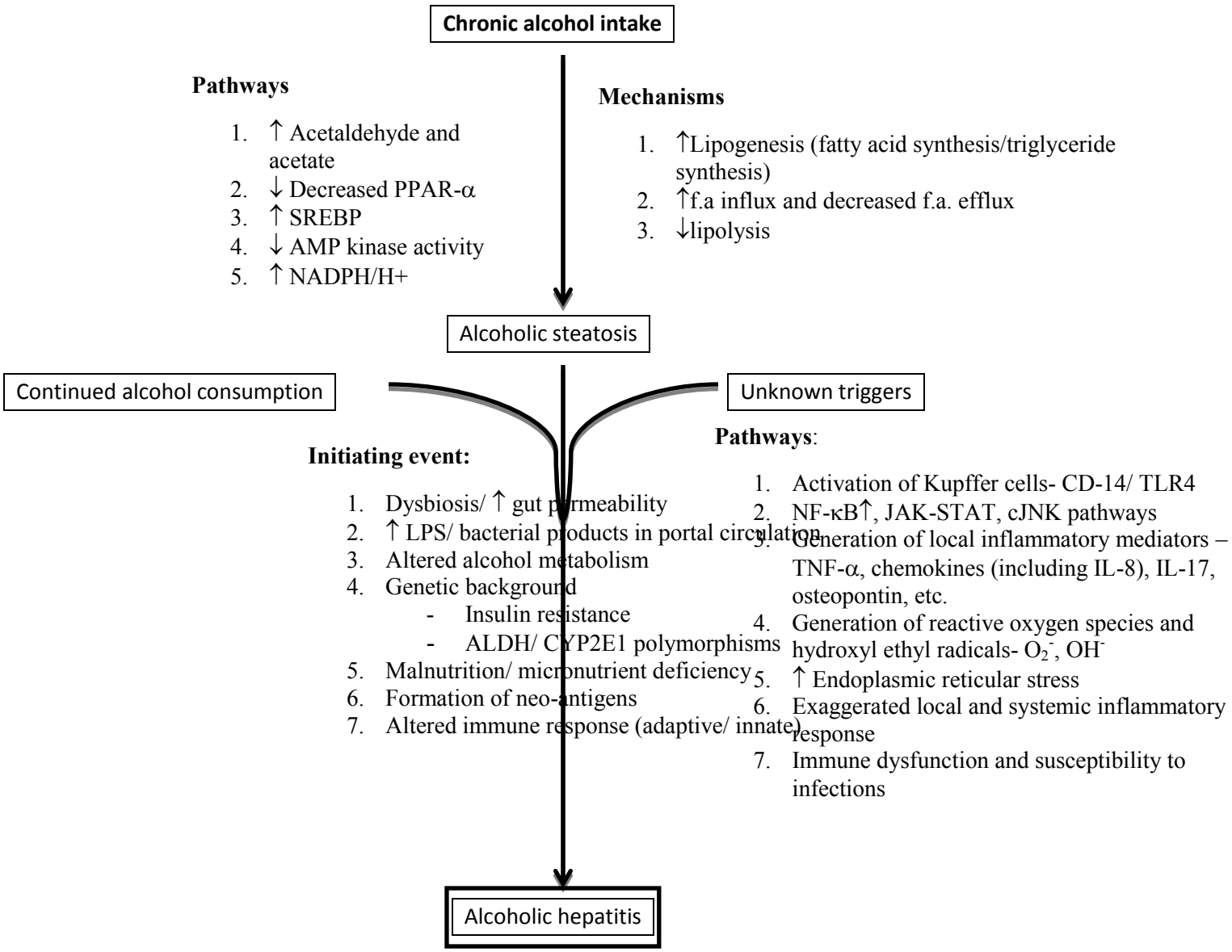
	Bili	**PT/INR**	**Cr/BUN**	**Age**	**Alb**	**WBC**	**Stratification**	**Clinical Use**
MDF	+	+	-	-	-	-	Severe: ≥32	Initiate corticosteroids
MELD	+	+	+	-	-	-	Severe: ≥21, but a continuous scale	Prognosis only
ABIC	+	+	+	+	-	-	Low: <6.71	Prognosis only
GAHS	+	+	+	+	-	+	Poor prognosis: ≥9	Initiate corticosteroids if ≥9 and MDF ≥32
Lille	+	+	+	+	+	-	≥0.45: Nonresponse <0.45: Response	Day 7 cessation or continuation of corticosteroids

Pathophysiology of alcoholic hepatitis:

Alcoholic steatosis is a complex process involving several mechanisms as detailed in Figure 1. Chronic alcohol consumption causes - increased fatty acid and triglyceride synthesis, enhanced hepatic influx of free fatty acids from adipose tissue and of chylomicrons from the intestinal mucosa, increased hepatic lipogenesis, inhibited lipolysis, and damaged mitochondria and microtubules, resulting in accumulation of VLDL[xi]. Some unclear trigger initiates of steatohepatitis, in patients with alcoholic fatty liver who continue to consume excessive alcohol. Gut dysbiosis, increased gut leakiness, altered alcohol metabolism, increased lipopolysaccharide release into portal circulation, genetic susceptibility and nutritional status deficiency have been implicated as the initiating event for inflammation[xii]and decide the severity of alcoholic hepatitis and cellular injury Figure 1.

Why only few chronic alcoholics develop liver disease and more so alcoholic hepatitis, why only few patients with alcoholic hepatitis respond to steroids and why only some of the alcoholic hepatitis patients are prone to develop infections, remain unanswered. The potential new treatments and key to better management of alcoholic hepatitis lie in the answers to the above questions.

Figure 1: Pathogenesis of alcoholic hepatitis[xi]



Management and outcomes of alcoholic hepatitis:

Abstinence: Abstinence is the most important aspect in managing AH and it requires multidisciplinary approach with psychiatrists, hepatologists, psychologists and support groups. Continued alcohol intake in the setting of AH increases the risk of variceal bleeding, ascites, hepatic encephalopathy, and death[x]. All patients of AH should be advised to completely abstain from alcohol consumption.

Nutritional therapy: Patients with AH are typically malnourished and enteral nutritional supplementation is suggested by EASPEN consensus. Daily calorie intake of < 21.5 kcal/kg/day was associated with increased rates of infection and mortality at 6 months than those with higher intake (65.8% versus 33.1%; P < 0.0001)[xiii]. Usual nutritional prescription in a patient with AH includes 35-40 Cal/kg energy with 1-1.5 g protein/kg body weight, small frequent meals with late evening snacks with multivitamin and micronutrient supplementation. Improved HE and reduced infections have been shown in many meta-analyses with nutrition[xiv].

Corticosteroids: Steroids are the most extensively studied intervention in SAH (DF>32) with more than 20 trials addressing the issue, but the results are very inconsistent and controversial due to heterogenous patient selection and lack of power to detect survival benefit. In a large, multicentric STOPAH trial[xv], which prospectively included 1103 patients with clinically diagnosed AH, corticosteroids have not been shown to have any advantage over placebo in addressing short term survival (odds ratio [OR] 0.72; 95% CI 0.52-1.01, P = 0.06).In the latest pooled individual patient data analysis including patient details from the latest 11 RCTs, which included 2,111 patients, showed significantly reduced mortality in the corticosteroid treatment group compared to placebo (hazard ratio, 0.64; 95% CI, 0.48-0.86), representing a 36% risk reduction[xvi]. Very high severity of AH (MDF>90 or MELD>30) should be more carefully evaluated for ruling out infections, kidney injury and other contraindications before considering corticosteroids. As per the available data, corticosteroids should be used cautiously in select patients with AH without contraindications (UGI bleed, kidney injury or sepsis) with an intent to improve short term survival. Prednisolone is the usually used steroid given at dose of 40mg per day over 4 weeks with further tapering over next two weeks. Lille score is calculated on day 7 to assess response (score <0.45) and to decide on steroid benefit beyond 7th day.

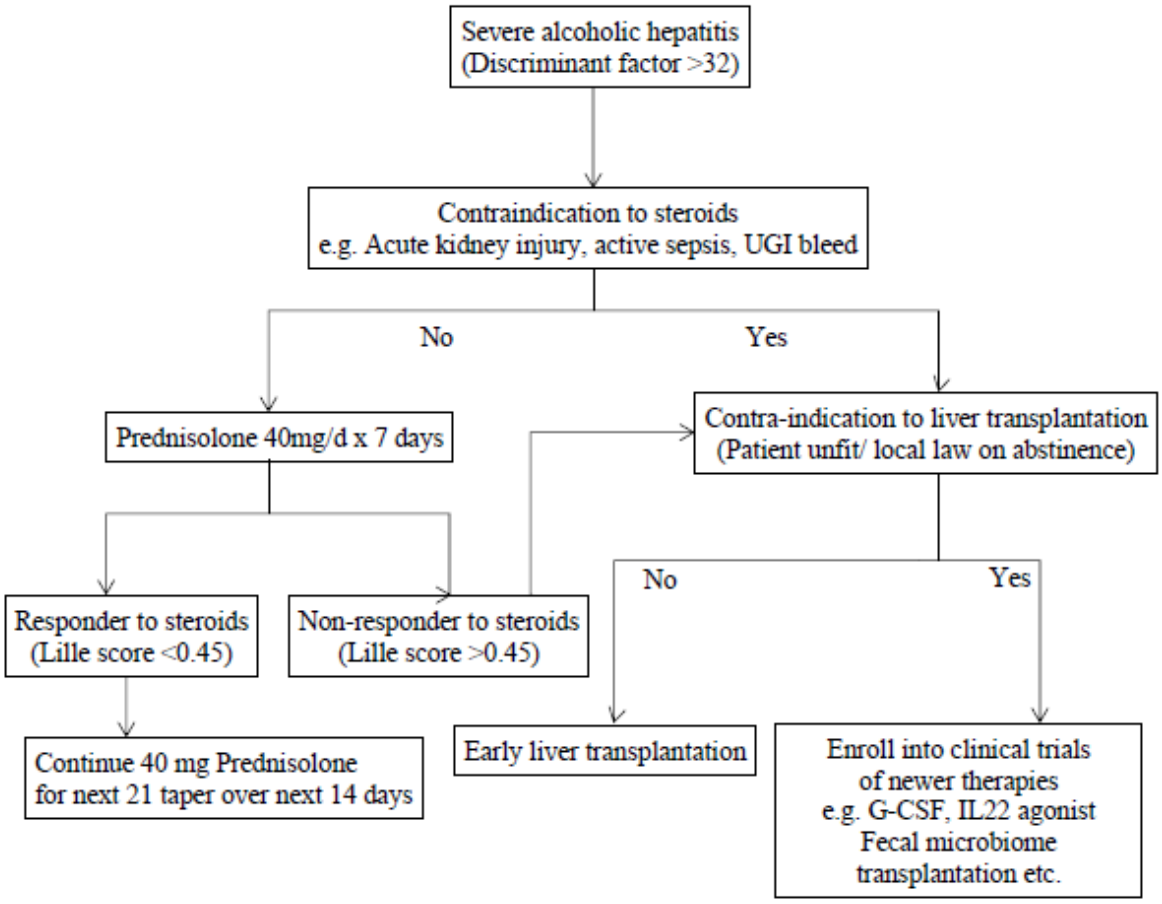
Infections are the most feared complication for the use of steroids in severe alcoholic hepatitis. Either with/ without steroid use, risk infections are expected in around 20% of SAH patients. But it is very important to screen patients on steroids for early detection of infections (by baseline and regular chest X rays, blood and urine cultures, and procalcitonin levels) and to stop at the earliest evidence of infection.

New therapies of alcoholic hepatitis:

- Granulocyte colony stimulating factor (G-CSF): is known to improve liver regeneration. Many recent studies have shown improvement in the 90-day disease severity indices with G-CSF therapy (12 doses of 300 μg each over 28 days), in corticosteroid naive[xvii] as well as non-response groups[xviii]. G-CSF is postulated to work by improving liver regeneration and as well by decreasing the incidence of infections. Results need to be replicated in more centers to be recommended for routine use.

- **Fecal microbiota transplantation:** Gut dysbiosis/LPS being implicated in the pathogenesis of AH, its modulation has gained attention in recent years in the management of AH with few early pilot studies[xix] showing good response and some RCTs underway.
- **IL22 agonist(**F652)**:** F652 (a recombinant fusion protein consisting of human interleukin 22 (IL-22) and human IgG2 Fc fragments), a IL22 agonist, due to its antioxidant, anti-apoptotic, anti-steatotic, anti-microbial, and pro-proliferative effects has been evaluated in patients with AH and has been found to be safe and effective in doses up to 45μg/kg with higher rates of improvement as determined by Lille and MELD scores[xx].
- **Liver transplantation (LT):** Until recently, 6-month abstinence was adhered by most of the LT centers, which would practically exclude all the patients of AH who are left with no definitive treatment option once they become non-responsive to medical management and hence have a very dismal short term prognosis. A very encouraging short and long-term survival has been documented by a retrospective UNOS data[xxi] and as well by Mathurin et al[xxii] in patients of severe AH undergoing early LT. With growing interest in early LT for AH patients currently AASLD has recommended that 'liver transplantation may be considered in carefully selected patients with favorable psychosocial profiles in severe AH not responding to medical therapy'[x]. The long term survival in those who undergo liver transplantation is mainly dependent on the continued abstinence from alcohol consumption which requires a multispecialty approach including a good family and social support.
- Treatments of no benefit- Pentoxifylline, tumour necrosis factor-alfa inhibitors, S-adenosylmethionine, vitamin-E, oxandrolone, and propylthiouracil have failed to show any benefit in patients with AH[x].

Figure 2: Approach to management of alcoholic hepatitis



Conclusion:

The burden of alcoholic hepatitis is on the rise and the proportion of patients with alcoholic hepatitis is rapidly increasing with better treatment options of viral liver diseases. The morbidity, mortality and the treatment options for the management of alcoholic hepatitis have not significantly changed in the last many decades. Currently (Figure 2) steroids, and nutrition remain the only acceptable treatment options in only a small proportion of steroid eligible patients with AH. Options in steroid ineligible and non-responders remain a huge challenge.

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Is it necessary to debate whether psychiatry is a science of art or art of science?

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Science is a complex trial-and-error based historical process that can be threatened by those who overly believe in it and disregard its limitations. The medical profession is based on diagnosis and the identification of diseases; thus, doctors need to diagnose. But once the disease has a name, it is easy to treat it either in separation from the person with the disease. When disease is treated like an independent entity and is the focus or the only object of care, a clinical construct is confused with an ontological category equated with the patient.

Psychiatry is one of the very few fascinating disciplines where science and art of medicine exist simultaneously. At one end it focuses on brain functioning, empirical methodology and universally applicable evidence; and at the other end, with the humanities, that focuses on cultural relativity and the limitations of the scientific method when studying the mind. Part of the problem is the ambiguous use of the term 'science'. When we ask if psychiatry is a 'science', what do we mean? We might quite earnestly refer to 'the scientific method'; we might mean 'evidence-based' or 'based on previous observations. On the other hand, in person-centred care comprising listening, compassion, and communication – are reasonably called the 'art' of medicine'. By requiring more behavioural interpretation, more communicative prowess, more psychological insight, maybe psychiatry is even more of an art than other areas of medicine.

The scientific methods of medicine in the practice of psychiatry have benefitted the explanation-prediction-control brought about by advancements in classification that have led to a successful black-box, 'one-size-fits-all' therapies for mental disorders which are available off the shelf to enable mass treatment. One case of a disorder would be expected to behave like all other cases of that disorder, and the same treatment would work for all. There are several problems with such a view.

First, there is no personal element in or expression of the disorder, which would be able to change the course of the disorder and the requirements or necessities for treatment. Since there is no personal involvement, there is also no need for the person to heal via a process of transformation of the kind realized by the mind. Second, this approach of uniform therapies comes from the natural sciences and is biochemically based; it assumes there is a biological map of the disorder, which is independent of the individual—no matter to whom it belongs, the treatment would be identical.

Even in internal medicine, clinicians are now increasingly realizing that the biological makeup of the disease cannot be treated independently of the person with the disease. If only, because the person will develop personal reactions to being diagnosed or being ill as well as personal ways to interact with the disease and the treatment which affect the biological profile or course of the latter two. Hence there is a justified demand to meet scientific advances in medicine with matching advances in humanistic capacities for personalized clinical practice.

Technological advances in psychiatry

Recent advances in technology now allow psychiatrists to monitor and connect with patients in an unprecedented manner. Internet interventions and digital tools like cellular phones have tremendous potential to affect patient care positively; with effects rapidly expanding around the world. Psychiatrists are increasingly using digital technology to interact with and communicate with patients.

It is widely held that the humanities are as important as the sciences in psychiatry. Psychiatry is both the art of clinical practice and the science of research into illness and disease, and that the former is what psychiatrists are talking about when they consider their profession as a 'humanity'. Psychiatry is not necessarily any more or less of a humanity than other areas of medicine, which have the same application–science divisions, although psychiatrists themselves do consider their field as different to the other specialities.

The good news for those of us who believe in the art of psychiatry is that a rapidly changing world that is becoming extensively computerized is not a threat to our jobs. We will not be able to be replaced by computers because psychiatrists must understand people and have a profound understanding of the language and culture of each of their patients. Computers cannot do that. We live in a complex, rapidly changing automated world and whether psychiatry is scientific, which I am nearly convinced that the idea that current psychiatry is scientific may be seriously flawed unless you have a good understanding of science's limitations. This is not an original idea; in the last few years, during which the DSM-5 has been developed by the American Psychiatric Association (APA), there have been major controversies in psychiatry. During current times in which "science" is considered the ultimate and only source of truth, people outside of our profession referring to psychiatry as "not scientific" may appear to be fuelling the worst possible public relations disaster.

In defence of Psychiatry being scientific, Guze, an American psychiatrist was one the leaders of the neo-Kraepelinian movement that rescued psychiatry from the 'kidnappers', the

psychoanalysts over half century ago; his book titled 'Why Psychiatry is a Branch of Medicine' defends his position. Unfortunately, serendipitous clinical observation rather than science led to the discovery of all three major classes of psychiatric drugs: antidepressants, antipsychotics, and anxiolytics. The scientific basis of how these drugs help to alleviate mental disorders remains unknown. Even in the 21st century psychiatry is pursuing anatomic-clinical, physio-pathological, and aetio-pathological methods; unfortunately, with no success. Some psychiatric disorders, such as personality disorders, do not fit the medical model or the methods of the natural sciences. To manage psychiatric patients, a psychiatrist must frequently use understanding, a method from the social sciences such as history. A comprehensive history is used to establish whether a depressive mood is part of an adjustment disorder, part of a biological illness such as bipolar disorder, or symptomatic of a severe form of major depressive disorder traditionally called melancholia

How do we resolve these issues?

It is important to acknowledge the limitations of the language and diagnostic systems we use on behalf of our patients. The psychiatric disorders that mainly adhere to the medical model (e.g., schizophrenia, bipolar disorder), where the risk-benefit analysis for biological treatment is reasonably in favour of benefits, engage the patient in the best possible biological treatment, according to our limited knowledge and what is practically available. On the other hand, those disorders where a variation of normality and/or a life-story issue predominates (such as personality disorders) be careful with the use of medications since their effect sizes are small when compared with placebo, be very conscientious about the risk-benefit analysis for prescribing drugs, thus it is best to engage the patient in psychotherapies.

It is important to acknowledge that science is a 'complex trial-and-error based historical process'. This is further complicated by changes in the fashion of medical education. We have

moved away from classical apprenticeship and mentoring model to evidence-based medicine (EBM) with an illusion that EBM is the answer to all our problems. The fact is EBM is seriously limited because medical evidence itself is limited, particularly in psychiatry. Finally, it is important to acknowledge that psychiatric symptoms stem from a range of sources. When psychiatric symptoms are closely related to brain signals, as in patients with “neurological” disorders, a neuroscience approach and methods such as brain imaging make sense, since these symptoms can be explained by a brain disorder. When the psychiatric symptoms are mainly connected to interacting with other people, a natural science approach and methods such as brain imaging make little sense. Thus, psychiatry is both a ‘science of art and art of science’.

The Art and Science of Clinical Medicine

Why the Good old Clinical Medicine needs to be revived

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An otherwise healthy 23-year-old man was hospitalized with a life-threatening pulmonary embolism, but the medical team was unable to identify the source of the emboli, despite undergoing all possible diagnostic work-up. The patient was recommended to start on anticoagulants, but that would put an end to his career as a sportsman. It was when an experienced doctor examined the young man and noticing that his patient was very muscular, he performed a simple test known as Adson's manoeuvre: with the patient's arm straightened, the doctor placed a finger over the pulse at the wrist and then moved the arm behind the young man's back. When he asked the patient to turn his head, the pulse disappeared; when he looked forward, the pulse returned. The examining doctor thus deduced that the man was suffering from thoracic outlet syndrome, a compression of the blood vessels beneath the clavicle that cuts off blood flow to the arm. The problem was corrected by surgery, and a few months later the young man suspended anticoagulation therapy and resumed his workouts." Such instances have become common the daily practice, with clinical examinations reportedly becoming less common in medicine. The physical examination and proper history taking is dying because to time constraints, a growing dependence on technology, and fewer opportunities for bedside teaching; and "diagnosis time has been reduced to the time it takes to order an X-ray."

Clinical medicine: science or art?

Mankind has been battling sickness since the dawn of time. Science has evolved, so has medicine. [1] Many believe medicine to be a science, while another school of thought believe it to be an art. Another group believes that medicine is both a science and an art. "Medicine is

sometimes regarded a science, and sometimes an art; the purpose of medical science is to investigate disease," writes Rogers in his Introduction to the Study of Medicine. [1] While Solomon points out: “Medicine is supposed to be a scientific study and its practice an art. The study of disease requires the aid of science. Consummate art is required to effect a cure when nature is no longer able to help herself.” [2]

Saunders contends that art is essential to medicine as an applied science, which demands for what he terms a "doctrine of conventional empiricism," and not only a component of the "medical humanities." This is referred to as an approach to inquiry that seeks to "advance objective knowledge and truth" as well as to offer justifications and comprehension. Although not strictly scientific, the activities that doctors engage in are crucial to the practice of medicine as a science. The art of medicine is comprised of these kinds of procedures developed using evidence-based medicine. [3]

The dying art of clinical examination and good history

In the general understanding, arriving at a diagnosis for most patients is built on three pillars of history taking, clinical examination and laboratory tests. [4] All three pillars importantly, though not equally, contribute to the understanding of the root cause of patients’ complaints. Even before conducting investigations, a skilled clinician can usually make the right diagnosis after gathering the patient's medical history and doing a proper physical examination. [4] The word "physical examination" has been around for a very long time. Depending on the medical knowledge that was available at the time, it had different meanings and implications in different eras, and it underwent several changes as medical knowledge changed over time. [5,6] The doctor's method of evaluating a patient using the five senses and minimal intrusion, the physical examination, weights more than the patient. [5] Since the time Egyptian, Babylonian, Chinese, and Indian physicians first examined the body thousands of years ago, physical examination has been a component of medicine. In ancient Greece, when Hippocrates started taking patients' temperatures, assessing their pulses, and palpating their abdomens, clinical reasoning and bedside diagnosis was considered important. Physical diagnosis didn't take off, though, until the 19th century, with innovations like percussion and auscultation—the tapping and listening, that doctors still use today. Sir William Osler, often described as the father of modern medicine, told his students: “He who studies medicine without books sails an uncharted sea, but he who studies medicine without patients does not go to sea at all.”
The art of taking a patient's medical history when treating illness and disease is becoming extinct, in addition to deficiencies in physical examination. The lack of time and the vast number of patients who visit most hospitals are the reasons for this. [7] Sir William Osler reiterated “Just listen to your patient; he is telling you the diagnosis.” Clinical diagnosis is primarily based on history (60%) followed by physical exam (25%), and investigation (15%). Therefore, there is no substitute for clinical skill. [8] The situation is evolving. The usefulness of the physical examination has significantly decreased over the previous two decades. This is a result of science and technology's advancements, which have sparked an increase in complex investigations that can be carried out quickly and precisely. In order to diagnose and treat patients, doctors are now more and more reliant on blood tests and imaging techniques like

ultrasonography, computed tomography, and magnetic resonance imaging. [4] The physical examination, which was previously seen to be the gold standard for measuring a doctor's skill and importance to patient care, has slowly fallen out of favor. [9] Some clinicians have a propensity to depend more on laboratory data when making a diagnosis due to the rapid development of increasingly accurate laboratory testing. They rely less on the illness's past, the patient's examination, behavior, and clinical judgment. Even though test results are frequently crucial for drawing the right conclusions, it is important to remember that a doctor, not a machine, makes the final judgement. [8]

Impact of the COVID-19 pandemic

The ongoing coronavirus disease 2019 (COVID-19) pandemic has fast-tracked the side-lining of the physical examination by virtue of acceleration of telephonic consultation. In order to stop the epidemic from spreading further, telemedicine has changed the healthcare industry. Instead of "in person" visits, medical consultations are now conducted virtually. [10] Health care providers almost completely abandoned the physical examination of patients because it is regarded as a "high risk exposure" for the spread of infection. Instead, they prefer to evaluate patients using a standard set of investigations to understand their clinical condition and make a diagnosis. In all fields of medicine and surgery, missing or delaying the diagnosis might have serious repercussions if a physical examination is not performed. For instance, a physical examination is a prerequisite for making an appropriate clinical diagnosis of cancers of the oral cavity and cervical carcinomas. Additionally, medical schools have begun offering virtual medical training, which makes it challenging for students to study and conduct physical examinations and jeopardizes the acquisition of the already dwindling skill set. [11-13]

More recently, doctors, who once spent the majority of their time at the bedside, are seated in front of a computer feeding the electronic health record. They frequently order tests like CT scans, MRIs, and other sophisticated and frequently expensive diagnostic tests in the hopes that a diagnosis won't be missed and the need for the physical exam won't be overlooked. Verghese et al. [14] conducted physician interviews and documented instances when the physical exam was omitted or skipped in an effort to compile vignettes of physical examination oversights. They reported 208 clinical vignettes, where it was noticed that 63 percent of these events resulted because physical examination was not being performed, 14 percent of them were due to a correct exam finding that was elicited but misinterpreted, and 11 percent were the result of an exam sign that was either missed or not sought out.

Reviving and restructuring the dying art

Medical personnel now have fewer clinical skills due to their reliance on technology. Physical examination is rightfully considered to as a "dying art" and has already been supplanted by investigational tools in many clinical settings. [9] According to reports, the majority of physical examination inaccuracies that result in adverse consequences are caused by failing to conduct an examination. [14] By all accounts, technology appears to be replacing rather than complementing fundamental medical skills.

Concerns about teaching history-taking and physical examinations, particularly during the training phase at medical schools, were raised by Omori et al. [15] Prior research has

demonstrated that during the clinical years of medical school, basic clinical skills are not always reinforced for medical students. One study found that one-third of the residents did not spend any time at the bedside teaching physical examination techniques throughout their residential clinical posting, according to the medical interns. [16]

This calls for an urgent action to ensure that physical examination and proper history taking are not completely forgotten; starting right from the medical schools. It is time to coordinate the learning of these skills across all medical schools and reach an agreement on what should be covered in clinical skills courses. [15] The U.S. medical schools have correctly embraced the integration of clinical skills education through curriculum, and Indian medical colleges are slowly beginning to adopt it as well. Training of students in structured history taking and clinical examination, through modality known as objective structured clinical examination (OSCE) would decrease erroneous diagnosis due to such ignorance and manage a good number of patients in a shorter span of consultation time. In the Indian medical system, students take up pre-clinical subjects in the first two and half years of their training period. The subsequent years are allotted to clinical subjects.

Coordinating clinical abilities across the curriculum's range is important, both vertically (adding to or improving skills in each succeeding year) and horizontally (covering the entire curriculum - between concurrent basic medical science courses and bedside clinical trainings). Understanding the importance of and developing interviewing and physical examination skills should remain fundamental to the medical training, which should be inducted among the medical students concurrently with the pre-clinical courses, right from the beginning. [15] Competency-based medical evaluation (CBME) is being gradually promoted by most universities in India, which aims to integrate the knowledge attained in the pre-clinical training phase with the clinical skills acquired during the next years, to develop a wholesome impression of the diseases and relevance of history taking, physical examination and laboratory investigations to arrive at a proper diagnosis.

Conclusion

Both an art and a science, medicine. They are both inextricably linked and interdependent, like the two halves of a coin. In dealing with the human body, mind, and spirit, the art of medicine is crucial. One must acquire the necessary scientific knowledge to develop as an artist in order to practice medicine well. Even technology that has been covered in art can help the sick. [1]

It is time to acknowledge the importance of rigorous curriculum and instructional initiatives as essential to achieving excellence in the acquisition of clinical skills. Diligence in actually teaching and performing the physical examination and continuing efforts to improve bedside skills would diminish one kind of medical error and its consequences for the patient. [14] Competent fundamental clinical skills are essential for the effective application of the expanding body of knowledge available in medical literature, as well as the explosion of technology available to assist physicians. A key component of the training needed to produce doctors who can deliver outstanding, patient-centric and cost-effective care must be focussed on the development of clinical skills while embracing medical ethics, compassion, and empathy for the sick.

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Enabling Personalized treatment by judicious use of Art and Science of Clinical Medicine

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Introduction

"A science of uncertainty and an art of probability", that is how William Osler portrayed medicine. From time immemorial, man has been struggling to control disease. Medicine has advanced with the progress of science. It is thus built on the best of the past. Park (2002), discussing Medicine in Antiquity has rightly quoted Dubos:

Ancient medicine was the mother of science and played a large role in the integration of early culture. Ancient medicine across the globe was different due to vivid cultures and civilizations. In due course, this was enriched by integration of cultures across many geographical boundaries, races and ethnic groups. Due to this, medicine has undergone wide changes, so much so that its definition itself has metamorphosed many times.

What, then, is medicine? Many people think it is a science, others think it is an art. Another group is of the view that medicine is both an art and a science. Rogers (2006), in his Introduction to the Study of Medicine, says:

Medicine is sometimes considered a science, and sometimes an art; the object of medical science is to study disease.

Steve Solomon has tried to define medicine in the first chapter of hygiene library catalog of his website. In his discussion he differs from the view of Rogers quoted above. According to Solomon (2006):

Man should be studied in life and health-the influences on the body of food, clothing, bathing, and the daily care of the body. A live man, well understood, is worth more from a health

standpoint than thousands of dead men. The aim of medical art is to restore and maintain health.

He further points out:

Medicine is supposed to be a scientific study and its practice an art. The study of disease requires the aid of science. Consummate art is required to affect a cure when nature is no longer able to help herself.

I have tried to take steps here to unfold the mystery over the status of medicine by an in-depth analysis.

Is Medicine An Art?

In the clinic or hospital, we make many decisions without being able to cite specific applicable clinical studies. Clinicians base some decisions on their overall impression from the literature (including formal trials), some on general recall of a specific study and others on their knowledge of clinical guidelines or clearly accepted practice.

Most clinical decisions are made without any directly applicable data from available clinical studies. This is the “art” of medicine.

Another aspect of the art of medicine relates to how best to use therapies that have been approved. We have had antibiotics for many decades, but data are still being generated on how long to treat specific infections, and relatively few scenarios have been studied. Huge media coverage and (mostly) appropriate hype were generated over the need to treat patients with postmenopausal osteoporosis as diagnosed by dual-energy x-ray absorptiometry. But even after evidence emerged regarding atypical femoral fractures in patients receiving long-term bisphosphonate therapy, the question of how long treatment should continue remains more art than science. The field of anticoagulation has seen many recent advances. We have new heparins, new target-specific oral anticoagulants, and a lot of new science on the natural history of some thrombotic disorders and the efficacy and safety of these new agents. But how long to treat specific thrombotic conditions, which agent to use, how intense the anticoagulation needs to be, when to use bridging therapy, and when to resume anticoagulation after a hemorrhagic event mostly remain part of the art of medicine.

The revolutionary concept of Personalized medicine: A translatory component of medicine as an art

The speed and specificity of emerging genomic technologies and the availability of the complete human genome as a resource have allowed us to more efficiently search for gene variants responsible for drug actions and toxicities in populations and in individual patients.

Pharmacogenetics and pharmacogenomics examine how genetic composition affects both disease predisposition and response to therapy and bring the promise of a new era of "personalized medicine": delivery of the right drug to the right patient at the right dose .

In this regard, it is implicit Osler's quotation above acknowledges that clinicians have always strived to practice personalized medicine, based on knowledge of patient variability and the ascertainment of patient information, including family history.

Pharmacogenetics-based prescribing promises to be an additional and potentially powerful tool in the clinician's armament for a still-to-be defined subset of drug-prescribing situations. Current drug development and patient treatment strategies target large patient populations as homogeneous groups on the basis of population means, irrespective of the potential for variation among patients.

This "one drug fits all" method of drug development and use is oft en neither effective nor safe, with the consequence of high costs to the health-care system.

Evidence suggests that, in a significant proportion of patients (ranging from 30% to 60%), many important classes of therapeutic drugs show no clinically significant efficacy, resulting in unnecessary costs to the health-care system and failure to effectively treat disease in individual patients. Morbidity, mortality, and economic costs associated with the occurrence of adverse drug reactions also represent a large burden on the healthcare system, representing the fourth leading cause of hospitalization and being responsible for roughly 100,000 deaths per year in the United States, with an estimated annual cost to the health-care system ranging from $30 to $150 billion

Is Medicine A Science?

In what sense is medical practice understood as science? One way to preliminarily clarify this dimension is to say that medical practitioners strive to be scientific and base their practice on scientific foundation (Sassower and Grodin 1987) or that medical practice is scientific (Munson 1981). Another way of putting this is to say that medical practice requires the application of science (Munson 1981; Saunders 2000). In this sense, medicine is not taken to be a science itself; medicine is rather seen as an activity being based on translation of scientific knowledge into practice.

Medical science in modern times has unquestionably been dominated by biomedical science (Foss 1989). Thereby, the essence of medicine understood as science in this entry basically relates to biomedical knowledge and the criteria defining the scientific activity within this area. This approach can be traced back to Descartes and his dualistic account of the human mind as something distinct from the human body (Foss 1989)

Based on consensus, the medical community has broadly accepted the standards for evidence-based medicine (EBM). The ideal of EBM is to search for well justified knowledge about efficacy and effectiveness of medical interventions based on experimental approaches within patient populations (Cochrane 1999). A basic principle of these clinical experiments is to strive for

objectivity. For the results of the studies to be as objective as possible, one has to control for biases that might arise with respect to patient selection and outcome observations (and inherent interpretations). Therefore, participants are divided randomly into treatment and control groups. Also, the trials are double or triple blinded. In the first case, neither participants nor investigators know who receive the interventions being tested or who are in the control group.

In the latter case, the groups of treatment assignments are also concealed for the team that analyzes the data. This approach is called a randomized controlled trial (RCT) and is referred to as the gold standard for medical research on clinical treatment; it tops the hierarchy of methodological approaches to knowledge ranked by the strength of evidence they produce. Scientific knowledge on which to base medicine correlates with research outcomes produced at the highest obtainable level of evidence. However, for pragmatic or ethical reasons, not all kinds of clinical research can be carried out as RCTs.

Scientific knowledge can then be obtained by studies producing weaker evidence (e.g., controlled studies without randomization and observational, cohort, and case–control studies). At the bottom of the evidence hierarchy, and with very low scientific status, one finds expert opinion (e.g., expert reports of expert committees and experienced clinicians) (Essential Evidence Plus 2014).

Proponents of EBM have been careful in pointing out that simply complying with evidence-based guidelines will not necessarily amount to adequate healthcare (Sackett et al. 1996). The evidence is based on population studies, and individual patients might present themselves with atypical conditions, comorbidity, and various personal preferences. Ultimately, this translational process has to lean upon an individual healthcare worker's judgment. It has to do so both to judge which recommending (synthesized) guideline is relevant in a particular case and then to assess whether this guideline actually covers the situation of the patient in question. Within this translational work bridging between general knowledge and particular cases, the art dimension of clinical work – or at least part of it – is located (Saunders 2000).

This is independent of whether science is understood specifically according to an EBM framework or to a less specific knowledge concept. I will elaborate on this interpretation of medicine as art below. For now it is worth noting that art understood in the broad sense of representing a kind of translational judgment is also considered a crucial condition for adequately realizing science in successful evidence-based practice.

Conceptual Relationships between Clinical Medicine as Art and Medicine as Science

How is the conceptual relation between art and science in medicine described? Based on the literature, it seems apt to distinguish between three different versions of how art and science might relate conceptually in medical practice:

(a) The art and the science dimensions of medical practice are independent of each other. The perspective reflected in the modern version of the Oath indicates some separateness between "art" and "science": Art is associated with promoting

interrelationalunderstanding while "science" is associated with skills required for technical interventions. Also, if art is basically considered as skillful treatment of patients merely in a moral sense, then art and science can be considered as distinct and independent elements in medical practice.

(b) The art and science dimensions of medical practice are integrated with each other.

When art captures the sense of translating general knowledge into particular cases, art is at the same time considered as an intrinsic part of practicing medicine on line with applying science. This would be the case independently of how successful the translation is according to any evaluative perspectives on medical performance. Analytically, any perspectives on medical practice that claim the inseparable nature of art and science, or claims that practical reasoning in principle can be broken down to such elements being inextricably bound together (like in conceptualizations of art and practical wisdom), present the relationship between art and science as an matter of integration.

(c) The art dimension encompasses essentially a different knowledge basis that supplements or complements the science dimension.

The view that both biomedical and nonmedical constructions of knowledge are needed for adequate care and thus an adequate clinical epistemology presumes that knowledge emerging from interhuman encounters either supplements or complements scientific knowledge (i.e., biomedical science) in medical practice. In the first case, art will supplement biomedical knowledge if it provides nonbiomedical information that justifies nonstandardized interventions (e.g., a lack of a social network might justify a longer hospital stay or a patient's preference on intervention alternatives is taken into account). In the second case, art will complement biomedical knowledge if it is crucial in identifying what is at stake and what intervention is called for in order to achieve a beneficial outcome (e.g., when burdening social relations create physical symptoms). In both these cases different "types of knowledge construction are intimately interwoven in dialectic interplay" (Baroe K ,2015)

Conclusion

Medicine is both an art and a science. Both are interdependent and inseparable, just like two sides of a coin. The importance of the art of medicine is because we have to deal with a human being, his or her body, mind and soul. To be a good medical practitioner, one has to become a good artist with sufficient scientific knowledge. Technology covered with the layer of art alone can bring relief to the sick.

In the field of medical education, this dying art of medicine has to be revived throughout the world. So the conclusion to the debate on the status of medicine as art or science is crystal clear. Let us conclude with the famous words of Albert Einstein (Wikiquote, 2006):

The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science. He to whom his emotion is a stranger, who can no longer pause to wonder and stand rapt in awe, is as good as dead; his eyes are closed.

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Practice of Clinical Medicine in the Modern era of Digitalization

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“Medicine is a science of uncertainty and art of probability” William Osler

Medicine as practiced today is mostly an applied science. Applied science is nothing but the application of pure science to classes of problems though the idea of the practice of clinical medicine as an art persists. A guide to the membership examination of the Royal College of Physicians referred to as late as 1975 that its membership examination "remains partly a test of culture, although knowledge of Latin, Greek, French, and German is no longer required. Cecil Textbook of Medicine begins with a discourse on medicine as an art. Its focus is the patient, defined as a fellow human seeking help because of a problem relating to his or her health. From this emerges the comment that for medicine as an art, its chief and characteristic instrument must be human faculty.

Art in medicine is not just a practical performance. The art and science of medicine are inseparable, part of a common culture. Science requires personal participation in knowledge Explicit knowledge is readily taught, accessible to awareness, quantifiable and easily translated into evidence-based guidelines. In science mindlessness may account for some deviations from professionalism and errors in judgment and technique. Although art of mindfulness cannot be taught explicitly, it can be modeled by mentors and cultivated in learners. It is a link between relationship-centered care and evidence-based medicine. Mindfulness should be considered a characteristic of good clinical practice.

At least part of the art of medicine lies in those nonscientific rules of thumb that guide decisions in practice, that enable good physicians to affirm what they believe to be true in a particular situation. It goes for the simplest unifying hypothesis in diagnosing a patient's

disease; Sutton's law (based on the bank robber who told the judge he robbed banks because that's where the money is) tells us to go for the commonest explanation. Clinical reasoning, with its reliance on experience, extrapolation, and the critical application of common sense in gray zones needs practice. Art of Eliciting patient preferences is especially important when the best course of action is in doubt. This is difficult with long-term treatments when a patient's preferences may change with time. I was happily discharging a taxi driver after full recovery from meningitis when casually asked what else I can do for him he pointed at his right toe and said it hurts and he cannot brake while driving. On examining I found he had a ingrowing toe nail which was his concern rather than his recovery from meningitis.

At its best, the apprenticeship system of teaching at the bedside has traditionally given medical graduates at least some insights into these arts, something both important and impossible to measure. All data, regardless of their completeness or accuracy, are interpreted by the clinician to make sense of them and apply them to clinical practice. The practice of clinical medicine with its daily judgments is both science and art. Evidence-based decision models may be powerful, but they are like computer-generated symphonies in the style of Mozart-correct but lifeless. The art of caring for patients, then, should flourish not merely in the theoretic or abstract gray zones where scientific evidence is incomplete or conflicting but also in the recognition that what is black and white in the abstract often becomes gray in practice, as clinicians seek to meet their patients' needs. In the practice of clinical medicine, the art is not merely part of the "medical humanities" but is integral to medicine as an applied science.

The Hippocratic physician was a practitioner of ‘the art of medicine’ at a time when ‘temple medicine’ was dominant in Greece. Hippocratic physicians were philosophically committed to practices based on empirical knowledge rationally derived from experience in the practice of the art. Sickness was viewed as an overt manifestation of ‘imbalance’ among the postulated four ‘humours’ in a person’s body (blood, phlegm, yellow bile and black bile); and for restoration of that balance, bloodletting was considered a virtual panacea.

Medicine seen as science

Modern medicine started in 18th century after industrial revolution. At the time when Osler was introducing this science-heavy education to medicine, the first major impact of science on the practice of medicine was taking place. The impact of the biological research of Louis Pasteur and Robert Koch made Germ theory acceptable, and people were convinced even very small bacteria can invade and cause disease and death. Knowledge from this research had become 'basic' to the development of highly effective (and reasonably safe) vaccines for epidemiological use and for preventive medicine. chemical research in pharmaceutical industry had provided for the development of therapeutic and palliative medications – one of which was aspirin – for use in clinical medicine. These dramatic advancements in medicine, resulting from medical research, which gave rise to common conception of modern medicine as a science so physicians adopted the use of scientists' laboratory coats. Outlook on clinical research in relation to clinical practice as, evidence-based medicine' has its limitations in clinical academia. Recent COVID pandemic has taught us that the double-blind, randomized, controlled trial (RCT) is an experiment, but experiment may be unnecessary, inappropriate, impossible, or inadequate.

Art is the projection of our experiences and ourselves. Medical fashion dictated that physicians should follow only science-of evidence-based thinking and work in a logical sequence of steps, following a rigid structure to deliver treatment and care to the patient. The medical profession wasn't simply the treatment of disease or illness. It was a form of art, an expression and application of human creative skill, a manifestation of one's imagination: to tailor therapy, to customize a plan to suit a particular individual, to guide patients on choosing the best option, to communicate with empathy and compassion while above all, to make your actions as a doctor to be objective, righteous and ethical.

Hippocratic oath, one of the oldest binding documents in human history refers to the practice of physicians as a form of art. it also gives us a way of looking at humans not only through the

eyes of the physician-observer, but through the eyes of the person as patient–and more importantly, their side of the story. To think that doctors simply diagnose, formulate treatment plans and provide service to patients in what seems like a dispassionate and even apathetic relationship is not true.

The traditional role of doctor as an evidence-based practitioner includes that of a “maker” (creator) and artist. “By reconsidering medical practice from a solid, structural form into a creative act, we can break the limitations and uncertainty as imagination is infinite. The ability to be creative allows the extension of our minds and allow physicians to be more sensitive and empathetic to patients. What health professionals gain in science, they may be losing in other, domains where treating the disease becomes the focus over the patient Though he might’ve been the tenth patient, just those few moments of kindness will last long with the patient. The most important art doctors possess is the ability to maintain dignity and nobility in their profession in accordance with Hippocrates will.

Art and science of clinical medicine in a digital and covid Era

Covid brought a radical revolution in every aspect of humanity including medical practice more than renaissance or industrial revolution. Some aptly messaged that COVID has taken the magic out of Disneyland and even made statue of Liberty limp. Nobody had proper scientific guidelines. Physicians were treating patient according to their gut feeling a real Art of medicine. we had 4 guidelines for treating Multiple Sclerosis from different organizations in one year without any clinical trials. Bedside examination, OPD visits with personal chats with eye contacts were replaced by E clinics by phone calls, teachings of students was on zoom, conferences were converted to webinars. All though there were benefits like I became more computer savvy some of my patient’s lacked confidence and delayed visiting hospitals sometimes with grave morbidity. There was actual 30 % drop in stroke and TIA cases reported from our ER.

Artificial Intelligence Edges Closer to the Clinic

TransMED a European **AI** software claimed to predict the outcomes of COVID-19 patients, generating predictions from different kinds of clinical data, including clinical notes, laboratory tests, diagnosis codes and prescribed drugs. The other uniqueness of TransMED lies in its ability learn from existing diseases to better predict a new and rare diseases

Clinics became office rooms nurses replaced by computer screens. Doctors’ concentration was more on their computers filling in details decided by international regulators who were interested in revenue you generate and pull-out statistics rather than actual holistic patient care. I was annoyed once when I had a patient in OPD with migraine whom I had seen 2 days ago and given 3 months appointment and he said he was better. On asking why he preponed his appointment he simply said “I just like chatting with you about my migraine Doc you don’t have time on regular appointments. It just then struck me what I have lacked in my patient care. Physician’s surely need new set of skills to practice their art of healing during COVID era.

Data has become the new currency in the digital world we are in. Silently most of digital platforms google, Facebook, twitter etc have been collecting Data about us. They use it to mold you without your knowledge to control what you wear, eat, or even travel. Pharmaceutical's now use digital platforms to influence your prescription habits. Marketing of medicines is done like Coke or soap some patients now come and ask for a particular new analgesic which you are not comfortable with or wanted to wait before prescribing. What's App has become the new teacher without any responsibility on the content either good or bad. New addition to my art of clinical practice is to ask patients what they already know about their disease from Dr Google so you can plan your advice and prescription better.

Machine learning is the new entry into medical profession. Chess Olympiad happening now in Chennai is a great international competing event of brilliant minds. Since IBM's computer Deep Blue defeated world chess champion Garry Kasparov in 1997, advances in artificial intelligence have made chess-playing computers more and more formidable. No human has beaten a computer in a chess tournament in last15 years. Alpha Zero the new supercomputer fed only with basic chess game rules has learnt not just to win but play like a human with some errors to make the game interesting. Machine learning uses pattern recognition .it can tell what tests you have missed or diagnosis you should consider. Machine learning is more useful in specialty like radiology dermatology and pathology where you can use images and need not see the patient. But charm of hand touch or gentle pat on back to boost the confidence of the patients by a physician cannot be replicated by any supercomputer and makes him a better healer than any machine.

A new dimension to our clinical practice is organ donation. Traditionally we have been trained to save patients lives. our duty assumed to have been complete when he passes away. Hippocratic Oath is inadequate to address the realities of a medical world that has witnessed huge scientific, economic, political, and social changes, a world of legalized abortions, brain death and pestilences unheard of in Hippocrates' time. Last 3 years being the chief of organ donation team, I have sharpened my skills in diagnosing Brain death, improved my skills of counseling and breaking the news of brain death. Certain communities do not believe in organ donation. Then again laws in country like Brussels all citizens are presumed to have agreed for donation if they have not made a declaration in their records that they don't agree to donate. your art of listening, communicating and counselling are really tested when the relatives are in very difficult and emotional time. Memories of a mother who agreed for organ donation of her only young son after a head injury was a difficult emotional movement in my long practice of medicine. Her spirit of sacrifice has taught me value of human life and spirit of humanity which we mostly take for granted. At the end its fair to say science of medicine can be learnt but the corner stone of a successful physician as a healer lies in his practice of art of medicine cultivated all throughout one's carrier.

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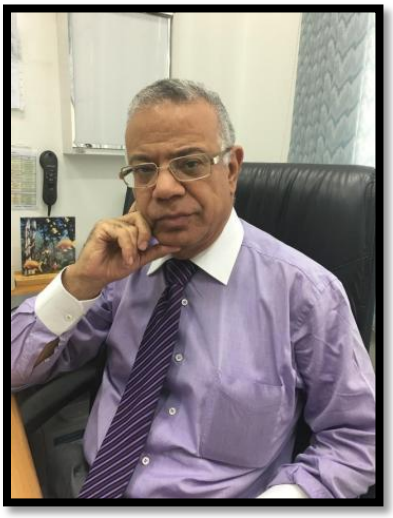
Three firsts in my medical career



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When my dear friend professor Baht asked me to write an article for this magazine, I was confused about what to write. I am not a gifted writer like doctor Baht, and I am not used to writing about the social and literary aspects of medicine. However, I thought of writing about some memories of my early practice of medicine.

My first prescription:

I was in the third-year medical school, when my nephew complained of abdominal pain, cramps and bloody diarrhea. Although then I had no experience in clinical medicine, yet I ventured to diagnose him with dysentery. In the third year we were studying basic sciences and had no experience in clinical medicine. From my studies in pharmacology, I came to know of a medicine called Flagyl (metronidazole) which had been recently tried in the treatment of the acute dysentery with good results. Secretly, I got the medicine and started him on it without anybody knowing. Reading the pamphlet, I was scared because of the potential side effects. This gave me a sleepless night. I thought of telling him, he had better ask his father to see a doctor, but he would lose faith in me, at the same time should something befall him, I will be to blame, and I will never forgive myself.

Fortunately, the next morning he told me that he feels better; that he has nausea and headache, but not so severe. I watched him for the next 5 days which were some of the most difficult days in my life.

After the end of the course, he came told me that he is much better and that there were no more symptoms. This was my first prescription, after which I thought to myself that now I am a doctor.

My first forensic examination:

As I started my medical career as a GP in a rural area in Upper Egypt, early on a hot summer morning, a man came to me asking for a death certificate for his mother. It was too early and before the working hours. I asked him to wait but he was very fidgety. He told me he wanted to bury her before it gets too hot. I asked him about her age, he told she is about eighty and she was so sick for long time. When he volunteered to mention her illness without me asking him, I got skeptic. I told him that I must see the body. He said: me why young doctor?
I was hesitant to go until the driver came. He was an old man from the same village and knew everybody in the area. He winked at me. I spoke with him in private and learned that, this man was a criminal and had been recently released from jai. Also that he used to beat his mother when she refused to give him money. Insisted to see the body; after resistance from his side, he agreed. I asked him to go saying that we will go to his home.
When we went to the house, we found the woman lying on her face and there were no apparent signs of violence. When we turned the body, we found thick soot on her neck. Confronting him with this, he said that she was cooking and fell on the stove. But there was no signs of burn. I asked the nurse to remove the soot which she did. Now we saw nail marks on both sides of the neck. I told him we will give him the certificate in the medical center.
I went to the police station to report a suspected murder. All the policemen were busy investigating a serious crime. The chief officer mocked me saying, "we have no time to waste on you now. Anyhow, go to the next room and file your report and indicated one of the officers to interrogate me.". They ordered the transfer of the body to the mortuary waiting for a forensic doctor. I went to my duty but I could not concentrate at all all day. Nor could I eat anything. I was haunted by fear and anxiety. Should my report prove wrong, I would be subject to sarcasn and ridicule. In case it was correct, the man or one of his friends may take revenge on me. I was on my own, no senior doctor with me and nobody to advise. I had no sleep that night, my heart was pounding, and fears tormented me. The next morning, I asked: if the man had been arrested or was still free? I received no answer. I felt his eyes following me wherever I went. At noon, when the forensic doctor arrived he did not allow any body to enter the room with him except his assistant. An hour passed like a year. When he came out of the room, he called me and asked about my name, and patted me on my back sayinf: you did well. “I found fractures in the bones of the neck, the cause of death is asphyxia. He throttled her. This was my first forensic examination. I don’t know the fate of the murderer nor if he was still following me.

My first psychiatric examination:
a year later I started my job as a psychiatry resident in El Abbasia Mental Hospital, the biggest mental hospital in the country. It had 2700 beds. After my initial training, the director of the hospital sent for me. When I met him he told me that he heard about me, and my passion for psychiatry, so he transferred me to his department which was semi-private, and we used to call it the VIP department, because most of its patients were from wealthy families. My first interview was with Mr. A. He was a good looking handsome man in his thirties. He was well educated, fluent in English, German, besides Arabic. The notes in his file indicated that he had paranoid delusions, and was diagnosed with delusional disorder. When I examined him I found

all his mental functions to be normal with very high intelligence. When I asked him about the cause of admission, he told me: "this a very long story, there are many problems between me and my step farther. He wants to seize all my fortune and deprive me of my father's inheritance, and because he is a friend of the hospital's director, they put me here". He spoke with sincere feelings and great bitterness. And I believed what he said and sympathized with him and promised him that I would help him get out of the hospital. Mr. A invited me to his room and I was impressed with the books he had. Most of the books were about the third world war and the end of the world besides books by Marx, Dostoevsky and Tolstoy. Mr. A became my friend and I used to borrow books from him, for me and for my brother who was an officer and was an avid reader. I told him a lot about Mr. "A" and I asked how he could help me out of the hospital and how I would open the issue with the director without hurting him. I had read about Soviet Psychiatry and how psychiatry was abused for political purposes, and for stigmatizing opponents with psychiatric diagnoses and placing them in mental hospitals. One day my brother came to visit me in the hospital; I introduced him to Mr. "A" and they got on very with each other. Their relationship strengthened, and because Mr. A was allowed to leave the hospital when he wanted, my brother invited him to his house several times. They were discussing political, literary and artistic issues. One day when I asked my brother what to do for Mr. A. He smiled at me sarcastically and told me: you are still naïve and inexperienced. Don't blame the director, your friend is ill. How? I asked, he told me that in one of their discussions he told him "I will tell you a secret, but don't tell doctor Talaat. He said : "the man I am living with, is not my real father. My real father is the American billionaire David Rockefeller and I will inherit all his fortune if this alleged father allowed me to travel to America". When my brother asked him how this happened, he told him that his alleged father was working as a guide in the Suez Canal and he and his mother met Mr. Rockefeller on his ship while he was passing through the Suez Canal, exactly one year before my birth. When my brother asked him what he would do with the money if he got it, he told him this is the second secret I will tell you as long as you promised that you would not tell your brother. He showed him a mark on his thigh and told him this is the "swastika " , the World War III emblem! He would lead the war to save the world from the enemies of humanity. He also told my brother: "I pretend to have retracted these ideas in order to deceive the doctors and nurses, otherwise they will continue to give me injections and electric shocks".

Coming to know these details which the patient so cunningly hid from me I diagnosed his as paranoid disorder.

There is a saying that goes: "Good judgment comes from experience. Experience comes from bad judgement". I thought that it applies to me more than to anybody else.

THE ART AND SCIENCE OF CLINICAL MEDICINE

Is Evidence based practice overtaking the time-tested Clinical Medicine?

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When people say "the art of medicine" I visualize the dark wards of the hospitals, patients tucked in, and then examined one by one, Important signs elicited, based on a detailed history and past events, run simple laboratory tests to corroborate the diagnosis already arrived at from the history alone, the analytic/deductive minds of the doctors, namely the attending physician, the residents and medical students put to work. Together with all the differential diagnoses. This is the embodiment of the art of medicine as practiced. Where one sees not only the analytic minds of these professionals, but also kindness, empathy and reassurance to the patient. If the exact diagnosis is still evasive, then enter the domain of sophisticated tests in a generic sense, the heartless kind of investigations for which the patient is taken to the various corners of the hospital, i. e., for the CT scan, or an MRI, Cardiac ECHO or nuclear medicine studies to name a few, all in the pursuit of a definitive diagnosis.

This is what is "the science of medicine". Sometimes intelligible, sometimes useless tests are run to cover "all the bases" and not to miss anything! Is this the real medicine? Which one to follow or practice in this digital world? The art or the science of Clinical Medicine? Or a mix of the twain?

For centuries the physicians practiced medicine from the history elicited with consummate ease, the only ancillary tools being the stethoscope, an ophthalmoscope, and the BP instrument, or a thermometer, sans the toxic mercury in them.

Let us consider an adolescent patient walks into the ER of the hospital with abdominal pain and a slight fever. The ER physician palpates the abdomen and elicits the tenderness he was looking for, does a rectal digital examination. A complete blood count (CBC) is run which shows leukocytosis. Next the surgeon arrives, the patient is brought to the Operation Room (OR) where he confirms the clinical diagnosis of an inflamed appendix and performs the appendicectomy.

In a bigger center, say in a Children's Hospital ER, a specialist, namely the Pediatric surgeon might do the evaluation of the same patient, obtain the CT scan of the abdomen, admit the patient to the surgical ward and run IV antibiotics. The same night the evasive appendix bursts, taken to the OR, and a more elaborate exploratory laparotomy is done, the patient would stay for a week or more. Because the inflamed appendix ruptured and formed an abscess needing more extensive surgery as compared to the removal of an appendix with signs of early inflammation, diagnosed clinically at the bedside!

The difference between the 2 possible vignettes is the surgeon making the bedside diagnosis was trained the "old fashioned way" namely, History, Examination, Simple Lab Test and Surgery, saving precious time preventing complications. In the second scenario, the Surgeon doubted the diagnosis, could not visualize the inflamed appendix in the CT scan, so took the conservative approach, which was still in the realm of "Standard of Care".

What would readers advocate to these 2 patients, if they do not know the end result in both these patients?

Yet another illustrative case report will take this discussion a step further. A middle-aged person, as part of a preventive evaluation by his Primary Care Physician gets a repeat PSA (Prostate Specific Antigen) test which is reported as high, compared to what was run a few years back. The patient is referred to a Urologist who orders first an ultrasound and based on the results schedules a biopsy. The result- an early-stage Prostatic Cancer, probably no metastasis. Radical Prostatectomy is performed and a month later PSA value is near zero, clinically a cure has been achieved. Many hospitals now use a robot to perform this as well as other procedures for cleaner and more precise excision of the involved gland and surrounding tissue. Here there is a technique clearly superior to all other previously practiced surgical approaches, thanks to the modern gadgets such as ultrasound guided biopsy, and the robot performing the removal of the affected prostate. Science? Sure, we can say that is what it is.

We all have done or seen a newborn baby getting resuscitated when the baby turns blue with respiratory distress. In the past, the specialist, a neonatologist or a pediatrician used an Ambu bag to deliver Oxygen, either through a mask or sometimes through an Endotracheal tube inserted skillfully down the trachea. Chest compressions, if needed, would be given by a second person trained to do so. That was then, we now have the Ambu bag replaced by a T connector and a fraction of oxygen as needed through a blender, pulse oximetry, Carbon dioxide detector to check if the baby is intubated, and chest leads. All new in the past 20 years, they are evidence-based interventions. It remains to be seen if all these are necessary, and if so, in which patients. Cost will have to be considered in these short interventions.

Last but not the least, as the saying goes, the patient gets relief or cure 90% of the time after seeing his/her physician who gives him all the reassurances and hope, 10% or the rest comes from the medicine(s) the good doctor prescribed. It probably follows, therefore that 90% of the time either the words of the sage, namely the doctor improves the patient's condition or is that

a placebo effect? One could agree that the medicines prescribed sometimes have a curative effect such as antibiotics for known infection.

Therefore, it is prudent to say that the professional in medicine can artfully master the curative aspects of an aliment together with the specific medication (s) used against that condition. A happy mix of both the art and what the modern era discoveries have given us strong and specific modalities of curing those diseases. One would also remember our many teachers who we believe practiced a little bit of both, namely The Art and Science in practice of Medicine!

Clinical medicine as an amalgamation of art and science

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I was asked by my Guru to write my perception on art and science of clinical medicine, would have been much easier for me to write something about my core subject Nephrology, but here I am writing about this fabulous topic.
Medicine is supposed to be a scientific study and its practice an art.

The art of medicine can be defined as the application of evidence-based medicine to each and every patient we see. Each and every patient has to be treated as an individual.

As the practice of medicine is based on the knowledge discovered through diligent research and experimentation, it is considered as science. Medicine is also an artform because how well doctors and other medical personnel utilize this knowledge while interacting with patients depends on their expertise.

Medicine, in contrast to physics or chemistry, is not pure science. Neither is it Mathematics where 1 + 1 is always 2, I always tell my students and colleagues that 1 +1 can be anything.

It suggests that only the concepts of pure science are used in medicine when we refer to it as applied science. Evidence is the foundation of scientific medicine, but ambiguity increases when numerous technologies are merged into clinical treatments.

Patients never behave the same nor the treatment and outcomes are linear. Yes, there is an evidence established on performance of drugs, interventions and these days even digital therapeutics through clinical trails and randomized clinical trials (RCT). However, the setting of RCTs are so well defined with inclusion and exclusion criteria that there is a certain logical end-point that can be measured or anticipated. Also, these clinical trials are often conducted in certain markets or populations where the infrastructure is conducive for research. When these interventions approved through structured research are applied in the real-world setting that is called clinical practice, the responses can be varied due to various reasons. The difference in treated population from the trial subjects' race and ethnicity, the loss of patients to follow-up

and monitoring in clinical practice compared to the rigor applied in RCTs, the varied patient base in a real-world setting in comparison to highly select population in RCTs, and many more such differences exist in the application of evidence-based medicine. Hence, for a practitioner, while the core principle of practice of medicine is based on evidence and recommendations like guidelines which are in-turn based on evidence; there is an element of considering what works best for the patient based on the history, education status, financial standing, lifestyle, access to healthcare facilities, etc that make it an art. An art, like that of a master detective, marrying together the learnings of not just self, but others before oneself and the patient that has the individuality.

There are instances in my clinical practice where I have seen creeping creatinine in post-transplant scenarios. I would have done repeated kidney biopsies but to no avail or no trace of a diagnosis that is leading to the progression of renal failure. In such cases where despite both best intent and care, progression is sketchy, I say GOK (God Only Knows Why).

The best clinician is one who whilst armed with this scientific knowledge, practices using excellent clinical judgment (which of course is his art). Compassion and understanding are a large part of this art. With progress of science and its application, there is a rapid decline in the so-called human elements of health care providers, which dilutes the age-old doctor-patient relationship.

Making wise clinical decisions is the hallmark of a good physician. This process has historically been viewed as artistic and intuitive, not amenable to formal quantitative modeling or theoretical analysis. There is no one method by which all clinical choices are decided.

However, the idea is to do the best for patients' betterment the simple rule in medical practice "**if no good can be done, the least we need to do is no harm**".

A medicine that cares or cures, helps or heals has an even greater consequence for humanity than that of merely mending, tending, patching or preventing the various ailments that are the result of being alive

When a patient walks into my OPD what I apply is:

Pattern recognition, where there is an immediate and strong association between the patient's initial appearance and a diagnosis;

Deductive reasoning, where the doctor entertains multiple diagnoses at once and methodically gathers additional data to either include or exclude them;

Exhaustive method, where the doctor gathers all relevant information in the hopes of identifying the correct diagnosis. In all the three approaches there is a strong history taking.

It goes without saying that medical personnel need scientific knowledge and technological abilities in order to diagnose diseases and select the best treatments. However, this is not enough. A doctor's care, sympathy, compassion, assurance, and other humane traits, which are often referred to as the "art of medicine," are crucial in the practice of medicine.

Listening to the patient – the art of good history taking

Good history taking is an art. It entails empathic listening abilities, an approachable disposition, and the expression of an active interest in the patient's uniqueness.

The doctor has to exhibit a sense of genuine concern which is fundamental to the evolution of trust between the doctor and the patient.

As doctors work to satisfy the needs of their patients, what is black and white in the abstract frequently turns grey in practice. Knowing a patient's preferences helps in the treatment of an individual rather than the disease. When performing routine, everyday tasks, mindful practitioners pay attention to their own physical and mental processes in a nonjudgmental manner. Physicians can behave with compassion, technical competence, presence, and understanding when they can listen intently to patients' anguish, identify their own mistakes, improve their technical abilities, base their decisions on evidence, and define their values.

If people have trust and confidence in their provider, they follow their recommendations. If trust is absent, they won't. Trust blossoms not only out of competency or skill; it involves sensitivity to another world-view. Moreover, trust evolves out of the persona of the caregiver.

For example: take a hypothetical scenario of a doctor treating an anxiety patient coming with a suspicion of chronic kidney disease. A good doctor might ask the following questions, for example:

How much of the information I have access to should I believe?

• To what extent are the patient's anxieties, despair, or lack of knowledge about the condition and test influencing her desire for testing?

• What beliefs and prejudices influence how I present this circumstance to the patient and to myself?

• Would it be different to know the outcomes?

• Which strategy would benefit the patient the most?

The context of each clinical decision is made up of several such concerns, which are relevant whenever a clinical judgement is made.

Today's truth may be tomorrow's folly.

Scientific truths are not true for all times in medicine, unlike truths in the other fields of science. The half-life of truth in medicine is short.

Half of what is true today will be proven to be incorrect in the next five years. Unfortunately, we don't know which half that is going to be.

Management of diseases, even diagnostic methods and ideas on causation of a particular disease, also change with passage of time.

Just to highlight the two most common diseases that are diabetes and hypertension have seen truckloads of changes over the last 50 years all based on newer data.

Like wise we now have higher sensitive lab methodologies for most of the communicable diseases and other parameters leading to these diseases.

Where there are numerous practice "grey areas," where the information regarding the risk-benefit ratios of competing treatment alternatives is sparse or inconsistent, evidence-based medicine is not very helpful.

Some will advocate minimalism while others will favour intervention based on inference and experience when evidence alone cannot guide clinical activities. Medical rabble-rousing is a lucrative industry, and new tests, equipment, and medications are being developed at an unparalleled rate. Even though it would make life easier if these new technologies were consistently evaluated in thorough studies with clinically applicable goals, the data available today are frequently insufficient to guide clinical practice. Writing therapeutic guidelines that marshal an expert consensus and fail to discriminate between fact and fervour does not assist the situation.

The problem is further compounded with dozens of national societies releasing clinical recommendations and other evidence-based practice recommendations, the physician must distil the best information about what should be done in practice in ways that honestly admit what we do and do not know about an issue.

On a lighter note, papers are always written by academicians who don’t practice.

It is very important for us to follow guidelines but at times it has to be taken with a pinch of salt, because in true clinical scenarios one’s expertise matters the most.

Guidelines are there to help us but still they are not Gospels.

In a country like India where 90 percent of the population’s take home salary is less than INR 15,000 per month, just following all guidelines on laboratory evaluation for a patient undergoing dialysis is next to impossible, for E.g. PTH will cost INR 1,500 and a dialysis sessions also costs almost the same, an individual who cannot afford care would prefer a session of dialysis over a lab test.

Handling uncertainty in clinical medicine

It is often said that the clinical practice of medicine is fraught with uncertainties. It could be logical to say that the physician acts as a medical scientist by developing a variety of potential explanatory hypotheses that are put forth as remedies to clinical issues. The validity of these assumptions is next examined in light of empirical data. The decision to choose the (hopefully) correct hypothesis is the culmination of this scientific diagnosis process. The whole process converts the “grey areas” of medicine into black and white diagnostic and treatment options for the patient. It is this ability to handle the uncertain process and deliver the treatment option

for the patient with certainty that distinguishes a wise doctor from an inexperienced flock. It can be safely stated that this comes with experience.

The 'informed patient' and 'patient centricity'

In the last two decades that has been so much of influx of technology and information that the engagement of patient and doctors have taken a radical shift. From the premise of 'VaidyoNarayano Hari' to patients talking about access to super-specialty care for simple ailments to patients preferring second and sometimes third opinion to patients looking up Dr Google before an actual doctor have forced doctors to be even good actors and actresses to hide the frustration and anger that is experienced.

Patient centricity and other models of patient engagement to ensure continued care has also led to application of technology and analytics into patient management. In today's world, apart from clinical history and lab reports, a doctor can have access to the patient reported outcomes that are generated through remote monitoring devices, wearables and a range of tech interventions. Continued care delivery isn't just a repeat visit after a month, these days digital therapeutics ensure continued reminders and monitoring of patients. Apart from these advanced analytic techniques and the application of artificial intelligence and machine learning help better profile and predict outcomes of patients based on a range of factors that were not possible to be considered by the human brain.

However, at the end of the day, nothing is prescriptive. Science as mentioned above has made decision making more centric to the patient at hand, but the end decision will still need to be taken by the artist, the doctor, that takes an informed decision. The only change post-COVID and the increasing awareness amongst general population is that the doctor now has a partner in delivering the right care – the patient him/herself.

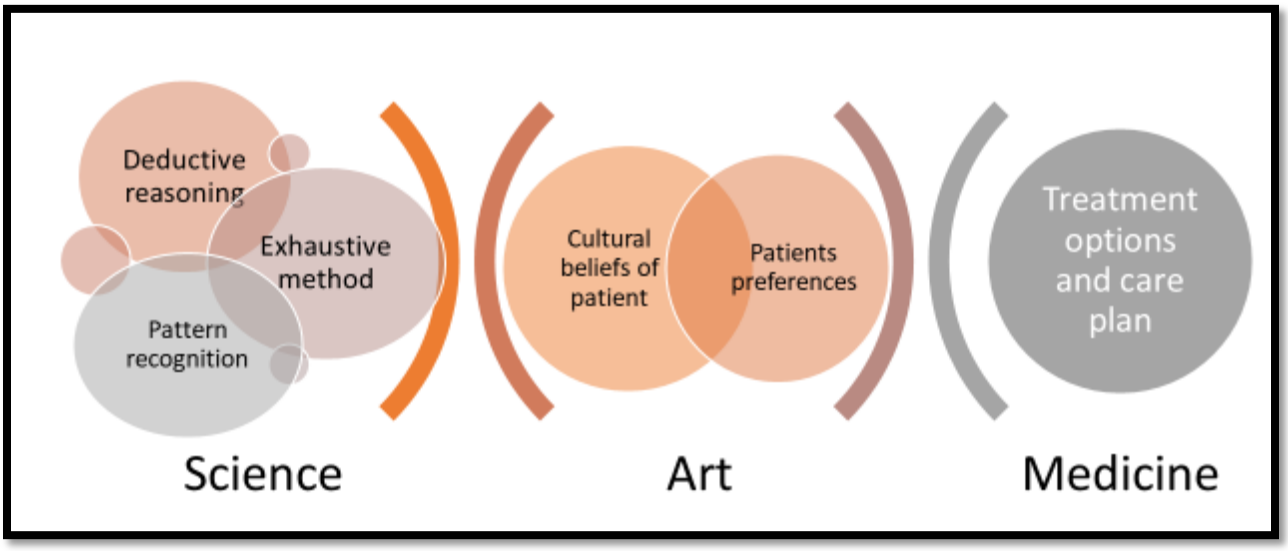
Doctors under trial

Apart from the above considerations for the artful practice of this centuries old science is the undue pressure that doctors feel day in and day out.

There is a lot of media trial, commentary and trial by arm chair activists on social media and eventually what can be termed as a biased view from the judiciary based on false narratives built by conventional media and social media.

These have led to security concerns and the constant pressure on the actual practice. A lot of effort goes towards managing the optics that can be avoided and focus can be provided on quality care

Medicine as the amalgamation of art and science



Thus medicine is an applied science whereas its practice is an art.

The power given to the caregiver in effective medicine is founded on trust, which may be merged with the healing process itself. People will follow recommendations from their physicians if they have faith and confidence in them. They won't if there is no trust. Trust requires sensitivity of the physician to a patient's different point of view in addition to competence or expertise. Additionally, trust develops out of the caregiver's persona.

The Good, the Bad & the Bizarre

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Twilight is the best time for relaxing, recuperating and reminiscing. The blazing sun is almost setting, the heat of the day is slowly settling, darkness has not yet blanketed the land; everything seems to be bathed in an ethereal glow. It is at this magical moment in life that one fondly recollects and dwells at length, the forgotten narrow path that he has traversed, as a boy, a young man, then of middle age and now admittedly old, slow and at times vague. Gone is the quick memory, the sharp intellect and the ready wit. Yet, with sub maximal stimulation there pops up in a flash, a figure, an incident or rarely an entire story unfolding with all its vivid details.

It is such a stimulus that my good student and now almost a celebrity, Dr.Raghavendra Bhat has applied to my 'resting potential'. By asking me to contribute an article to a magazine for which he is the guest editor, Dr. Bhat has courageously taken the risk of being responsible for bringing out the ranting & ravings of a not so young person writing about not so old happenings.

Medicine is learnt as a science, but practiced as an art. Science is exact and cold whereas medicine as an art is flexible and intimate. A judicious combination of both holds the key to the successful practice of Medicine in all its diversity and complexity. It is my endeavor, by narrating some true life incidents, to try and prove the Artful Science of the subject ; Medicine.

Insurance Claimer / Disclaimer:

There used to be a Nursing Home at Mangalore. It was a one doctor show , but alas, also a one nurse show. Many a time, this nurse would not respond to my call for morning rounds, as she

was busy elsewhere answering a much more expeditious nature's call. It was to such a place that I was called in the midst of Mangalore monsoon, at around midnight to see a 40 yr. old man who seemed to be brought in deeply unconscious since an hour. A friend of the patient gave me the history that while unloading a ship at the harbor, the edge of the crane brushed his forehead, upon which the patient fell unconscious. A quick neurological exam revealed no abnormality and I was convinced that he was malingering, hoping perhaps to be compensated by the Insurance Company. After wasting more than an hour, by trying all the usual tricks of the trade to awaken him, I was quickly loosing my patience and I decided take the artistic rather than the scientific mode of treatment. Having known that they spoke malayalam, I called the friend to the bedside and spoke to him in a worried and hushed tone. I told him how at this late hour no neuro surgeons would be available, and that this was a desperate situation, and if not relieved immediately would be quickly fatal. I also confessed that I never operated, but considering the exigencies of the situation, I would 'break' his head and have a look inside and if possible correct the problem. I could see the sudden sharp intake of breath of the patient as I said these words. I now told that as a last resort, I would give an injection and if the patient woke up in 3 minutes, we need not take the extreme step contemplated. The nurse injected a vitamin preparation, and as expected the patient got up, driven more by the instinct of self preservation rather than that of pecuniary gains. He rubbed his eyes and in typical filmi style asked were he was. I assured him that he was not in heaven yet, and told him some home truths which can perhaps be expounded effectively only by one malyalee to another. I never saw the patient again, and I also stopped going to the Nursing Home, both for the selfsame reasons.

A Unit Head fired:

It was a pleasant late evening in December. I had finished a long day at my consultation chambers. Since it was late, the receptionist had gone home and having disposed my last patient, I was readying to close up. Suddenly the door was opened, rather violently and a well dressed man, maybe in his late thirties walked in and respectfully wished me. He said he was a coffee planter and had just driven down from Chickmaglur. Though very articulate and coherent, something in his demeanor, alerted me. His sudden entry without even knocking, his nervous speech and his apparent agitation was not becoming of his educated and cultured personality. There was nothing much by way of complaints, except that he has been feeling a little unsettled and not sleeping well since two days. I made him lie down and started examining him. I noticed that he was occasionally grimacing and had occasional fine twitching at the corners of his mouth. At the foot end of the examination couch was the wash basin. Half way through the examination, I intuitively stretched out and just cupped some water in my hand and sprinkled it on his face. The violent response of screaming and almost falling off the couch was only matched by my shell shocked reaction, when the terrible diagnosis hit me like a sledge hammer. Both patient and doctor recovered quickly, and I having finished a cursory examination asked the patient to dress up. The patient had come alone and had no friends or relatives at Mangalore. Since I knew that no private hospital would accept a case of Rabies, I had to weave a web of deception. I told him that all private Hospitals were full and so I would

admit him at the Govt, Welock Dist. Hospital in my Medical unit just for the night. The isolation room there was a solitary confinement cell with sparse furniture and barred windows and doors.

The next day starting early and accompanied by my assistants, post graduate & undergraduate students and internees, I was leading the grand rounds and reached the cell. Very composed and speaking in chaste English the patient gave me a dressing down that I can never forget, right in front of everybody. He asked me what kind of doctor I was, who having seen a patient in his clinic had now dumped him in this miserable place. I heard him patiently without uttering a word. Though insulted publicly in front of my students, I never felt humiliated or angry, but instead had difficulty to control my emotions and hold back my tears. He told me that his wife and uncle are on their way and that he would like to be shifted out immediately. Benumbed, I just agreed to everything and walked away. I met the family in the afternoon, explained to them the diagnosis and the prognosis. They preferred not to move him out. I asked my assistant to go on rounds the next day. I saw the patient alone later. He was not in a position to recognize or talk to me. He rapidly deteriorated and died the following night.

Though this incident took place more than a quarter of a century ago, the memory remains etched in my mind. Though helpless, I had deceived the patient; he came for treatment and comfort, but I gave him neither. Instead I had to shunt him around. I could not be at his bedside during his death throes. Sometimes I pause and wonder, whether Medicine is an Art or Science, or is it that as instruments, albeit unworthy, we are just carrying out the Sovereign Will of God Almighty. It is not for us to ask why? But is certainly worth pondering over, not for answers, but for humble acceptance.

Evidence Based Superstitions

It was in the 1980's when the legendary Professor of Medicine, Dr. K.P. Ganesan was the Principal of KMC. I was an Associate Professor of Medicine. Dr. Ganesan called me in to his chambers one afternoon and said that he was allotting staff members to supervise and be a guardian to those students staying outside in houses. Dr. KPG asked me to take two houses under my care. I readily agreed and he allotted me two. One was at Milagres Cross Road, near KMC. The other house was in Valencia, a middle class residential locality of Mangalore. This house was occupied by a few Malaysian students of Chinese origin. It is in this house that a series of singular events took place, which culminated in the tragic death of a young medical student. Unfortunately I had a passive but significant role in the events, and I am narrating this from first hand knowledge, though the fine details maybe blunted by the passage of time.

To those of you who are familiar with the topography of Valencia, I would lead you on from the main road of Kankanady. The road then goes straight for another 2 km. going past two Churches, small petty shops, and a large old cemetery. The road then takes a sharp turn to the right. It is at this corner that this house is situated. It was single storied, tiled and had four bedrooms all which opened into a large hall. This hall had wooden flooring, perhaps used as a dancing floor and most probably occupied by some Europeans of whom there were a quite few,

managing some of the big British companies that flourished at Mangalore a hundred years ago. Behind the house was an area of dense vegetation in which a small body of water stagnated. There were no habitations after that. My first visit was a formal affair. There were four students staying there. One, and particularly friendly was Ling, a final year student and others were juniors to him. They were happy to see me and invited me for a dinner there, that weekend. The dinner itself was a grand success, with each one proudly presenting the tasty Chinese dish, he had prepared. We had gathered in the big hall with the wooden flooring. There was a table tennis table in the middle, and we had our meal sitting around. Though the windows opening out into the glade behind, were kept closed, I could still feel a cold wind blowing inside and involuntarily shuddered a little. The conversation started off with studies and how Ling had failed in his Medicine theory. I asked him to come to my unit and join the bedside clinics at least twice a week. The conversation then drifted to other matters, and Ling who struck me as shy, and soft spoken, suddenly started being agitated about strange happenings in that house. He started by saying that the cook who came in daily and some neighbors had told them of the house being haunted by a duo, one big and another small. The boys also told me that when playing table tennis, the ball would just disappear and even after thorough searching, would never be found again.. Then Ling narrated a recent incident which completely baffled me. I finished my dinner abruptly as the same eerie feeling crept over me again. The story was that one afternoon, feeling unwell, Ling bunked the second and third hour of classes and returned at around 2.30 p.m. Nearing the house he could hear that a vigorous game of table tennis was in progress at the hall. With anger and curiosity he peeped in through the glass window. There in the hall, was a big man and a small man playing. Though in his mind Ling was expecting some neighborhood boys to have broken in and playing, he instinctively realized that what he was seeing were no human beings. His worst fears were confirmed when at the moment he peeped, the game suddenly stopped and on a quick second look, nothing was seen. However he did not have the courage to go in, but instead went back to college and came back with his friends. On opening the door they found nothing unusual, except that the table tennis racquets were neatly kept side by side with the ball placed in between, an arrangement which none of them ever did. As Ling finished his story, a heavy silence hung around the table. Each were engrossed in his own thoughts and fears. It was getting late, and I remember we did not end the evening with the usual pleasantries. Instead I had a strong feeling of foreboding, and having advised them to be careful and close their bedroom doors well, I took leave of the four small boys standing close together and trying to smile while waving me off. I returned home and was dissecting the whole incident into small bits and pieces, hoping to get a rational explanation. Perhaps in an attempt to console and comfort myself, I thought that this would be a well thought out ploy by the students, to discourage my visits and thus hide some of their questionable activities there. I never thought how wrong I would be. Ling was not very regular to the clinics in my unit. He told me that his fiancée from Malaysia had come down for a week and he was busy taking her around. Slowly the whole affair slipped out of my mind and I was immersed in the routine grind of teaching and my profession.

It was almost ten days later that the climax came most unexpectedly. One of the boys came to my house at around 9 a.m. With a grim face, he said that Ling had locked himself in his room

and was not responding to their calls. The now familiar foreboding returned, and after telling the young chap to go ahead, I quickly dressed up and drove down. The scenario was unforgettable. The three students were all huddled together in the hall. The door to Ling's room was bolted from the inside. They quickly put up two chairs for me to climb up and peer through the upper glass part of the closed window opening from the room to the hall. Ling was lying down in his shorts. There was a piece of paper, near his head and two speakers of a music system near his feet. He was not breathing, but what shocked me were the bright red spots of petechial bleeding over his face and torso. I quickly surveyed the room from my precarious perch and noted that the room had an attached bathroom with a closed window with fixed opaque glass. I told the boys to break open the bathroom window, gain entry into the room and open it from inside. It was terrible to see the young boy, lying on his side. There was no signs of struggle. The hemorrhagic spots on his body was showing vividly on his fair skin. To exclude a suicide note, I was forced to read the letter by his side, which was written by his fiancée. The wires at his feet were not live but was to the earphones. Standing there the whole mystery sunk into me slowly; Here was a young boy, apparently quite healthy, who had died most probably by asphyxiation ; there were no strangulation marks on his neck and the face though cyanotic and bloated was peaceful. All I could conclude was that Ling was strangled to death very quickly in his sleep by someone of great physical strength. With all doors & windows locked from inside, the entry and exit of the culprit was incomprehensible. I wondered; was it the work of the big man? I sent one of the boys to inform the Principal and vice Principal. Our Professor of Forensic Medicine, Dr. Laxman Pai too came and after studying the body opined that the cause of death was indeed asphyxia, most probably due to strangulation. Sitting together and discussing the present event at hand, the boys came out with another incident that happened the previous day. This was more shocking and definitely more sinister than the death itself. It happened that Ling had slept off late in the evening the previous day. Suddenly he woke up with a feeling of being choked by a small man sitting on his chest. He fought away this apparition and got up, not sure whether it was a dream or reality. Coming into the hall he saw a strange cat which growled menacingly and attacked him. Ling quickly got hold of a cricket bat and bludgeoned the cat to death. After that as though driven by some strong passion, he cut the cat into strips and burnt it just outside. Ling then said to his friends that he was lucky he could fight and win over the small man and hoped he did not have to deal with the big man. All of us heard this in silence. The official formalities were quickly done by the College. The post mortem report also was that of death due to asphyxiation. A cremation as per Buddhist rites was arranged, thus bringing to close a sorrowful but intriguing set of uncanny events which would never be solved.

An epilogue can be added, when the fiancée of Ling on hearing some vague preliminary bad news went to an astrologer / seer in Malaysia. It seems she was told that her fiancée was entering a dark tunnel without a ray of light seen. Then he plainly added that the boy was finished off by a 'big' man and a 'small' man.

Thinking back, I thank God for protecting me from these dangerous, unknown forces lurking at unexpected places. Just like the air that we breathe is laden with myriads of potentially lethal viruses and bacteria, and yet we escape diseases due to our inherent immunity, we are also protected from the evil forces in the air and high places, that constantly surround us, by the presence of God within us.

I close with a most appropriate verse from the Holy Bible which has encouraged, nourished and protected me at all times from all hidden & manifest dangers. It reads thus:

" Yea, though I walk through the valley of the shadow of death, I will fear no evil, for thou art with me; thy rod and thy staff they comfort me". (Psalm 23)

The Shepherd uses the rod for discipline and His staff for protection of his sheep. The former stimulates active immunity, whereas the latter ensures passive immunity.

Medicine, maybe or may not be an Art or Science, but since dealing with life, is not to be practiced, but lived to the full…..

Holistic combination of clinical medicine to prevent commercialization – An Administrator – Clinician's viewpoint

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One wonders what is the art of medicine versus the science of medicine. One way to look at it is to consider the application of scientific knowledge to medicine as the science of medicine and the system of using this knowledge as the art of medicine. The truth is that medicine is both art and science, one inseparable from the other. Trousseau said " The worst man of science is he who is never an artist, and the worst artist is he who is never a man of science" [1]

The concept of science being cold, dispassionate and relatively inhuman has led to the practice of medicine becoming low in empathy and human values. Doctors do not treat only diseases, they treat human beings with disease and these human beings have emotional distress and strain which needs to be cared for as well. It is said that doctors are becoming deaf[2] , they are more powerful in treating disease but are less sympathetic or compassionate. With the advances in knowledge and the availability of sophisticated technology, there has been a decline in human elements of patient care

Ancient medicine is considered the mother of science, and the knowledge accrued over the past decades has changed the face of medicine. The only constant is change as far as medicine is considered, what was true some time ago is no longer true now -example the changes in ORS formulation or the changes in the guidelines for platelet transfusions in dengue. In the race to keep up with advances, we tend to lose out on humanistic values, thus creating a gap in the doctor-patient bonding. It is important to remember that patient confidence and compliance is based on the trust that the patient has in his caregiver, if that is lost then it is unlikely that the patient will follow his caregiver's advice. Trust derives not only from the caregiver's skills but also from the compassion, sympathy, concern and other humane qualities that he has. Giving the best medical care definitely requires a sound knowledge of the science of care but tis much

alone is inadequate. As the Bible says – not by bread alone. It is the “art” of medicine – the human touch that is necessary for medical care to be complete.

One keeps reading about doctors being subjected to violence, abuse and derision – partly because doctors tend to be soft targets especially for the media, but also because of the lack of sensitivity and their habit of ignoring the emotional distress of the patient. A health care provider needs not only to be an expert in his filed but also to be a good human being.

The concept of evidence based medicine has further increased this void in the humane approach to patient care. There is a tendency to follow protocols or guidelines without involving the patient in his care, informing him about what is his/her problem, what is being done about it and what is the expected results and/or problems related to this line of management. Guidelines are just that – guide lines – an aid to managing patient care, they are not rules carved in stone to be followed blindly. At each stage of management, adequate attention should be given to the patient’s physical and emotional needs as well. It is good to remember that the patient’s desire to live, his positive attitude also play a major role in the recovery from illness

A plethora of articles have discussed the difference between the art of medicine and the science of medicine. The art of medicine is generally considered as being represented by the age old family doctor who would be a part of the family primarily and a healthcare provider later whereas the science of medicine is embodied in the young supercilious superspecialist with his array of equipment and limited patient interaction. Both these stereotypes are figments of the imagination of storytellers and the uninformed, the current doctor is a blend of both, but which takes dominance is a moot point. Ideally there should be an equitable part of both but this is rarely seen. The tendency to drift towards the latter stereotype is the worrying part of modern healthcare. Way back in the 80’s there were doctors who had investigations done before seeing he patient – they were a rarity and the practice was generally frowned upon. In this day and age, this practice is not uncommon, nor is the practice of doing a large number of tests without informing the patient as to what was the significance or need of these tests. This is the reason why the concept of medicine becoming a business has arisen and this is a concept that needs to be laid to rest. The only way that can be done is to combine th “art” and “science” of medicine into one holistic whole

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The Art And Science Of Clinical Medicine- Will ever the twain shall meet ?

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Clinical Medicine has come a very long way from the time of Hippocrates.

The physician today has a complex and unenviable task, juggling, on one hand, the constant and ever burgeoning mountain of current evidence and information relating to the science of his trade and, on the other, struggling to maintain the fine art of delivering personal and compassionate care to the increasingly demanding, frequently critical and always impatient patients under his care.

An introspection into the art and the science of clinical medicine is fascinating.

The Art of Clinical Medicine

Merriam Webster's Dictionary has defined art as a 'skill acquired by experience, study or observation'. A further explication of art was that it 'implies a personal, unanalyzable creative power'.

The art of clinical medicine, it appears, preceded the science.

One of the bedrocks of Clinical Medicine - Cecil's Textbook of Medicine (Goldman and Dennis, 2004), states that medicine is..a profession that incorporates science and scientificmethods

with the art of being a physician. The art of tending to the sick is as old as humanity itself. Compared with its long and generally distinguished history of caring and comforting, the scientific basis of medicine is remarkably recent. Further, the physician is advised to understand the patient as a person. Three fundamental principles are important to practitioners. They are primacy of patient welfare, patient autonomy and social justice. (1)

Indeed, the 'art' seemed to be a sine qua non for doctors aspiring to enter the hallowed portals of the Royal College Of Physicians when, in a guide as late as 1975, it stated that its membership examination 'remains partly a test of culture, although knowledge of Latin, Greek, French and German is no longer required'. (2)

The Science of Clinical Medicine

Science, as defined by Merriam Webster's Dictionary, is a 'knowledge or a system of knowledge covering general truths or the operation of general laws especially as obtained and tested through scientific method'.

In terms of the science in Clinical Medicine, the wheels had been turning slowly and surely all along from the time of Hippocrates but the pace quickened in the 18th Century after the Industrial Revolution.

The Eureka moment came with double blind randomized control trials . If Hippocrates was the father of Modern Medicine then David Sackett was the Father of Evidence based Medicine which has become the underpinning of modern clinical practice, the face of the 'science' of medicine, so to speak. (3)

As with all sciences, it is important to acknowledge that medical science too, by its very nature should be objective, reproducible and consistent, divorced from the geopolitical, sociocultural, economic, religious or moral influences that surround it.

The truth remains cold, alone and above reproach and so too, guidelines.

…And Ever The Twain Shall Meet.

The skillful application of the science, in the context of the patient currently present before the physician, is the art in clinical medicine.

In clinical medicine the art and science are inseparable and symbiotic, wherein the whole is greater than the sum of the parts.

The science of clinical medicine and the art of the practise of clinical medicine are different, just like knowing how to drive a car in an open ground (a feat easily mastered by enthusiastic beginners) is different from driving that very same car through rush hour traffic on a major highway with its myriad exits, fly overs and underpasses, and surrounded by unruly and 'not so law abiding' drivers.

In the definition of art, as alluded to earlier, there is a personal element in it.

A key, yet sadly, fast disappearing character in health care systems world wide is the ‘personal’ doctor variously also referred to as the ‘family’ physician or ‘family’ doctor.

It is a sad truth that with the current trend of increasing specialisation and sub specialisation (or super specialisation, as they are also referred to), we have more and more doctors who know more and more about less and less.

The care of a given patient is thus spread over a wide base of treating doctors who sadly treat the patient (or more precisely a specific part of him as per their speciality) but neither volunteer much personal care nor elect to take a holistic perspective of the patient at hand.

The art of clinical medicine entails spending time with the patient, much of which should go into ‘patient’ listening and wise counselling . There should be empathy and a sincerity to know, not just about the maladies of the patient but also the various ‘parts’ that make up the ‘whole’ - his socioeconomic context, his beliefs and fears, his hopes and anxieties, his expectation and desires. It demands compassion, caring and communication always and then on occasion curing.

It involves not only what to say to the patient but also when and how. At times the most appropriate and comforting statement would be to say nothing at all, silently acknowledging the patient’s concerns.

Indeed, any attempt to ‘treat’ the patient is bound to be met with only limited success or even failure, no matter how recent the guidelines or how robust the evidence that supports them, if the science is being applied without fully comprehending the patient and his context in its entirety and taking the patient into confidence.

Treatment plans that work well in the pristine hallowed portals of a trial tend to do not so well in the grime and dust of the real world, proving that there exists many a slip between a trial and the impatient patient sitting in your consulting room.

This was noted by James McCormick who observed that Guidelines derive from population studies and are not always applicable to the unique person who decides to consult.(4)

If we were to remove from clinical medicine the art of it and retain only the science built up on evidence based medicine and scientific data from trials and studies, then in today’s world of advanced computers, Artificial Intelligence, Big Data analysis and Cloud computing, the physician himself could easily be replaced by a computer.

But the art of clinical medicine is not based just on logic. Long before the advent of any of today’s technology or computing power, John Saunders had wisely observed , that ‘the good doctor is able to reflect on diverse evidence and to apply it in a particular context. No computer could replace him, for the judgment cannot be reached by logic alone. Here medical practice as art and science merge.’

He went on to state that, ‘At least part of the art of medicine lies in those non-scientific rules of thumb that guide decisions in practice, that enable the good doctor to affirm what he believes to be true in a particular situation. These cannot be and aren’t science.’ (5)

And yet, ironically, those who steadfastly hold onto the virtues of the science of clinical medicine often tend to ignore the fact that the sharp end of that spear, which is Evidence Based Medicine is defined as integration of the best research evidence with clinical expertise and patient values, with the latter two being conveniently totally forgotten. (6)

And if we were to delve even deeper, the very tip of that sharp end of the spear is Evidence-Based Clinical Practice which takes into account the healthcare setting and circumstances in which we practice.(7)

It is also interesting to note the rapidity with which today’s guidelines and recommendations become antiquated. A clear recent example would be supernumerary guidelines released in the course of the COVID pandemic.

Through all this, the science changes but the art of compassion and care, empathy and communication remain constant like a lighthouse and will continue to remain essential.

In the art of clinical medicine, the dynamics of interaction between the doctor and his patient though cardinal, is only one facet of this multidimensional art. There are various other skills that need to come into play when doctors interact with each other and with other hospital staff and in all these discussions, the sole focus should be the welfare of the patient.

Indeed, it is usually the absence of this particular skill that causes friction between doctors themselves as well as between doctors and other hospital staff. Sadly in all these ‘wars’ between ‘elephants’, it is the ‘grass’ (the patient) that suffers.

Disappointingly though, the art of clinical medicine is slowly fading away, seemingly lost in the crowd of evidence-based medicine, national and international guidelines, ‘poly-physician’ care and group practice, multidisciplinary meetings and co-management.

Another body blow to the art of clinical medicine was the rapid spread and almost universal acceptance of Electronic Medical Records (EMR) - paper was out and a computer console came in. The doctor was reduced to an incompetent data operator and, as with all incompetent data operators, his eyes were constantly moving between the letters on the keyboard with furtive glances to the computer screen. The patient got relegated to a fixture in the background.

One might argue that EMR and strict compliance to clinical guidelines are essential to protect the medical profession from the ever increasing tsunami of litigations.

It will be interesting to review whether we had the same onslaught of litigations, say,around fifty years ago, when medicine was clearly not advanced as it is today (Evidence-based Medicine has been around only for the last 40 odd years) and there were no Electronic Medical Records.

Logically, it should have been more.

But arguably, it may be less.

The patient had implicit trust in his doctor. He was confident that the doctor would only have his best interests in mind at all times. His close and personal relationship with 'his' doctor only reinforced this belief and it got strengthened with each visit. No such personal relationship exists today - the physician of today simply does not have the time or the inclination to work towards establishing such arelationship.

Ironically, it is especially in these modern yet difficult times, when litigations are common place when the fine art of the practice of clinical medicine is perhaps needed the most - to gain the trust and good will of the patient.

The recent COVID 19 pandemic came and dealt another body blow to the art of clinical medicine with the advent of telephone advise and video consultations, home testing and home delivery of medicines. The doctor is now getting further away from his patient, both literally and metaphorically.

Earlier the doctor was not paying enough attention but he was still physically in the room. Now 'there is no doctor in the house'. He is sitting several miles away in front of a computer. The 'personal' doctor is now a voice over a phone or at best a sterile character on the computer screen.

Paradoxically and tragically, despite the clear and cardinal importance of learning the 'ar of practicing clinical medicine, it is shockingly missing from nearly all curricula that teach Clinical Medicine to medical students and consequently there remains no assessment of the same prior to their elevation as full fledged doctors.(8)

Indeed, the 'Communication and Ethics' station in the MRCP exam remains singularly distinguished in this aspect, a beacon of light that many medical training schools all over the world should emulate when designing their qualifying examinations.

It goes without saying that if you are going to test a candidate for a particular skill, you should have trained him for it at some point during the duration of his course.

Unfortunately, the art of clinical medicine, unlike the science, cannot be 'taught' . It has to be imbibed by junior doctors by observing the behaviour and manners of the senior practitioners whether in the wards during rounds or in their outpatient consulting rooms. Even more tragic is the fact that, like a dying language, the 'speakers' of this art are tragically few and far between, that there is a real risk of the baton falling between the runners.

There are now fewer and fewer role models to imitate.

Storm Warning

The art of clinical medicine is slowly and sadly moving away from the sphere of medical practice.

But knocking on the door stands a menace that will surely sound the death knell for the art of clinical medicine. It has already started its rounds and many a corpse has it laid on the way side.

The art, nay, even the mighty science of clinical medicine with its bulwark of evidence-based medicine and evidence - based clinical practice will surely fall with the arrival of this new kid on the block - the economics of medicine.

Revenue, profits, income and earnings were all alien terms to the majority of mainstream medical professionals till a few years ago. Now they are ubiquitous, as wide spread and rampant like the recent pandemic, and with equally devastating consequences to the health of the health care industry.

With many hospitals being taken over by corporate houses, the bottom line now has become profitability. It has even spread its tentacles to public sector or Governmental health care organizations.

The Chief Medical Officer has been superseded by the Chief Financial Officer. TLC (Tender Loving Care) has been replaced with DRG (Diagnosis Related Group). Medical Claims Officers have more jurisdiction over the management of the patient than the Most Responsible Physician (MRP).

The real horror is only fully revealed when we confront the sad truth that quite frequently, Medical Claims Officers, who decide whether to approve or deny clinical management plans, are not practicing physicians related to the concerned speciality and are at times not even doctors.

The future does look bleak especially if all those even remotely associated with the health-care industry do not sit up and take a long hard look at where all this is going. Currently we are like lemmings rushing towards the edge of a cliff.

Returning to the Communication and Ethics Station of the MRCP exam, if the ‘Communication’ is now dying as the art of clinical medicine fades, the ‘Ethics’ is now rapidly being given the cold shoulder as the economics of medicine marches on.

It is not too late.

But time is of the essence.

The art of clinical medicine has already been slipping through our fingers and the science of it is now slowly being shown the door by the economics of clinical medicine.

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Practicing clinical medicine with experience and skillful observation can overcome dependance on digitalization

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"True Medicine is science as it is studied on a scientific basis with research and applied to suffering patients" Cecil's text book of medicine
Leonardos workshop of Fine art of teaching philosophy says practice of medicine is an art and not an exact science . Scientific truths may not always be true and may be proven false in coming years. Science in medicine is a system based on evidence but art is based on experience, skill and observation.

The goal of medicine in treating a patient is curing him and preventing complications .The curriculum in medicine is taught with emphasis on theory.The subject is vast and Rote learning is encouraged with acronyms and mnemonics which then remain in the memory rather than the subject!.No doubt clinical teaching is done in hospitals but a student is more interested in didactic lectures with emphasis on syndromes and essays . So when a patient comes with a complaint, all the conditions which he had learned will flood the mind and the result is a number of differential diagnoses and a gamut of investigations to be done to arrive at the diagnosis.

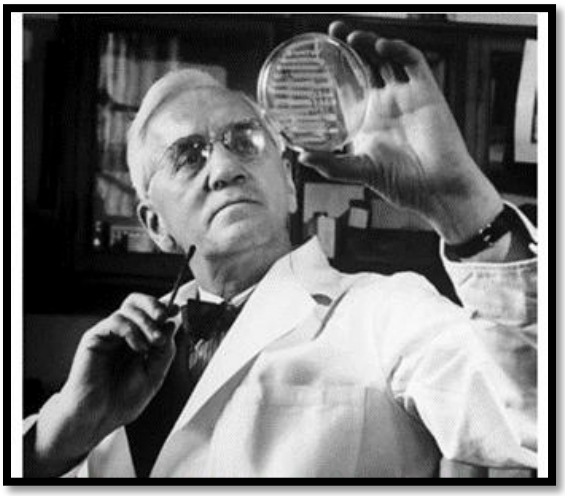
In medicine art lies on supposition what a true physician believes in and that can help in arriving at a diagnosis without much fuss. These are often called "Rules of the Thumb", a fairly accurate guide based on practice than theory . One of the most common is Ockham's razor. The theologist and philosopher's statement says that if you have two competing ideas to explain a condition you should prefer the simpler. It means that in trying to understanding something ,getting unnecessary information out of the way is the sensible approach .This is the simplest unifying hypothesis in diagnosing a disease . Thus in a patient with fever and neck lymphadenopathy one may think of a number of conditions like lymphomas,tuberculosis viral infections and more. If this patient had a chronic cough with sputum, however, one should first think of Kochs disease and investigate accordingly.

Another interesting pearl is Sutton's law . Willie Sutton was a bank robber and when he was asked by a reporter as to why he robbed the bank he simply said "That is where the money is". When applied it means think of the obvious first- investigate along those lines to confirm or rule out the most likely diagnosis and its treatment so that that there is no burden on the patient . thus when a patient comes from an area with fever where malaria is endemic, go along the same line. In chronic smokers with a, cough suspect bronchitis

When I was a student I recall an incident which is still fresh in my memory . A young lady with a swelling in the neck had come for clinical discussion . She had undergone previous surgery ,reports of which were unavailable. There were three senior professors who offered differential diagnosis of Goitre ,Thyroglossal cyst and Thyroid carcinoma .The clinical discussion was lively and sublime. Those days CT scans and Radioactive isotope studies were not available and clinical findings were more relied on. The mass was excised and sent for histopathology and we all waited with bated breath for the report to arrive .The report came as a recurrence of carcinoma thyroid. The Professor who got it right had taken a thorough history and performed a meticulous examination of the case. This is the art of clinical medicine in its purest form. Those days are gone now. Most patients come with investigations done already like scans and blood tests and the clinician will be biased. Take for example a case of simple headache, which may be due to several causes like neurological dental ,migraine, sinusitis, ophthalmic and tension .Patients these days have become smarter thanks to Google and go to neurologists directly for headache and since cerebral aneurysms can cause headache and may be fatal they undergo an MRI scan! Some may be on analgesics for migraine or labelled tension headache and treated .An algorithmic approach works well here . Aggravation of headache late in the day or after long work on computers is in favour of an ophthalmic cause. Headache more in the morning points to a sinus origin where as an aura with throbbing hemicranial head ache is migraine. A correction of refractive error gives instant relief if the cause is ophthalmic. If headache is not due to a factor in their respective fields, physicians should refer patients to the concerned department to arrive at the diagnosis . Here again it is art of listening to the patient's complaint and a diligent work up and referral to the right speciality which saves time and money for the patient.

Science is progressing in leaps and bounds with development of several technological gadgets . From the era of clinical exam , xrayand screening we have moved on to ultrasound ,scans and much more now. Cataract is a universal cause of blindness .Evolution of cataract surgery is fascinating. There is no medical treatment for cataract and surgery is the only way to restore vision. The earliest one to treat cataract surgically was our own Sushruta by a process called Couching. The opacified lens was not removed from the eye but pushed behind into the vitreous using a sharp needle skilfully This resulted in clearing of the ocular media enabling the patient to see. Though there was improvement in vision it was only limited and patients needed thick aphakic glasses to see better. These were not only cumbersome but also caused visual distortion. Also complications like inflammation ,an irritable red eye and vision loss in the long run were reported .A further understanding of the disease led to improvement in the techniques in the last decade that paved the way to modern cataract surgery which is

technology dependent . In the early days surgery was done with bare eyes and then came the magnifying loops. They were good but used to cause neck pain to the surgeon because of weight and holding the head in the same position to avoid change in focus .A new era was ushered in by the advent of the operating microscope which took care of magnification precision and comfort .Also live surgical demonstration could be undertaken to show residents without crowding the operation theatre. Most important was hands on training for budding surgeons under observation.



Sherlock Homes teaches Watson the differences between seeing and observing in the novel A Scandal In Bohemia. " Art of observation is not just seeing something but a mental process involving visual and thought process". If not for the observation by Sir Alexander Fleming that staphylococcal colony failed to grow around a mould in a petri dish, penicillin wouldn't have seen the light of day and thousands of lives wouldn't have been saved from infection . In a similar vein, the discovery of intraocular lenses (IOL) made visual rehabilitation a dream come true obviating the need for thick aphakic glasses .Sir Harold Ridley was an eminent ophthalmologist at Moorfields hospital in London which is considered the Mecca of ophthalmologists .While witnessing his cataract operation , a student asked an innocent query "why not replace the sick lens" . This set the ball rolling and the concept of IOL implantation came forth. But the problem was the material to be used to make them, as glass was heavy and difficult to handle . Again another observation came into effect .It was noticed that during the world war the RAF pilots used to sustain eye injuries due to the shattering of canopies of their aircraft and the foreign particle remained inert in the eye for a long time. This material was Poly Methyl Methyl Acylate (PMMA) and remains as the base for IOL manufacture to date. Science did not stop here and the quest for perfection led to the discovery of phacoemusification which uses ultrasound energy to chop up the lens and remove it through a tiny incision. The pioneer for this was Dr Charles Kelman in 1968. Currently cataract can be done through an incision as small as 3mm with the implantation of foldable IOLs.

Unlike physics or chemistry medicine is not pure science.It is called an applied science as only the principles of science are applied. Two plus two might not always be four. Today's truth may

be tomorrows folly. There is a saying that" half life of truth in medicine is short"- what holds good today may fall flat in five years . Gone are the days where a cataract had to become mature before surgery. Today, surgeons operate at the slightest visual impairment with speedy and excellent rehabilitation following implantation of intraocular lenses .This is a technological breakthrough. Similarly coronary artery blocks can be treated in no time with angioplasty and stenting, thereby obviating the need for symptomatic relief with medicine or major surgery .High tech investigations may be the need of the hour in emergencies but usually it is the art of medicine which plays a major role. It is the lack of this in recent times that makes doctors face abuse ,violence and criticism. A successful practitioner is always adept in the approach to the patient.

Art of medicine is also about patient doctor relationship . Mahajan cautions that a physician should not allow scientific medicine to blunt humanity and ignore ethics. There is always a need for empathy. A patient comes to the doctor with a problem and the approach should be of compassion and a caring attitude . Many a times a physician supports and promotes the patients own natural resources to bring about cure. Most of the time he is able to modify the disease to a milder one . Cardiology is arguably the area which has done most to avert mortality and morbidity and prolonged life expectancy can " Rescue people from relatively sudden death due to myocardial infarction only to inflict them to more prolonged death from prolonged heart failure" Ref Goodman NW BMJ 1997. With time science cannot stave off death but art of healing has something to offer in the form of attention, empathy and succour .I recall some years ago a physician friend who was on his deathbed due to terminal malignancy. He was treated by a multidisciplinary approach and palliation and I could sense his suffering and feeling of loneliness when the end was nearing. Although I had no role in the treatment I decided to visit him daily and just talk about our good old days and student life so that I could bring a smile or two to his lips The inevitable finally happened and his wife came to me a few days later with gratitude for what I had done. I was glad that I did something but that is when I realised what the art of healing is all about .

The art of listening to a patient is also of paramount importance. Many times the patient may be anxious and worried and vent his frustration. One should give a sympathetic hearing to him about his expectations and explain to him about the diagnosis ,investigations, cost incurred and treatment and risk benefit ratio. Thus a cataract patient needs to be told that he may need a small power spectacle at times even with IOL implant or else face his wrath! The patient may also think surgery is the ultimate and stop continuing medication for the prescribed period. . It is a known fact that glaucoma is a global cause of preventable blindness .Many patients lose vision due to noncompliance of treatment. There are drugs to be used in management of glaucoma and patients need a periodic follow up for recording intraocular tension and visual field estimation . In many of them a rise of pressure usually will be there with age like hypertension and may need eye drops or surgical intervention .The patient must be explained about the disease its progression and consequences and how the control of intra ocular pressure can prevent blindness, stressing on follow up and regular visits lifelong.

Although technology is the buzzword in healthcare it is not that things will work perfectly always. Take for instance the digital BP monitor which is a great device to self record blood pressure . Unfortunately, it is not always reliable and there are instances where successive recordings show wide variations. A noted cardiologist got a call one night from a Doctor that his BP was low. The doctor was reassured since he didn't have any serious symptoms. Within Minutes the doctor again called to say that his BP is dropping alarmingly and this time he was desperate. The experienced cardiologist could sense what was happening and convinced him about the faulty machine .This is all about the experience of the cardiologist and how he dealt with it artfully. The role of the stent in CHD has been proven as shown by decreased incidence of coronary bypass surgery . Research has gone ahead with modification with drug eluding stents . However there are controversies galore. Although they last longer they have a higher incidence of hypersensitive reactions and late incidence of thrombosis and the patients have to be on long term antiplatelet therapy

Another observation is changing indications of standard management of health issues with time. Hypertension was treated when Blood pressure was above 140 /90 in younger patients .Older patients were treated based on rule of thumb where systolic was calculated adding hundred to the age. But with successive studies indicating a high risk of cardiovascular accidents and stroke the level at which systolic should be treated has been lowered . One can understand the diastolic pressure being lowered as it is ultimately a load on the aging heart. The more medication one uses side effects also have to be taken into consideration. Cholesterol which was the villain once is no longer considered so- today, sugar is the Satan!

Placebo effect is some what perplexing as to how a simple drug made out of sugar or vitamins or glucose injection can cure symptoms .Placebo effect happens when the brain makes body believe that fake treatment is authentic and mimics the response. This has been proven recording neural activity. Since it is CNS related it is more effective in treatment of connected disorders such as somatic pain, irritable bowel syndrome and Parkinsonism . It cannot work wonders in tumours, cannot lower cholesterol or treat an infection . This is posing a serious problem for pharmaceutical companies .In 2019 a pharmaceutical company named INTRA CELLULAR in USA was on the verge of a discovery of a drug named Lumateferone in treatment of bipolar disorder . In the American arm of the drug trial it could not outperform the placebo used, so the drug was not approved and share prices plummeted! The drug was finally approved in USA as it was successful in other countries .This has been attributed to the important role played by advertisements especially in USA that claim that the new pill is going be a magic bullet and people believe in it strongly. This, therefore, enhances the placebo effect . Many doctors use vitamins commonly for any complaint without informing about the drug and it works. The issue is whether patient will respond if he is told before hand about the placebo. It has been shown in various studies that an "open label placebo" is more effective in treatment and a physician has to be honest and trustworthy . Placebos have been shown to reduce the dependency on drugs used to some extent.

Teaching medicine is also an art. in olden days black board teaching was very effective . One could use different coloured chalks to draw diagrams stepwise, neatly labelling structures or drawing biological cycles. Anecdotes or examples would be spontaneously added to a make topic interesting .But one has to be thoroughly prepared and recall what is to be taught in front of the class. Nowadays life is much easier with power point slides which can be projected without having to remember the text. Students also tend to concentrate on what is written on the slide rather than listen. The best technique, therefore, might well be a combination of both. Polayni in 1958 pointed that while articulate contents of science are successfully taught all over the world in universities, the unspecifiable art of science has not reached that stage yet. A master is followed because he is trusted. An apprentice picks up the art including those not known the master! It is ultimately the experience and skill that matters.

In conclusion, art and science both are inseparable in medicine. Science takes care of understanding the happenings in the body, diagnosis and treatment of problems Art is how one can skilfully apply science to take care of the body and the mind. Science is evidence based and to be proved by randomised control studies while art is acquired by learning from teachers or colleagues and honing ones skill.

In the end, a judicious mix of both is what makes a good clinician.

Empathetic human relations still steer clinical medicine

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Medicine is a science of uncertainty and an art of probability
-Sir William Osler [1]

Clinical medicine involves direct interaction between the physician and the patient as the basis for diagnosis and treatment. Restoration of health is the desirable end for this interaction [2], the discussion of whether the doctor-patient relationship should extend beyond the scientific scope is brought to the fore. We are all assured time and again with surety that the medical practice is strictly pure science. We believe that physicians are trained in the application of this science to effectively identify diseases and heal patients [3]. This brings us to the question if the practice of medicine is strictly a scientific process? If not, what is the essence of healing? In recent years, quite often the emphasis has been on patient participation in treatment decisions. This means moving away from the paternalistic model where, the doctor makes all the decisions. Rather than addressing the disease alone, the practitioner is expected to listen and acknowledge the patient's own experience of the disease along with any fears or concerns [4]. While maintaining scientific interests and making unbiased treatment decisions, a physician needs to account for several factors. A good physician's ability of diagnose the disease on the basis of visible symptoms and knowledge of treatment is important. While being, unbiased, it is equally essential that the practitioner also listens to the patient and has an understanding of the patient's medical history [3]. However, this is not the only part where the art of healing comes into play. There is abundance of creativity in converting textbook knowledge into practical application; extrapolating and drawing from experience with an open mind while facing situations for which there are no written or researched evidence is available [3,6].

DETACHED CONCERN OR EMPATHY

Depersonalization of clinical medicine is a common complaint that we come across with patients yearning for empathy and understanding from their doctors [6]. Humaneness is much desired; however, it plays to the advantage of healing only if it does not affect the intellectual participation of the doctor as, diagnosis and prescription of treatment requires an impartial and objective outlook [3].

Empathy is an essential part of clinical care [7] and good medical practice [8]. In the practice of medicine, a doctor's ability to effectively communicate with patients builds trust [7]. Being acknowledged and understood can ease patient anxiety and improve care quality. Empathy, enables the patient to be heard and seen by the physician and helps them to develop trust in both physician and the process. However, it does not mean an empathic doctor is always nice or agrees with the patient in every aspect. It is in effect to show concern and to be emotionally present but maintain objectivity while making decisions. This is essential as observational reports suggest that patients are honest and reveal more details with practitioners who are able to show empathy to their predicament [9].

A patient doctor relationship can neither be based purely on empathy or detached concern alone. There needs a balance to be established. The physician while being aware and attentive to the concerns, suffering and anxiousness of the patients does not let it impact decision-making. The need is to convey sufficient enough emotional engagement to ensure patient comfort but not making subjective decisions impacted by the patient's pain and suffering [3,9]. Hence, clinical medicine can neither be practiced as strictly a scientific endeavour or based on the emotional response of the practitioner to the patient's pain. In turn, it is a delicate intertwining between sound scientific knowledge drawn both from education and experience and the ability to identify and diagnose without prejudice while being attentive through listening and responding to gain patient cooperation and trust.

THE PLACEBO EFFECT

Placebo effects are not just brought about by inert substances that are prescribed but could also refer to improvements in a patient's symptoms that are brought about by their participation in the therapeutic process and interactions with their care-giver. While placebos are largely used in a laboratory set up to determine the efficacy of drugs and to weed out ineffective and harmful treatment options, in a clinical setting when no specific treatment is available, placebo effect comes in to play in easing unnecessary suffering of the patient. Clinicians become therapeutic agents in how they identify with their patients both as a part and distinct from scientific therapeutic interventions [10].

A vital ethical consideration that needs be ascertained is that placebo effects be brought about in a respectable and trustworthy manner. Research has shown placebo effects can be a vital part of clinical care. Patient care can be altered in a way to provide improved clinical care by relieving patient anxiety and promoting expectations of positive outcome through placebo effect in a clinically relevant and honest manner [11].

In a clinical setting, supportive and engaging relationship between the physician and the patient can bring about placebo effects. While the placebo effect cannot be compared to the relief brought about by actual therapeutic agents, it does provide the necessary symptomatic relief to patients [12].

Application of the placebo effect to improve patient care in a scientific, therapeutic and ethical manner might be one of the most important parts of the clinician's role. This should be done in a non-deceptive way by making the patient part of the process and building trust for better clinical outcomes [11,12,13]. While the science behind the importance of caring clinical encounters and reinforcement of positive expectations have been established, the intelligent and ethical application of the same in the doctor-patient interaction is a skill that needs to be acquired [13].

CLINICAL REASONING

Physicians use a diverse range of strategies drawn from experience, education and practice. This is often referred to as the art of medicine. While randomized trials and laboratory evidences are key to any scientific process, they alone cannot be the basis for complete and effective clinical work [14].

Clinical reasoning in the face of genuine scientific uncertainty is an essential skill for clinicians. To be able to derive from physician's experience and patient history, a working model for treatment is essential in when dealing with the grey areas of science [3]. When treating, patients with chronic conditions like hypertension, uncertainty comes into play with changing patient preferences and lifestyle. The treating physician is required to take a decision not just based on the current results but to make an informed decision being aware of patient history, lab results, physical symptoms and risk- benefit analysis [15].

While Evidence-based medicine (EBM) is essential for arriving at a correct diagnosis and subsequent plan of treatment, the art of medicine lies in the ability to make use of the context, patient knowledge, patient input and the physician's own experience in the decision-making process. Though these are not considered to be on par with evidence from randomized trials, during clinical application, they are as essential and integral to the entire process [16].

The challenge lies for the practitioner in balancing the ever-expanding knowledge and technology with patient care [17]. While,EBM offers a platform for structured and tacit process for expert assessment, it alone cannot be sufficient. Every detail, complete or incomplete need to be included along with, cost, convenience, emotions and the readiness of the patient [3].

NATURE OF SCIENCE IN CLINICAL MEDICINE

Scientific medicine, as a collective is based on evidence and is the application of pure science. Emphasis is largely placed on the importance of factual science and the evidence-based reliability of the same. In short, quantitative approach takes precedence over the qualitative factors of patient care [17]. Identifying and recognizing patient problems and deciding on

suitable treatment methodologies require firm grasp of the fundamental scientific principles involved. Within the scientific community, knowledge exchanged through discussions and publications are publicly tested and queries are answered with objective facts and knowledge [3].

However, such scientifically authenticated reports and results are not always readily available. In reality, practitioners often find themselves dealing with unique, rare and unfamiliar predicaments. When faced with the unknown and unfamiliar, clinicians can often extrapolate from experience or turn to advise from colleagues. Though this can be effective, it can also have severe consequences if not cross-referred to the ever-expanding healthcare literature based on scientific methodology and assessments [18]. Practicing clinical medicine involves systematic assessment of problems, unceasing experimentation, processing data thus obtained and the revision of scientific knowledge [14]. We see constant improvements and changes to existing models and norms established by scientific literature on a regular basis. Evidence based models can make incorporating these changes into existing systems easier by providing confidence to all stakeholders as in general anticipated benefits are supported by evidence. Practicing evidence-based medicine involves developing skills that are not supplemented by traditional medical training. It involves defining not only the problem but also the basis for complete resolution while selecting the correct literature applying the same [19]. While, sound knowledge of human biology, scientific principles and evidence from clinical trials form the basis for clinical practice, it is always not enough to come to the correct conjuncture when dealing with individual patients. These quantitative principles often do not account for the qualitative nature of clinical medicine such as interaction, experiences, emotions and opinions [14].

We have come to know the potential of controlled, randomized clinical trial in improving collective scientific knowledge. As much as a physician should be aware of its results and be, it alone cannot be the sole basis for treatment recommendations [3]. Also, one needs to consider the fact that not every disease, illness and group of symptoms have a complete set of research-backed treatment guidelines. In reality, there might exist grey areas where, conclusive evidence as to the efficacy of a particular treatment method might be absent not due to the lack of research but due to inconclusive data obtained. Some examples of this include carotid endarterectomy, upper gastrointestinal (GI) endoscopy, hysterectomy, and percutaneous transluminal coronary angioplasty [20].

The science behind medicine helps us accept and trust the process based on the evidence established through RCT. The advances in science have enabled and empowered us to overcome several otherwise deadly diseases and illness. The diverse and accurate tests have made diagnostic processes much more accurate and greatly improving treatment efficacies. However, the question prevails: ‘Is scientific knowledge of a care giver alone enough to address the unspoken physical and emotional needs of the patients?’

THE ART OF IT ALL

In clinical medicine where doctor-patient interaction is paramount, diagnosis not only based on pure science but is considered an art involving skillful testing, communication, listening and expert observation[21]. Simply known as tacit understanding or knowledge, these skills have become a pivotal point of a practitioner's decision-making process allowing them to encounter unique and unconventional situations. Drawn from experience, this ability to extrapolate and improvise is rarely taught or found in texts. This part of clinical practice forms the art of medicine along with patient care [14,21].
In reality clinical practice involves several variables such as psychosocial factors, reassurance of positive outcome, shared decision making, patient consent, financial status etc. These cannot be decided on the numbers suggested in literature for an average patient and has to be personalized for individuals. Published data, if at all available, can only be relied upon to give a general idea while the onus is upon the practitioner to use patient knowledge, disease knowledge, history and their own personal wisdom to arrive at a conclusion. These qualitative components of decision making cannot be decided by clinical trials or statistical methods [22].

Thus, the art of medicine lies is developing strong biopsychosocial connection with the patient through efficient communication and the ability to suitably modify and apply experience within ethical guidelines. It leads to both an understanding of the patient and the disease. Not just a thorough knowledge of the human body but also understanding the involvement of the mental and emotional components affecting the patient can bring about better clinical outcomes [23].
At the center of good health care is the development of efficient communication with patients. Developing an understanding of one's patients is as essential as having an understanding of the physical sickness presented. Any medical practitioner will be aware of the fact that not all medical tasks are scientifically proven even though we would like to believe so. This is because in practical application, there are several variations present that are not usually accounted [14]. Most of these criteria are developed for the average patient who fulfils certain pre-drawn criteria and not for designed for individual patients. It becomes vital that a good practitioner is able to account for these variables and make suitable judgment calls while explaining the risk-benefit analysis to patients [3,13,21]. This is why science alone in insufficient when treating individual patients. While protocols are developed by generalizing research results, the psychosocial relationship between doctors and patients can greatly improve care in practical situations by helping the practitioner to tackle uncertainty and dilemma faced. A good communication line between the doctor and patient builds trust making the patient more forthcoming with the details. In turn, the doctor is made aware of patient expectations and is able to address patient reservations, concerns and fear. Together this brings about a better outcome for the patient being cared for and care-giver [4,10,23]. There is no denying that this opens up opportunities of bias or unscientific decisions aimed to appease the patients. A boundary needs to be established which enables the physician to be open to patient interaction and but not be perturbed by emotions causing them to take biased decisions.

CONCLUSION AND DISCUSSION

"Though mechanical aids and measuring devices extend the capacity of the doctors to serve the patient, they do not replace him. They are the adjuncts to the human relationship between doctor and nurse and patient; they cannot replace the art"
- Godber [24]

The practice of medicine can be explained by several philosophies. It may be regarded as a 'body of knowledge' operating within certain predetermined principles of application or as a mutually agreed outcome of the doctor-patient communication [25]. A good practitioner makes their decision not based on subjective knowledge but reflects on a range of factors and evidence available while keeping objectivity as the ideal [3]. Today's challenge lies in the fact that the physicians while keeping up with the growth in medical science should be able to incorporate humane care into the routine [17]. Recent times have brought forth the complaint that 'doctors are too scientific and less humane'. Applying medical science effectively while being compassionate is the essence of the art of medicine [25]. It is true that objectivity and precise science are the foundation of medical practice. However, it is not the only focal point on which efficient patient care is built upon. The Physician's role lies striking the balance between 'scientia' and 'caritas' [4, 17]. With illness or disease impacting both the physical and mental well-being of a patient, caring, comforting, being present, encouragement, reinforcing positive outlook along with the alleviation of pain and suffering all become part of the medical practice along with the cure itself [2].

Caregiving is central to clinical medicine as it is the primary point of contact between patients and doctors. The care needed by patients greatly vary based on cultural settings and cannot be generalized. Though the scientific basis of patient care remains the same, the way this is administered needs to be modify and evolve in accordance to individual patient need. This can be achieved only through constant communication [27]. Where does the practitioner's responsibility end?

Impersonal and objective nature is essential to a physician's ability to be able to form decisions without bias. This is necessary to preserving the 'objective knowledge of truth' and to avoid prejudice [2]. However, making the patient part of this process has immense benefits as have been established by literature. Not just scientific evidence but a physician's ability to listen to a patient and acknowledge their suffering has shown to improve clinical outcomes [3]. As discussed before, not every human ailment has precision scientific guideline established based on research and trials. Thus, the practice of clinical medicine not only requires the exact science that can be applied and but also the subtle nuances of art. The ability to listen, communicate, observe and extrapolate are all skills essential to provide improve medical care and ameliorate patients of their suffering. It calls for the practitioners to be objective to the problem of disease and emotionally attenuated to the patient in way where they can convey empathy without the suffering of the patient inflicting bias in their decisions. While the science of clinical medicine offers the structure and order needed to the medical decision making, it alone cannot be

considered sufficient for effective patient care. The art of caring for patients lies in the practitioner's ability to meet the needs of his patients not only when there is abundance of scientific evidence to back the chosen treatment regimen but also when met with the unfamiliar. Hence the science of medicine and art of humaneness are inseparable for a practitioner of clinical medicine.

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Creating a symphony between art and science of clinical medicine to promote healing

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"The good physician treats the disease; the great physician treats the patient who has the disease"

Sir William Osler

Physician's role as a healer can't be underscored given interpersonal encounter between patient and physician. Word patient, in Latin means sufferer and the goal of clinical medicine has always been to relieve the human suffering. Art and Science of clinical medicine has defined our profession for many decades, though both are intricately related. In ancient Greek, medicine is described as techne- "know-how", which embodies the concept of artisanal craft. Clinical medicine once considered as an art to practise, has been gradually replaced by technology-driven based practise. Each patient encounter presents an opportunity to learn, hone communication skills and strengthen core values. Meticulous approach to History taking and physical examination is an art to be mastered over years. Gentle hand examination was a way of reassuring the sick patient and helps in gaining their trust.

Practise of medicine has transformed dramatically over last many years. Change is always difficult but inevitable. Evolution of Corporate medicine has changed the landscape of healthcare in our country in last decade. Family doctors have vanished. Practise of medicine in today's world poses a moral hazard for most physicians. It drifted ones away from being a healer, to mere a service provider. Rules are set in boardrooms by non-medical personnel and physicians have hardly a say in delivery of healthcare. Payors and insurance companies are deciding the line of management and physician hands are tied and creativity vanquished. The canvas on which physicians used to paint their patient stories are blurred. A glance at daily

newspaper selling health is quite obvious in form of newer drugs, health packages, hospital marketing etc.

Making a diagnosis: Subjective signs vs objective tests

While stethoscope has been a symbol of being a doctor and this miracle tool can auscultate the ticking sounds to decipher the condition of heart and lungs…but technological advances have made it a rudimentary ornament for many …Advancements may argue that ECHO can replace the subjectivity of a murmur, likewise chest imaging can flash more information on status of lungs ...but I would emphasise that both go hand in hand and need to be valued based on the setting. None is superior to the other. The art of clinching a diagnosis based on sounds and taps is rewarding but a lot of ambiguities need to be objectively tested. We need to learn the art of eliciting the sounds and thereby use the correct test at appropriate time and need.

With the advent of technology, art of bedside clinics, auscultation is gradually disappearing and creative thinking has taken a backseat. Rampant use of heath gadgets, internet and various apps has further made the practise of medicine complex. Availability of enormous health data generated from them creates unnecessary stress and confusion for both individual as well as doctors. On other side, development of molecular diagnostics, Precision medicine to treat malignancies, 3D-printing for highly complex procedures etc. are proving boon to improve the outcomes of several pathologies.

The challenges and dilemmas

In this era of commercialisation, doctor- patient relation is sadly turning into a trade and delivery rather than a relationship. Frequent physical violence on doctors in last few years have further jolted the morale of practising physicians. Lack of public health infrastructure, adequate security, and lack of resources, societal indifference and political motivated defamation has further taken a toll on our doctor’s community.

The unfavourable environment often forces physicians to practice defensive medicine. The prevailing mistrust in society is a big deterrent for many doctors. They try to shy away from committing anything conclusive to patient and his family . Henceforth to save one’s skin they offer a plethora of diagnostic tests to avoid unnecessary malpractice lawsuits.

Problem of physician burnout is on rise and needs immediate attention. Many factors like shift duties, overwhelming workloads, increasing demands of electronic health records, relatively shorter appointment times, shortage of skilled healthcare staff and recent COVID pandemic are contributory to create a turmoil in the healthcare ecosystem.

How do we train budding doctors: artists or scientists?

Medical education is focussed on training young minds with infinite knowledge .With all credits to the wonderful medical training which has trained doctors over ages ,it is high time to supplement it to understand the needs of present society .It is time to value a young learner and make him realise the value of a beautiful life rather than bog him with just tons of

information .Of course ,knowledge is treasure but equally important is that the medical student grows to become a sensitive individual who values life and can empathize the need of his patients. Each patient encounter must be treasured and respected as it presents an opportunity to learn and hone one's skill. The budding doctors need scientific temperament but also be trained in life skills with art to understand and empathize. The art of communicating, the art of dealing and coping difficult times is one of the most important life skill which should be a part of the medical curriculum. The budding doctors should be assessed for their knowledge as well as the skills.

When the great scorer comes to write against your name

He writes not how much you read and memorized

But how you heal the pain

The way ahead:

Technological advancement is need of the hour; one still needs to a healer who can be trusted during sickness. Creating a fine balance between artful medicine and scientific advancements will go a long way in improving overall health of the society at large. Public health should be considered as priority and creating a positive atmosphere will help further strengthen the patient-doctor relationship. I hope and wish that all physicians embody the spirit of humility, passion and empathy along with technological know how of latest advancements.

It is always a symphony between the art and science that the doctor works toward healing the pain. A doctor is not the machine to dispense treatment with use of volumes of knowledge acquired over time but must complement this with his communication skills and art of healing. Either in isolation is incomplete. Let us weave the clinical art, medical values and technological advances into an intertwined approach to heal the world!

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Technology driven, Insurance guided practice of Clinical Medicine – Should we welcome this change?

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Is Clinical Medicine an art, or is it a science? It is neither, and it is both.

It is not an exact science like physics or chemistry, but it does use measurable elements in evaluating a patient, coming to a diagnosis and evaluating the prognosis.

It is not art in the sense that the physician does not take a patient as raw material and transforms him or her into something beautiful or aesthetic (except in some cases of plastic or aesthetic surgery.

I began my love affair with medicine in 1969 when I joined my alma mater, the Kasturba Medical College, Manipal. Now, more than 50 years later, I look back and shake my head in wonderment at the incredible progress that has been made all branches of medicine, be it in the field of surgery, critical care medicine, pediatrics and neonatology, infectious diseases, cancer treatment, and with the coming of age of 3D printing, manufacture of replacement body parts is no longer a Frankensteinian daydream!

When we studied medicine, our mainstays in treating patients were a detailed and complete medical history, a thorough and comprehensive physical examination. Laboratory tests were limited to basic hematology, urine and stool analysis, and basic biochemistry tests. Radiological studies were confined to X-Rays, either plain or with the use of contrast media.

Ultrasound examination was in its infancy in India, with M mode ultrasonography (which resembled a cross-section of the earth's crust rather than a body part!) was the only option available. Computerized tomography was introduced in medicine in the early 1970s, magnetic resonance imaging came much later, in the early 1990s.

Diagnosing a patient's ailment relied heavily on the physician's skill in taking history, picking up abnormalities on careful clinical examination, reading up and using medical knowledge to come to a provisional diagnosis and using the limited investigative modalities at hand to come to a definitive diagnosis. The level of patient care depended in large measure of the skill and dedication of the physician who largely had to work without guidelines, treatment protocols and algorithms. Reference material was scant in the pre-internet era.

Often, a conclusive diagnosis could not be arrived at by clinical examination, and the surgeon would resort to an "explorative laparotomy" which was a euphemism for a fishing expedition.

With the advent of newer medicines, many cases who had no option but surgery could be treated with medicines. In gastroduodenal ulcer disease, vagotomy was the gold standard. This procedure has been rendered obsolete by effective medications such as H2 receptors (ranitidine), and proton pump inhibitors like omeprazole and pantoprazole.

Medicine in the 21st century ensures that patients receive the best possible evidence based, effective treatment with complications and adverse outcomes reduced to the minimum possible due to better and more accurate diagnosing modalities, more effective medications and established and standardized treatment guidelines and algorithms.

Are we then living in the golden era of medicine and is the future going to be even better for clinical medicine, doctors and ultimately, the patient?

Unfortunately, the very reasons which have made modern medicine are also the reason for for the decline in clinical skills.

Herbert L. Fred coined the term Hyposkillia to describe the deficiency of clinical skills that has crept into medical education and training of young doctors. This decline began many decades ago, but the process has accelerated in the 21st century.

Over reliance on diagnostic tests, with the corresponding decline in basic skills like history taking, clinical examination, are increasingly coming to the fore.

There are multiple reasons for this. Defensive medicine, for fear of litigation by patients plays a large part. Ordering sophisticated, expensive tests bring in revenue for hospitals and there is a palpable reluctance on the part of the hospitals to curb this trend.

There is also a paucity of dedicated, skilled teachers in the medical schools today to impart clinical skills to the students. Hospitals focus more on becoming centers for state of the art facilities for treating complicated, high risk patients which boosts its rankings in surveys of the best medical facilities in the country. High end research on rare, serious diseases bring in government and university grants. The focus on training doctors ranks far below in the list of priorities.

How does a doctor think? What thought processes and previous experiences or reading guides him or her in the diagnosis of a patient's condition, and choice of treatment?

From the time of Hippocrates, taking a history and physical examination has been the bedrock of the art of medicine. History taking does not only mean a cataloging of a patient's complaints. Whiletaking the history, a skillful physician not only picks up what the patient states, but also the body language, the unstated doubts that a patient has in his mind.

For example, a patient may say that he has headache of a few months' duration. On further questioning he says that he sometimes has dizziness, blurring of vision, weakness of limbs sometimes, and a clinical examination focusing on the neurological system fails to turn up any positive findings. What is the next step? Investigations like an MRI scan seems to be the next logical step. At this point, an experienced clinician can sometimes sense that the patient is not really concerned about the headache, but about something else. Gentle probing may sometimes elicit the true reason why the patient has really come to the doctor, but often, direct questioning is the only way to get to what really is the matter: "Are you worried about a brain tumor?" or "Are you worried about a stroke" will often bring out the real reason why the patient has come to the doctor. Often, a close relative or office colleague would have been diagnosed with a brain tumor the patient suddenly starts worrying about his headache. An internet search turns up frightening results like astrocytomas and glioblastomas. A thoroughly frightened patient now reads up the symptoms of brain tumors and starts "experiencing" those symptoms. At this point, the physician often has no option but to order an MRI scan of the brain, not because he feels the patient has a space occupying lesion in his brain, but to reassure the patient that there is nothing wrong with him.

The advent of social media has brought new dimensions to the practice of medicine in the 21st century. The good part is that patients can access medical content which can explain their illnesses, find support groups to help tackle their concerns. The bad part is that much of the medical content shared on social media is wrong, useless or sometimes downright dangerous. The ugly part is the deliberate attempts on social media to portray modern medicine as dangerous, and medical practitioners as avaricious bloodsuckers, acting in collusion with Big Pharma (Ah, I love that phrase!) to swindle the poor patient out of thousands of rupees for costly medicines and expensive, wholly unnecessary tests. And the proponents of these theories are mostly charlatans, snake oil merchants who want to treat patients using untested often dangerous treatments. But not all of them are crooks. Some of them are reputed, often retired physicians who embrace 'holistic' treatments which defy all logic and tenets of medicine. They are popular speakers at social organizations' meetings, and radio and TV talk shows.

Over the years, computers and Hospital Information Systems have impacted how we practice in a major way. Electronic medical records, electronic prescription writing, electronic laboratory and radiology ordering and retrieval of results have changed the way we practice medicine. Gone are the days of illegible case notes and more significantly, illegible prescriptions which could cause harm to the patient! LIS (Laboratory Information Systems) and PACS (Picture Archiving and Communication Systems) have made it easy for doctors to have all the results of the tests ordered quickly.

The more elaborate Hospital Information Systems incorporate Clinical Decision Support (CDS) to help doctors work more efficiently. This can vary from the basic, to very elaborate systems. For example, the History and Physical Examination template has a field for entering Allergies to medications and foods. If a doctor prescribes a medication containing an ingredient to which the patient has an allergy, the system immediately alerts the doctor with a red flashing warning and audible beep regarding the allergy. In some cases, the system halts the prescription process until the allergy causing drug is deleted.

More sophisticated CDS Systems incorporate further enhancements: Order sets for each department or disease condition. For example, if the clinical diagnosis is Acute Appendicitis, the system automatically suggests CBC, CRP, routine urine, plain X-Ray abdomen, Ultrasound abdomen as the recommended Order Set. If the diagnosis is diabetes mellitus, the system would recommend fasting and two-hour postprandial blood sugars, HbA1c, urine microalbumin, lipid profile and renal function tests as the order set for management of newly diagnosed diabetes mellitus. In a case of ischemic heart disease, if the doctor chooses aspirin, the system would suggest 100 mg per day as the recommended aspirin dose. If on the other hand the diagnosis of rheumatoid arthritis, the system would recommend a dose of 1000 mg aspirin 3 times per day. If a person has to take hepatitis B vaccine, the system automatically recommend the dosing schedule and the appointments for the subsequent doses of the vaccine. If the physician needs to read up about a particular disease condition, he does not have to go to the library to look up textbooks or journals regarding the condition. Hyperlink buttons in the EMR would open up medical databases giving information about the disease condition, treatment protocols and investigations. All the above makes medical treatment more standardized, less prone for errors and make it easy for medical audits regarding documentation and treatment standards.

Comparing medicine 50 years ago and today, one needs to look upon the role of the doctor then and now. The difference between a good clinician and an average one was the amount of time the doctor spent in taking the history, making an examination, assessing the patient and the disease condition and coming to a diagnosis and take a decision on the treatment of the patient.

In modern day medical practice, the history taking is often reduced to the patient filling up a standard JCI compliant questionnaire and the doctor filling up of examination form containing yes/no options for example: Anemia yes/no or jaundice yes/no. The software then suggests the most likely differential diagnosis, the recommended tests to come to a diagnosis, and the recommended treatment. This almost reduces the doctor to the status of a data entry clerk.

A note on the trend for Executive Health Checkups.The U.S. Preventive Services Task Force (USPSTF) is an independent, volunteer panel of national experts in disease prevention and evidence-based medicine. The Task Force works to improve the health of people nationwide by making evidence-based recommendations about clinical preventive services. Using this as the Keystone, many hospitals and clinics offer the general public Executive Health Checkup Packages. The patient/client fills up a questionnaire about his or her medical

conditions, past history, surgeries and medications. A doctor then performs a perfunctory clinical examination and the patient is sent off for a series of laboratory and radiology investigations. These would include CBC, liver function test, renal function tests, thyroid function tests, testing serum iron, B complex, vitamin D;

Chest x-ray, ultrasound abdomen, treadmill test, and in the case of females a mammogram and a Pap smear would be done. A week later the patient/client would meet the doctor again to discuss all the results, dietary advice and lifestyle changes recommendations would be given and the patient would receive a glossy dossier containing the results of all the tests done. The patient is satisfied that he or she has done comprehensive checkup and the hospital is happy about the revenue generated from essentially normal healthy individuals. Exercise and dietary advice is generally ignored! Huge amounts of money is spent on this wasteful method of detecting illnesses. It would be far better for a person to meet his or her family physician every 6 months to 1 year to discuss any illnesses that might need treatment rather than be treated like a car going in for a 10,000 km service checkup!

In conclusion, medicine has made tremendous strides in the last 50 years as regards to understanding disease, diagnostic tests and tools such as ultrasound, CT and MRI technology, newer antibiotics and medicines with more efficacy and less side effects. Treatment protocols and guidelines are standardized and evidence-based, and institutions like JCI ensure that hospitals, clinics and doctors/nurses meet acceptable standards of safety and medical care. On the flip side, medicine has become very expensive and doctors and nurses are more technicians and less medical professionals. Insurance companies, Hospital finance managers are intruding more and more into the doctor's decision making in the treatment of a patient. On a personal note, I yearn for the time when medical practice was more individualized, caring and ultimately satisfying for both the patient and the doctor.

History of Geriatric Medicine in Mangalore

Dr.PrabhaAdhikari, Former HOD General Medicine ,KMC,Mangalore
Currently Professor of Geriatric Medicine
Yenepoya deemed to be University, Mangalore

India has currently more than 100 million elders as per 2015 census and they suffer from multiple comorbidities,disabilities ,geriatric syndromes commonly referred to as geriatric giants and age related problems. In addition they suffer from several social economic,psychological and spiritual issues.They visit multiple doctors and take medicines from multiple systems of medicine leading to polypharmacy and drug related diseases .It is estimated that these are the figures for various diseases and disorders as per 2015 statistics

- 3.7millions suffer Dementia
- 40 million suffer from poor vision
- 1.6 million annual stroke cases
- 1 in 3 suffer from arthritis
- 1 in 3 has hypertension
- 1 in 5 has diabetes
- 1 in 5 has auditory problems
- 1 in 4 suffer from depression
- 1in10 falls and sustains a fracture
- I in 3 bowel disorder
- Cancer 10 times more common

Initiative from Manipal Academy of Higher Education :History of Geriatric Medicine started in the year when I am glad to mention that Manipal Academy of Higher Education was the first to respond to this challenge when Chancellor of MAHE,Dr.RamdasPai agreed to have MOU with AbhayaAshrayaKonajeand to reserve 60 beds for bed ridden elderly at Kasturba Medical College Hospital Attavar with an idea to start M.D.Geriatric Medicine and an exclusive hospital for Geriatric Patients at Konaje Campus of AbhayaAshraya.

What we could as Physicians for elderly :This was a golden opportunity for myself ,my colleague Dr.Pratibha Pereira and Dr.NityananadaChowta and innumerable Postgraduates and undergraduates who went through the postings in Geriatric ward . We examined these 60 inmates in detail and identified lots of treatable medical conditions such as cervical cord compression ,tuberculosis ,COPD,Bronchiectasis ,Rheumatoid arthritis ,fractrues ,Psychiatric Conditions like depression ,bipolar mood disorders and we optimised their clinical conditions .Meanwhile Dr ,PratibhaPeriera got opportunity to get trained in Geriatrics in Malta.

What Geriatric approach did to these inmates:British Lady Doctor Marjory Warren founded Comprehensive Geriatric assessment when she was posted in a ward full of elders with multiple physical and mental health issues and were written off for a permanenet stay in the hospital .She mobilized most of them and discharged them to lead a useful life at home Dr. Pratibha Pereiera after her return from Malta introduced the concept of Comprehensive Geriatric Assessment for older people in Mangalore and involved a multidisciplinary team for Geriatric ward .I would call her the **Mother of Geriatrics in Mangalore**

Multidisciplinary team Intervention :Physiotherapists improved functional status of these patients ,while Psychiatrists and psychiatry social workers improved their mental health.The team felt that they need to be kept occupied and engaged .So we started several interve

Clinical Cases:Ones useful for undergraduates such as strokes, chronic lung diseases, neurological diseases,aortic valve disease,liver diseases were teaching material for our MBBS students.We used some of them who did not have findings as simulated patients for training undergraduates ..There was one visually challenged elderly Mr.Surappawho could give COPD history to one,TIA to another Peptic Ulcer to the thirdand Angina to the 4thand would enjoy if a III term student student copied from another student and got into trouble.

Active ageing :We could create an atmosphere of active ageing by exercise, singing Bhajans in the evening, praying for the sick ICU patients .One of them who was a teacher by name Vaniammawas ready to make them literate .Year after year she taught them not only the syllabus, but also exercise, Bhajans and news reading . She could teach upto 8th standard syllabus to some of them while there was one lady Akku who would copy only the number zero and fille her note book with zeroes

Nutrition Intervention :Dr .PratibhaPeriera felt that they need more protein upto 1.2G/Kg since most of them were sarcopenic and frail .So we added supplement protein to all of them .After a month we got a call from the neighbouring medical shop saying that some of them were selling it back to the shop as they did not like it or they needed money to buy Beedis ,snuff and even alcoholic drink which was forbidden in the hospital !We stopped the supplement and gave them eggs and Ragi drink .

How The geriatric Unit resposnsibility fell on my Shoulders: I was motivated to look after elderly as I had seen my father as the President of AbhayaAshraya and his contributions to its expansion .I was meeting all the new entrants of AbhayaAshraya even before I completed my

MBBS .As Dr ,Pratibha had to relocate to Bangalore I happily took over over the ward and continued with whatever was started .

Day Care Centre of Active Ageing :Meanwhile ,I felt there was a growing need to keep the community elders active and engaged after retirement looking at my own elders especially my father who was a victim of dementia .There were many distressed elders who had lot of social issues which would affect their health and they would come to my OP just to share their problems . With the support from the dean, the medical superintendent ,and physiotherapy department, we started the first active ageing Centre Nava Chaitanya for community dwelling elders in the year 2002 December which was actually inaugurated by Professor B.M.Hegde the Vice Chancellor on the 26th of January 2003.Nearly 500 elders became members of which at a given time nearly 50 would come for exercise daily .Physiotherapy department especially Dr. Suchitra ,Dr.Vaishali supported this programmeRest underwent training in exercise and continued to exercise at home .After this programme was started ones with troubled mind who were frequentling our OP slowly stopped clogging our OPDS.

Bejai Yoga and Exercise group at The amphibian lab of Physiology department ::Very soon a second branch of Active ageing centre was started at KMC Bejai Campus with the support from physiology department where exercise was combined with Yoga. More Than 300 members have been trained in yoga of which nearly 50 are regularly coming to the centre.Since we started the unit by holding a diabetes camp most of them were diabetics .We learnt that diabetes stopped progressing after they got enrolled into the programme

Result of these Interventions :After this programme was started ones with troubled mind who were frequentling our OP slowly stopped clogging our OPDS.We found this intervention most productive and useful .Elders became young active .They would sing ,dance and have their own skits for annual day, would participate in all competitions and win prizes .They were involved in several fashion shows,Bollywood and Kollywooddance performances .Annual days were funfilled and full of performances.Their pains and aches vanished, depression disappeared ,NCDs improved or stabilized .There was significant reduction in pill burden .There were two elders who reversed their diabetes and dyslipidemia completely .

Financial Support from the University :One of the annual days ,Chemistry Professor and Ex Principal of Vijaya College Mulki who was a member had come despite his terminal illness.DrRamdasPai and DrH.S.Ballal were so touched when he welcomed the guests .We later on learnt that he was their teacher .It was a GururPoornima day .We got full support for the programme with a matching grant from the university until Dr .H.S.Ballal was the Vice chancellor.

Comprehensive Geriatric Assessment Clinic :We organized KARGERICON –annual conference of Indian Academy of Geriatrics which trained quite a few of our junior doctors in Comprehensive Geriatric Assessment which uses 7 Toolkits .We also developed a software for our clinic which was based on the 45 page WHO tool kit .Junior doctors got excited with the use of software and assisted me in running the clinic and we could record data on nearly 1500 geriatric patients

which included community dwelling elderly also .We learnt that by just using the tool we could solve many of the problems of the elderly .I am proud to say that we could the complete assessment of all the problems of the elderly in just 30 minutes .

P.G.Diploma in Geriatric Medicine by IGNOU:As we were getting ready to start M.D.Geriatric Medicine in KMC,we were worried whether additional qualification is.Hence Myself and DrSheetal Raj completed the PG Diploma Course in Geriatric Medicine offered by IGNOU through MS Ramaiah medical College .Those books, almost 15 of them helped us understand Geriatrics better .We learnt to use nearly 20 toolkits needed for elderly assessment

Home Care :As KMC understood the need for home care for the elderly, they were the first to start home care services such as nursing services ,IV injections and infusions, wound dressings through dedicated experienced staff nurses through KMC Hospital AmbedkarCircle.I also started Spoorthi Charitable Trust through which I could give home care to elderly with functional limitations .

Other Institutions and Geriatric care in Mangalore:AJ Institute of Medical Sceinces started its home care services for elderly as early as 2012 .KSHEMA started a programme for the elderly a day care facility where elderly were picked up from locations and taken to the centrefor OP care through AGE (Action Group for the Elderly) founded by Dr .Rahul Bansal ,Associate Professor of Community Medicine KMC .**JeevanSandhya**which is the dream project of KSHEMA is a full day care facility where 30 to 40 elderly are picked up and kept engaged by the psychology team till evening providing food and place to rest

Geriatric Palliative Care Icing on the cake for our Passion for Geriatrics :While we were very much comfortable with rehabilitating elderly ,when we met elders with incurable conditions we used to be distressed .It was by destiny that I met DrJochen Becker in a Indian Academy of Geriatrics Conference in Chennai.I learnt that he has trained nearly 14000 German doctors and nurses in Geriatric Palliative care and he was looking out for a partner in India .As MAHE was kind enough to give me the position of Dr .TMA Pai Endowment Chair in Geriatrics ,I was permitted to start the first Course of Geriatric Palliative Care in KMC,Mangalore through which nearly 12 doctors ,4 nursing faculty /nurses , 2 social workers ,one lay person ,one psychologist got trained.Thus was born the concept of Geriatric Palliative Care in India.I am proud to say we are the first to start Geriatric Palliative care which is different from Cancer Palliative Care .

Result of the training :Geriatric Palliative Care is a very long term care as long as 10 years in some cases especially in neurodegenerative conditions like dementia ,Parkinsonism and stroke cases and can be moderately short in organ failure patients and frailty and very short in cancer .We have been able to care for more than 1000 elders for as long as 10 years by providing support at homeThis course transformed most of us .We improved in communication ,care ,compassion without distress to self and also learnt to improve patient`s condition by addressing all the symptoms .Today we have developed a palliative Care Needs Assessment Questionnaire and Quality of Life questionnaire which we have named as Y-Empathy Questionnaire which has been validated and even a nurse or social worker can administer it and

understand physical, social ,psychological and spiritual needs of a patient and the care giver and able to know the wishes of the patient who is suffering cancer,organ failure or incurable neurological / orthopedic conditions or just frality.

I am fortunate to be able to continue the programme at Yenepoya Deemed to be university with the support of the faculty who are trained and we are running the 4th training Programme since August 2022.

First Department of Geriatric Medicine in Mangalore :As I moved after superannuation to Yenepoya deemed to be university ,institution supported me to start first a Geriatric clinic services with concessions for geriatric patients of 50% with free USG,ECG,ChestXray CBC& blood sugartests..Department of Community Medicine and School of nursing supported the department in comprehensive assessment of patients both in the community and clinic by providing Post graduates and nursing students .Yenepoya University introduced geriatric services in some of its rural subcentresIn recognition of Geriatric services,Yenepoya University was awarded **State award on World Elder`s Day 2018 by the Ministry of Women and Child development**

Postgraduate seats and Post M.D.Fellowship in Geriatric Medicine Yenepoya Deemed to be University Department of Geriatric Medicine was recognized for 2 PG seats for M.D.Geriatric Medicine in the year 2020 and today we have got the first batch of Geriatric medicine post graduates ably supported by two medical officers, a geriatric physiotherapist ,nutritionsit and a social worker .Department has four faculty .Dr.Kishore Kumar Ubarnagala,Professor of Internal medicine agreed to shift to Geriatric Medicine. Post M.D.Geriatric fellowship programme in Geriatric Medicine was also started.Dr.KaranHegde became the first fellow cum Senior Resident of the department .Dr.AbhijithRao, with M.D. Geriatrics from AIMS, New Delhi completed our department The department is ably supported by a caring nursing team and department has a beautiful 26 bedded ward and 4 acute care beds .It is more a home than the hospital for the distressed elderly who come after travelling more than 500Kms .

We have started home care ,telemedicine services and free services for acutely ill BPL card holders free specialist services .We have MOUs to look after the health of elders at 4 homes in and around Mangalorewhich includes a unique Neuro-Palliative care home for people with major Neurocognitive disorder, the only one of its kind in D.K.district

Online Activities :We have started Yen Active Ageing Centre Online since COVID Times .We have kept elderly occupied by a morning exercise ,evening exercise, mid morning singing classes and art classes and evening dance class .We have held competitions, memory testing fitness testing online

Training of Medical Officers,staff Nurses and ASHA workers in Geriatric Care:In D.K .district for the last 3 years, every medical officer is trained in Geriatric care by our department. .Similarly staff nurses and ASHA workers are trained both in healthy ageing and Geriatric care .Geriatric clinics are running even in PHCs once a week and CHCs twice a week .30bedded Geriatric ward was to be started in Wenlockhospital ,but took a back seat due to COVID-19.

**Mangalore Alzheimer`s Association** :Understanding the needs of dementia patients Mr.JeradinDSouza, former Youth Congress President founded Mangalore Alzheimer`s Association under the mentorship of multiple doctors which included neurologists ,psychiatrists ,socialworkers through which several Alzheiemr`s awareness programmes and support group is created for these patients .More than 5000 queries have been addressed by this association.

People`s Association of Geriatric Empowerment :In order to promote and duplicate best practicesactive ageing multiple organisations caring for the elderly came together to form this organsiation under the leadership of Dr .Olinda Pereira ,founder RoshniNilaya, Founder Vishwas trust for elderly care .Member organsiations such as Spoorthi Charitable Trust,Bright HR solutions providing 200 nurses for home care ,AGE Mangalore,Upasana a dance learning group, Sahaya which distributes nutritious food to elderly at home,Mangalore Senior citizen`s Association disseminate information needed for the elderly through their organsiations .September Month is dedicated to prevent or reduce Alzheimer`s Disease in the city of Mangalore by addressing risk factors .Usually Launch would be on the Ist of September and Grand Finale will be held on 22nd of September with as many as 30 organisations .Nitte University ,Yenepoya University ,AJ Instiute of Medical Sciences ,Kasturba Medical College are a part of it .Lion`s club, Rotary club,Karnataka Bank and MCF support these programmes .Several Vice Chancelleors and deans have been part of it

Myths and Truths :

1.**Myth** :Geriatrics is about treating elderly patients by a physician and referring them to multiple speicialists for each system diseases

Truth :Geriatrics is a team sport .The team consists of a physician who addresses all the medical problems ,Physiotherapist cum occupational therapist ,nutritionist ,psychologist and a social worker and well trained nursing team .Specialist help is taken for management as and when needed for a diagnostic procedure or intervention ,but geriatrician is the team leader **Geriatrics is not about referring to multiple doctors for multiple systems, but about treating the patient yourself with support from multidisciplinary team**

2.Myth Geriatrician does the same thing as a physician in a separate clinic

Truth : Geriatrics is addressing not only multi morbidity ,but addressing geriatric syndromes such as frailty, sarcopenia ,dementia ,depression ,incontinence ,frequent falls, insomnia, nutritional issues ,polypharmacy ,functional status ,social ,psychological ,ethical ,spiritual needs of older person with multiple pathology using as many as 40 toolkits which require training

3.Myth :Geriatrics handles only bed ridden vegetative patients

Truth : Geriatrics focuses on making elderly functionally independent and active irrespective of how many diseases they haveand what stage of the disease they are in **.** It is about

rehabilitating them to disabilities.It is about looking after their physical,social, psychological and spiritual health providing them support for total health.

- 1.Active ageing
- 2.Prevention of diseases and risk factors
- 3.Acute and Emergency Care
- 4..Optimising care for multiple morbidity
- 5.Address all geriatric syndromes
- 6.Minimize Polypharmacy ,
- Provide Rehabilitation for disabilities
- Supportive care to end stage diseases
- 9.Provide Long term Care
- 10.Palliative care for people with life limiting illness
- 11.End of life Care
- 12.Support care givers
- 13.Home Based Care
- 14.Community Care

General Physicians provide excellent care to multimorbdity, but unable to deal with all the branches of Geriatric Medicine.As a Geriatrician ,I have enjoyed establishing stability in the condition of the patient by reversing all the possible reversible conditions and pathologies by using simple tools and providing holisitic Care

My Hopes for the Future :Department of Geriatric Medicine is absolutely essential for all healthcare organisations caring for the elderly .I hope NMC makes it mandatory to have this department in every medical College so that our elderly population is taken care of .I Hope more physicians take up training in Geriatrics through Certificate Programmes offered by Geriatric Society of India,International Association of Geriatrics and Gerontology , and Geriatric Palliative Care course of Yenepoya University to provide holistic care to this population .I am glad that the new NMC curriculum has included 23 competencies in Geriatric Medicine and also included Geriatrics in Internship .However the teachers are not trained .So it will not serve the purpose .A teacher`s Training Programme is being developed using I-COPE module of WHO and training of trainer`s programme is nearly complete .However that is not in accordance with NMC curriculum

My only Regret : I could not start the department of Geriatric Medicine in my Alma Mater which trained me ,nurtured me to grow in the field of Geriatric Medicine .I could not fulfill the dream of our revered President of MAHE Dr.RamdasM.Pai of either starting M.D.geriatric Medicine or an exclusive Hospital for Geriatric Care at AbhayaAshraya Campus in Konaje .

How can we develop Geriatrics in India :Medical Colleges do not support geriatrics as they think it is a branch that is less preferred compared to Internal Medicine .But Geriatric Medicine

is an end speciality and the most satisfying branch and less stressful .Out comes are excellent with patients .I feel senior Physicians who would have experienced limitations in caring for geriatric patients and young physicians who do not want to go for super Specialisation should get trained in Geriatric Medicineand start at least a **Geriatric Clinic to do Comprehensive Geriatric Assessment once a week** and learn to to use at least the 7 basic tools recommended by WHO in 2007 and WHO I-COPE module recommended in 2020**.**

School for Active learning –Long term care ward KMC

KMC Nava chaitanya Exercise and yoga improved mental health ,diabetes and heart rate variability

First batch 2002-exercise **Yoga**

Pictures from KMC Nava chiatanya 2003 –first few memebers enrolled

ಲಹರಿಯ ಅಲೆಗಳು

Lahariya alegalu/ Waves of Lahari

Dr Arun S
Associate Professor
Department of Medicine, KMC Mangalore

ತೆರೆಮರೆಯ ಅಲೆಗಳ ಸಾಗರದ ನಡುವೆ
ಉದಯಿಸಿದೆ " ಲಹರಿ " ಎಂಬ ಈ ಆದಿತ್ಯ
ನವೋದಯದನವ ಚೈತನ್ಯ ಬೀರುವ
ಅರುಣೋದಯವಾಗಿದೆ .ಬೆಳಗಿಸಲು ದಿನನಿತ್ಯ
ಲಹರಿಯ ಈ ಪಯಣ ಸಾಗಲಿ ಸುಗಮವಾಗಿ
ಎತ್ತರೆತ್ತರದ ಶಿಖರಗಳನೇರಲೆಂದು
ಹಾರೈಸುವ ನಮ್ಮೆಲ್ಲರ ಈ ಪ್ರಯತ್ನದದ್ಯೋತಕಕೆ
ಯಶಸ್ಸಿನ ಉತ್ತುಂಗವಸೇರಲೆಂದು !

From amidst the unseen has risen
The shine of "Lahari" in all glory
heralding enthusiasm with new hope
ushering unto us a new story
Let its journey be safe and strong
and may it always be upward bound
Let us all wish this token of unified effort
And pray It covers limitless ground.

POSTGRADUATE CORNER - MEDICAL EPONYMS

Dr.Mishal Jain
Third year postgraduate, K.S.Hegde Medical Academy, Mangalore

JEAN-MARTIN CHARCOT(1825–1893)

Jean-Martin Charcot was a French neurologist and professor of anatomical pathology.Hewas born in Paris, France in 1825 at a time when the field of Neurology had not been formally recognized as a distinct specialty.He was born into a financially limited family and was the only one among his three siblings who had the opportunity to complete higher education.He was a talented painter and this helped him make connections between different disease patterns and anatomy. He was also trained as a pathologist. He tried to correlate patients clinical progress with their autopsy findings.

He was a great teacher. He would use specimens and cadavers to teach his students regarding diseases. He would also imitate clinical signs and draw illustrations of the clinical findings. Some of his noteworthy students were Sigmund Freud, Charles Babinski, and Gilles de la Tourette.

Charcot is known as "the founder of modern neurology".He has been called "the Napoleon of the neuroses".Charcot was instrumental in opening a neurology centre in Salpêtrière Hospital in 1882. He and his colleagues examined and classified numerous neurological disorders in the centre. He worked on hypnosis and hysteria, in particular with his hysteria patient Louise Augustine Gleizes. He initially believed that hysteria was a neurological disorder for which patients were pre-disposed by hereditary features of their nervous system,but near the end of his life he concluded that hysteria was a psychological disease.Charcot has also been referred to as "the father of French neurology and one of the world's pioneers of neurology".His work greatly influenced the developing fields of neurology and psychology;.

He was the first to describe the clinical features and pathological changes of multiple sclerosis. He used this knowledge to diagnose MS in real patients. He even formulated the The three signs of multiple sclerosis now known as Charcot’s triad are nystagmus,intensional tremor and

telegraghic speech, though these are not specific to MS. He was also the first to describe a disorder known as Charcot joint or Charcot arthropathy, a degeneration of joint surfaces

resulting from loss of proprioception. He was also able to establish amyotrophic lateral sclerosis as a seperate disorder

Charcot's other significant accomplishments include the following: describing the brain's vascular supply, differentiating tremors found in Parkinson's disease with those of patients with multiple sclerosis, differentiating hysteria from epilepsy, being one of the first physicians to set up rehabilitation clinics for the treatment of his patients, and formulating a triad (known as the Biliary Triad) for diagnosing acute cholangitis which consists of right upper quadrant pain, jaundice and fever.

Charcot was among the first to describe Charcot-Marie-Tooth disease (CMT).The disease was initially thought to be a myopathy before he correctly labelled it as a neuropathy.

His contribution to the field of medicine and neurology is outstanding. The following are few of the diseases and discoveries which have been named after him due to his contributions .

Eponyms

Charcot's name is associated with many diseases and conditions including

- ✓ Charcot's artery -lenticulostriate artery
- ✓ Charcot's joint -diabetic arthropathy
- ✓ Charcot's disease -amyotrophic lateral sclerosis, the most-common subtype of motor neuron disease (also known as Lou Gehrig's disease).
- ✓ Charcot–Marie–Tooth disease -peripheral muscular atrophy named with Pierre Marie and Howard Henry Tooth.
- ✓ Charcot–Wilbrand syndrome -visual agnosia and loss of ability to revisualise images named with Hermann Wilbrand.

- ✓ Charcot's intermittent hepatic fever -intermittent pain, intermittent fever, intermittent jaundice, and loss of weight.
- ✓ Charcot–Bouchard aneurysms -tiny aneurysms of the penetrating branches of middle cerebral artery in hypertensives. Named with Charles-Joseph Bouchard.
- ✓ Charcot's triad of acute cholangitis -right upper quadrant pain, jaundice, and fever.
- ✓ Charcot's neurologic triad of multiple sclerosis -nystagmus, intention tremor, and dysarthria.
- ✓ Charcot–Leyden crystals due to the lysis of eosinophils in cases of allergic diseases, named with Ernst Viktor von Leyden.
- ✓ Souques–Charcot geroderma- a variant of Hutchinson–Gilford disease, named with Alexandre-Achille Souques.
- ✓ Charcot–Gombault necrosis-a biliary infarct, named with Albert Gombault.

JOURNAL SCAN

Section Editors

Dr Chakrapani M

Dr B.Sadananda Naik

Summaries of important published articles

Too much salt restriction in Heart Failure is not so good

Li J, Zhen Z, Huang P, et al Salt restriction and risk of adverse outcomes in heart failure with preserved ejection fraction Heart 2022;108:1377-1382.

In this study involving 1713 participants with HFpEF which compared with patients with cooking salt score 0, and patients with cooking salt score >0, it was found that the latter group had significantly lower risks of the primary endpoint. Hence, it was inferred that overstrict cooking salt intake restriction was associated with worse prognosis in patients with HFpEF, and the association seemed to be more predominant in younger and non-white patients. The study recommends the clinicians not be very strict with their advice regarding salt restriction in the diet.

Continuous Blood Pressure Monitoring using electronic self-adhesive tapes

Kireev D et al. Continuous cuffless monitoring of arterial blood pressure via graphene bioimpedance tattoos. Nat Nanotechnol 2022 Jun 20; [e-pub]. (https://doi.org/10.1038/s41565-022-01145-w.

Continuous monitoring of arterial blood pressure (BP) in non-clinical (ambulatory) settings is essential for understanding numerous health conditions, including cardiovascular diseases.

A team from Texas reports developing “graphene electronic tattoos:” Graphene is a hexagonal lattice of carbon atoms, just one atom thick: the “tattoos” are self-adhesive strips of graphene that contain bioimpedance sensors that are placed over the radial and ulnar arteries, just above the wrist. The devices monitored arterial blood pressure for extended periods (longer than 300 minutes) with very high accuracy compared with a medical-grade device for continuously monitoring blood pressure.

Prevention of venous thromboembolism: Low-molecular-weight heparin has better risk - benefit ratio than conventional heparin

Eck, Ruben J., et al. "Anticoagulants for thrombosis prophylaxis in acutely ill patients admitted to hospital: systematic review and network meta-analysis." BMJ 378 (2022); 378

doi: https://doi.org/10.1136/bmj-2022-070022

This was the systematic review and network meta-analysis study to assess the benefits and harms of different types and doses of anticoagulant drugs for the prevention of venous thromboembolism in patients who are acutely ill and admitted to hospital. When compared to oral anticoagulants, unfractionated heparin, the LMWH in intermediate dose appeared to exhibit best balance of benefits and harms for prevention of venous thromboembolism.

Monoclonal Antibodies Novel tool to prevent Malaria

Wu, Richard L., et al. "Low-Dose Subcutaneous or Intravenous Monoclonal Antibody to Prevent Malaria." New England Journal of Medicine 387.5 (2022): 397-407.

The authors conducted a phase 1 clinical trial to assess the safety and pharmacokinetics of L9LS, a next-generation antimalarial monoclonal antibody, and its protective efficacy against controlled human malaria infection in healthy adults who had never had malaria or received a vaccine for malaria. In this small trial, L9LS administered intravenously or subcutaneously protected recipients against malaria after controlled infection, without evident safety concerns.

JOURNAL PUBLICATIONS BY MEMBERS

Dr Chakrapani M et al

1. Development of a Convolutional Neural Network Model to Predict Coronary Artery Disease Based on Single-Lead and Twelve-Lead ECG Signals. ShrivathsaThokur Vasudeva , ShrikanthaSasihithlu Rao, NavinKaranth Panambur, Arun Kumar Shettigar , Chakrapani Mahabala, PadmanabhKamath,Manjunath Patel GowdruChandrashekarappa and EmanoilLinul
   Appl. Sci. 2022, 12, 7711. https://doi.org/10.3390/app12157711
2. Chakrapani Mahabala · Vivek K. Koushik Poornima A. Manjrekar PrashanthaBalanthimogru.
   Serum soluble interleukin‑2 receptor (sIL‑2R) is an accurate biomarker for dengue‑associated hemophagocytic lymphohistiocytosis syndrome diagnosed by Hscore
   Infection;2022: DOI 10.1007/s15010-022-01906-8

Dr. Archith Boloor et al

1. GBD 2019 Adolescent Transport and Unintentional Injuries Collaborators. Adolescent transport and unintentional injuries: a systematic analysis using the Global Burden of Disease Study 2019. Lancet Public Health. 2022 Aug;7(8):e657-e669. doi: 10.1016/S2468-2667(22)00134-7. Epub 2022 Jun 30. PMID: 35779567; PMCID: PMC9329128.
2. GBD 2019 Human Resources for Health Collaborators. Measuring the availability of human resources for health and its relationship to universal health coverage for 204 countries and territories from 1990 to 2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2022 Jun 4;399(10341):2129-2154. doi: 10.1016/S0140-6736(22)00532-3. Epub 2022 May 23. PMID: 35617980; PMCID: PMC9168805.

3. GBD 2019 Hepatitis B Collaborators. Global, regional, and national burden of hepatitis B, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet Gastroenterol Hepatol. 2022 Sep;7(9):796-829. doi: 10.1016/S2468-1253(22)00124-8. Epub 2022 Jun 21. PMID: 35738290; PMCID: PMC9349325.
4. GBD 2020 Alcohol Collaborators. Population-level risks of alcohol consumption by amount, geography, age, sex, and year: a systematic analysis for the Global Burden of Disease Study 2020. Lancet. 2022 Jul 16;400(10347):185-235. doi: 10.1016/S0140-6736(22)00847-9. Erratum in: Lancet. 2022 Jul 30;400(10349):358. PMID: 35843246; PMCID: PMC9289789

AUTHOR INSTRUCTIONS

API DK LAHARI is a quarterly published magazine of API D. K. Chapter, released in print version and on the www.apidk.org website with archival options of all the issues released stored in PDF format (each issue) also with a download option. The magazine will include academic and non-academic articles. The languages included will be English and Kannada.

We are hopeful that this will give a unique opportunity to all API members to share their vision and views on various aspects of our profession and beyond.

Submission Email Id: **editorapidk2020@gmail.com**

Instructions on preparation of the manuscript to be submitted

1. Manuscript may be in English/Kannada.

2. Font size -12 (Times New Roman), double spacing, 1.5 inches margins all around the page.

3. All the write-ups should include a Title page with author information

4. Title Page should contain the following: Full name/names of all the authors with contact address, cell number, email id, designation, position in the Institution and a passport-sized recent photo

Paper/write up categories

1. Scientific articles
2. Member's accomplishments
3. Obituaries
4. News and Views
5. Residents corner
6. Viewpoint
7. Medico legal pearls
8. Journal Watch
9. Patient page
10. Listen to the legend
11. Life beyond medicine [Non-medical topics]

12. General health articles [more for lay public]

SCIENTIFIC ARTICLES

- Case reports
  - Word count- 1500, Maximum of 03 tables & or figs, 07 Refs
- Review article
  - Word count- 3500, Maximum of 5 tables or figs
- Academic challenge
  - An interesting case presentation with detailed academic discussion

- Abstract, word count -3500, Maximum of 5 tables or figs

- Diagnostic test and interpretation
  - Word count- 1500
- Images in Medicine
  - Photos with good resolution and quality, Word count -500
    - An abstract is required for case report, Review article, Academic Challenge, and Diagnostic test and interpretation.
    - Word count is inclusive of abstract.
    - References should be in Vancouver style.
- Member's accomplishments
  - Brief information by self or others on the accomplishments of our API members in profession, public life, academics and other walks of life .Word count- 1000
- Obituaries
  - Condolence message and short write up on the deceased member, One message -500 words
- News and Views
  - Write up on medical happenings with an opinion expressed , Word count -1000
- Resident's corner
  - Medical articles by postgraduates/interns
  - Word count as per the criteria mentioned for the scientific articles by the members
- Viewpoint
  - Write up on various problems or happenings in the field of medicine or medical profession
  - Word count -1500
- Medico-legal pearls
  - Articles on medical-legal aspects including the consumer protection act and other acts applicable to the medical profession . No word limits
- Journal Watch
  - Short summary of recent journal articles .No word limits