INDIAN MEDICAL ASSOCIATION
IMA Academy of Medical Specialties Hqrs

IMA AMSCON 2020
(Virtual Conference)
(The Annual National Conference of IMA Academy of Medical Specialties)

Convocation Ceremony

Chief Guest

Dr. (Smt.) Tamilisai Soundararajan
Hon'ble Governor of Telangana
IMA Prayer

May everybody be happy
May everybody be healthy
May everybody be free from pain
May everybody be free from sorrow
May we be the healing cure
Beyond every greed & lure

FLAG SALUTATION

We, the members of Indian Medical Association
Stand here to salute our National Flag.
Its honour and glory shall be our light and strength
And its course shall be our course.
We pledge our allegiance to it and realizing our responsibilities
As the accredited members of this National organization,
We swear we will dedicate everything in our power
to see it fly high in the comity of Nations.
Jai Hind!
Organizing Committee

Chief Patron

Dr. Ketan Desai
Past National President, IMA and Past President, WMA

Patrons

Dr R V Asokan
Hon Secretary General, IMA Hqrs

Dr Rajan Sharma
National President Elect, IMA

Dr Ramesh Kumar Datta
Hon Finance Secretary, IMA Hqrs

Dr Santanu Sen
Immediate Past National President, IMA

Dr K K Aggarwal
Past National President, IMA

Dr Ravi S Wankhedkar
Past National President, IMA

Dr E Ravindra Reddy
Chairman, Telangana State Medical Council

Dr Vinay Aggarwal
Past National President, IMA

Dr K Ramesh Reddy
Director of Medical Education, Telangana
IMA AMSCON 2020

Advisors

Dr Ashok Adhao
Dr Marthanda Pillai
Dr Ved Prakash Mishra
Dr K Vijay Kumar
Dr S Arulhaj

Dr T Narasinga Reddy
Dr Dipak Dhar Choudhury
Dr Atul D Pandya
Dr G N Prabhakara
Dr J A Jayalal

Dr Potluri Gangadhar Rao
Dr Anil S Pachnekar
Dr Pragnesh C Joshi
Dr P D Sahajanand Singh
Dr D R Rai

Dr Paranjit Bakshi
Dr Vinod Kumar Monga
Dr Narendra Saini
Dr Jayesh M Lele
Dr Jyotirmoy Pal

Dr P C Mohapatra
Dr Hiranmay Adhikary
Dr Rajendra Airan
Dr Manul Mehta
Dr Mangesh Pate

Dr Bakulesh Mehta
Dr Sudhir Dhakray
Dr Nandita Chakrabarti
Dr Y S Deshpande
Dr Golokbihari Maji
Warm Greetings from Indian Medical Association (Hqs.)!

I am glad to learn that IMA Academy of Medical Specialties is releasing E-Version of the prestigious “Annals” during the Annual Conference of IMA AMS HQs (AMS CON 2020) on 20th September 2020 and a Souvenir is being released to commemorate this great occasion.

IMA AMS is the only platform where all specialists meet with each other and can deliberate on issues which are relevant in providing holistic treatment to the patient by discussing interdisciplinary management for better outcome.

IMA AMS is doing a great job by releasing this Annals. I am sure, this will enhance the knowledge and expertise of our members in the latest advancements in medicine and medical technology.

I convey my best wishes to the Advisory Board of Annals and I hope it would provide useful material to its members.

I wish the IMA AMSCON-2020 a grand success.
I am pleased to note that IMA AMSCON 2020, the Annual National Conference of Indian Medical Association Academy of Medical Specialties, will be organized from 10:00 am to 06:00 pm on Sunday, 20th September 2020 which will be virtual this time due to the unprecedented Covid-19 pandemic.

Indian Medical Association is fighting Covid-19 tirelessly and has already lost many Hon’ble members during this short period. I hope Covid-19 will be the axis of discussion this time and it will come out with many valid points to fight this menace better.

I am also happy to learn that E-Version of the prestigious Annual “Annals” of IMA AMS will be published during the conference.

I am sure under the present leadership this conference will achieve its goal.
Hearty congratulations to you and your AMS team for bringing out Annals of AMS even in these testing times.

Throughout the year your team has done excellent educational programs.

AMS is steadily gaining premier position in conducting scientific events and courses which help to acquire cutting edge knowledge for specialists.

Your all encompassing nature and hard work has made AMS grow leaps and bounds in terms of membership.

Having started my career at national level in AMS, I always have a special affinity for AMS.

I am sure this Annals will be a scientific feast which will enlighten our members and will be cherished for long.

Wishing you and your team a grand success.

Dr Ravi S Wankhedkar
Seasons Greeting to all my IMA Members!

I am glad that IMA AMSCON-2020 is being organized in a virtual way.

We are all facing the pandemic situation of Covid-19. IMA AMS team is actively conducting first of its kind Virtual Conference of IMA AMSCON-2020 on 20th September 2020.

I wish this programme a grand success. I am very happy to learn that on this occasion we are bringing out E-version of the Annals encompassing various Medical Speciality.

I am herewith congratulating the whole IMA AMS team efforts.

Thanking you,
It gives me great pleasure to learn that IMA Academy of Medical Specialties is releasing E-Version of the prestigious Annual “Annals” during the Annual Conference of IMA AMS HQs (AMSCON 2020) on 20th September 2020.

IMA AMS, the most prestigious academic wing of IMA, is a unique platform for interaction amongst various specialists on medical subjects. It helps to update the knowledge, enhance the skills and learn from the rich experience of specialists.

I am particularly delighted to note the sincerity and dedication with which even in these testing times of the Covid 19 pandemic time tremendous effort has been put to bring out the ANNALS of a very high standards. The zeal for striving towards excellence in adverse circumstances clearly reflects the qualities of true leadership.

I am confident that the richness of the academic ingredients in this e-Annals will be a delight for the our members and pave the way of translating into clinical practice and in turn benefits the patient.

I congratulate the Advisory Board of Annals for releasing the first ever e-Annals and wish that they continue to do the great work in the future.

I wish IMA AMSCON 2020 a grand success.

Dr Vinay Aggarwal
Dr R V Asokan
Honorary Secretary General
Indian Medical Association

Message

It is an honour and privilege to congratulate your efforts in arranging the 1st ever virtual Annual conference of IMA AMS (Academy of Medical Specialties). IMA Hqs recognizes your leadership and organizing skills in this area of emerging technology. This certainly will help to push the frontiers of medicine and increase the accessibility of knowledge and information even to the remote corners of the country. I have great pleasure in recording our appreciation to your Chairman Dr M S Ashraf and various office bearers of state and branch level. Ms Narra Saritha your office secretary has been a source of strength to IMA AMS. I take this opportunity to thank the contributors to the Annals who are the guiding light of the profession. The Chairperson and guest speakers who in the best traditions of the profession impart knowledge and information are the modern day Gurus of learning.

I wish the function all success and acknowledge that your tenure as the Secretary under the Chairman of Dr M S Ashraf has been a momentous one. The annals published by you and your team shall remain a legacy forever.

Dr R V Asokan
Greetings from Indian Medical Association (HQs.)!

It is a great pleasure to know that IMA Academy of Medical Specialties is releasing EVersion of the prestigious Annual “Annals” during the Annual Conference of IMA AMS HQs (AMSCON 2020) on 20th September 2020.

New developments in medical sciences have opened new vistas of hope for humanity. We have traversed a long distance in providing medical facilities to the masses, but still a lot remains to be done in providing medical facilities in remote rural areas.

I hope the deliberations at the Annual Conference will help the delegates in updating their knowledge and sharing their experiences for the benefit of people.

I convey my blessings to the Advisory Board of Annals and I hope it would provide useful material to its members.

I wish the IMA AMSCON-2020 a tremendous success.

Long Live IMA!

Dr Ramesh Kumar Datta
Dear Colleagues,

It was a pleasure and privilege working with our IMA AMS team this year.

 Needless to mention that this year “Covid 19 year” has stunned the whole world, the brunt of the problem was borne by our medical fraternity. On the face of this crisis we have lost the precious lives of our beloved colleagues. Let’s put our hands together and pray for the noble souls.

Dr Mohan Gupta ji our secretary has taken all the efforts and has motivated the state chapters to conduct webinars periodically, and almost every specialty was covered, with more focus on Covid and its sequelae.

Before our tenure comes to an end, let us go all out to increase the membership and also create chapters and sub-chapters. As envisaged in the beginning of this year, an interactive session with FOMA may be beneficial towards achieving this goal.

The annals to be released in the Annual IMA AMS conference (virtual) will contain relevant topics useful to all the branches of medicine.

Wishing the first Virtual Annual AMS conference all success.

“STAY SAFE, STAY STRONG”

Dr M S Ashraf
Namaskar,

India is feeling really a tough time like all other countries, while we are facing a testing time for Medics, Paramedics & Hospitals at the same time. In such situations frontline warriors are just in front of real heat while Institutions like IMA AMS has to take a bigger responsibility to explore treatment modalities of Covid-19.

I am happy to see IMA AMS is keeping no stone unturned to update medical professionals who are in clinical practice in variety of international or surgical procedures. We have to continue with proper usage of electronic platform to keep all Medicos abreast with newer and newer advancements. IMA AMS may resolute to run an online program for *Preventive health measures with physical exercises and Yogic Asanas* in this tough time of Covid-19 pandemic. Though it may sound weird but it is the need of hour to have a Holistic approach in prevention and treatment of Covid-19 protocol.

I wish all good success for this online day-long conference. I hope that all participants will be benefited as we all need to revamp our knowledge base.

Wish you a very happy treat for knowledge sharing...

Dr Natwar Sharda
Message

Dear Dr Mohan Gupta,

I am very happy to learn that IMA AMS is organizing virtual IMA AMSCON-2020 on 20th September 2020. This gives immense happiness to know the progress and activity of the specialist wing of IMA AMS.

I appreciate the efforts of IMA AMS Hyderabad even in this pandemic situation of Covid-19. I congratulate Dr M S Ashraf, Chairman IMA AMS Hqrs and Dr Mohan Gupta and team for their endeavour.

I wish IMA AMSCON-2020 a great success

Thanking you

Dr E Ravindra Reddy
Dr K Ramesh Reddy
M.S., M.Ch., (Paed. Surgery)
Director of Medical Education
Directorate of Medical Education
Government of Telangana State

Message

I am glad to know you that IMA AMSCON 2020, the Annual National Conference of Indian Medical Association Academy of Medical Specialties (Virtual Conference) will be organized from 10-00 am to 06-00 pm on Sunday, 20th September 2020, IMA AMS Headquarters. This Annals is going to bring out the recent advances in various specialties and useful for Undergraduate and Post Graduate Students.

I convey my warm greetings to the Organizing Committee and congratulate them for publishing E-Version of the prestigious Annual "Annals" of IMA Academy of Medical Specialties.

With regards,

Stay Safe.

Dr K Ramesh Reddy
It gives me immense pleasure and satisfaction to note that Academy of Medical Specialities under the aegis of Indian Medical Association, National Headquarters, is organizing its conference on 20th September, 2020 with a wide spectrum of academic activities pertaining to various specialities spread therein under its umbrella. The nature of discussion and deliberations envisaged are bound to be fruitful and productive, which would go a long way in generating appropriate strategies towards mitigation of the maladies at hand.

In the context of pandemic COVID-19, which has startled the entire Global community and has shaken the core tenets of human existence needs to be tackled with grit, determination and resilience at the disposal of all concerned but more significantly with the health professionals. It has been a real acid test for the medical professionals to rise to the occasion and handle the same with sense of purpose in the interest of men, mankind and humanity as a whole. It is indeed a matter of great pride that the healthcare professionals have brought out their best face in the context of the grave scenario that has engulfed the entire world, which is exemplary by all cannons and yardsticks.

I am sure that the deliberations, discussions, and decisions that would emerge from the notable conference would definitely go on a long way in adding a new fillip to this entire succor. I wish the organizing team a very best for a sterling meaningful success out of the Conference.
The recent outbreak of COVID-19, a highly infectious and deadly disease caused by a new type of corona virus has been drawing worldwide attention. While IMA and Healthcare workers are fighting the epidemic together with the entire population of our country, we received many warm words of care and encouragement from our Prime Minister.

As the novel corona virus outbreak shatters businesses and disrupts everyday life for billions around the world, massive annual conferences and small society meetings alike have moved online. The new format poses numerous technical and organizational challenges, but it also offers opportunities for reaching wider audiences, reducing the carbon footprint of meeting travel, and improving diversity and equity. For some meetings, the shift may be permanent. I would like to take this opportunity to thank you all for setting up this online platform.

I am very glad that IMA AMSCON 2020, Annual National Conference of Indian Medical Association, Academy of Medical Specialities (Virtual Conference) is being organised on 20 September 2020. I heartily congratulate all the recipients of the Fellowship of this unique and prestigious Academy and wish that they may always prove worthy of the faith reposed in them. I also congratulate the distinguished Orators and Awardees who have earned unique recognition by virtue of their hard work and academic excellence.

The rapidly developing COVID-19 pandemic led to the decision to cancel the face-to-face event. In the interest of the our medical community, it is a good move the conference will be held online while trying to preserve as much of the real-life experience as possible. As far as I know, we will have a fully synchronous online experience due to the COVID-19 outbreak. By fully synchronous, we mean that participants will jointly listen to presentations, have live Q&A. We have to be pragmatic and the organisers of the conference could prepare the online event as carefully it would have done otherwise. In fact, we considered the whole thing an interesting experiment suggested by the circumstances, with potentially important lessons to be learned for the community and beyond. I have no doubt that the scientific presentations and deliberations during this AMS Conference will be quite useful to all the participants and will inspire them to strive for excellence in their respective disciplines.

I Congratulate Dr. M. S Ashraf, Chairman AMS and Dr. Mohan Gupta, Hon Secretary AMS and there entire team and wish this Conference every success.
Message

I deem it a privilege to bring greetings to you all from IMA HQ on this jubilant occasion of much awaited annual conference of Academy of Medical Specialties and release of our prestigious Annals of AMS. I am fascinated to see the vibrancy with which the much respected academician and tall leader Dr. M.S. Ashraf as Chairman, Dr. Mohan Gupta as a dynamic Secretary coordinated and maintained the tempo of academic propagation and sustained the objectives of Academy of Medical Specialty through this turbulent year of Corona.

Knowledge is power and appropriate dissemination of the updated skills and knowledge to our member is the priority of AMS. By empowering our colleagues with enhanced knowledge we indirectly serve the common people as knowledge conceived by our members are not going to get stagnated with them but will flow and percolate into the community and people who seek remedy for their ailments through them will definitely reap the fruit. There is no limit for this propagation.

The beauty of this year, with the aid of Zoom meet it has given an all India color to our Academy and almost all states were roped in by the majestic and persuasive works of Chairman and Secretary to take part actively in this mission.

I also take this opportunity to congratulate our Chairman of 2019 Dr. Natwar Sardha and the Indore team for the excellent spade works in the biennium. I wish and hope IMA AMS must grow as a much respected academy of International Status and research initiatives must flow out of it and be in a position to guide formulate and plan the future direction of Health Care.

I thank the team of Editors, leaders and contributors for this prestigious Annals of AMS.

Yours in Service,

Dr J A Jayalal
Greetings from IMA HBI.

We are happy to learn that IMA AMS HQ is publishing eVersion of “Annals 2020” this year.

Due to CORONA pandemic scenario, the entire Medical fraternity is going through very rough patch. The entire treatment has been very challenging. Over the period of 6-7 months lot of changes in the protocol have occurred. Our fraternity needs continuous update of knowledge and we need to guide them about these developments.

Over the years the Annals have become popular with members and is looked upon as a valuable, informative and formidable yearly book.

I congratulate the AMS team to have this activity in spite of the difficult times and busy schedule as many of our Consultants are managing CORONA patients across India.

Best wishes to the team
I am extremely happy to learn that IMA AMSCON 2020, the Annual National Conference of Indian Medical Association Academy of Medical Specialties, will be organized from 10:00 am to 06:00 pm on Sunday, 20th September 2020. For this unprecedented pandemic situation it will be Virtual Conference this time.

I am also pleased to know that the E-Version of the prestigious Annual “Annals” of IMA AMS will be published during the conference.

I am confident under your stewardship this GALA SCIENTIFIC MEET will achieve its goal and make it fruitful and purposeful to the practitioners and thereby people at large.
It gives me immense pleasure to extend my warmest greetings to the organizers and delegates of the IMA AMSCON 2020, the Annual National Conference of Indian Medical Association Academy of Medical Specialities (Virtual Conference).

Over the years, the Annual Conference has become an important part of lives of the doctors from various disciplines. It’s a place to stop and reflect, a place to inspire and be inspired. I sincerely hope that this conference will definitely provide the platform to enrich the specialists about the innovations and new discoveries which will ultimately help them in treating their patients.

I wish this conference a very great success.
Dear Dr Mohan Gupta,

Medical fraternity is under tremendous pressure of the Pandemic outbreak of Covid-19. IMA members are fighting for the sake of humanity and IMA AMS is organizing AMSCON-2020 in Virtual.

I heartily congratulate and appreciate all efforts of my fellow members.

I once again congratulate the whole team of IMA AMS and Organizing Committee members.

Thanking you

Dr Paramjit Singh Bakshi
Iam indeed very happy to know that the annual conference of IMA AMS is going to be held on 20th of September this year.

IMA AMS is doing a wonderful job by relentlessly organising such academic events. Both the science and art of medicine are to be mastered by every doctor, in order to deliver a better patient care.

More emphasis is needed on the future lifestyle changes, that are required to be emulated by every practising clinician and medical academician. Hope the mankind will soon be free from Corona catastrophe.

Such pandemics in the past have only taught us to be more courageous.
Dr Sanjeev Singh Yadav
Hony. State Secretary
Indian Medical Association, Telangana State

Message

It is a great pleasure that IMA Academy of Medical Specialities is conducting a National Conference in the shape of Webinar to highlight the issues of AMS to the Members of the Indian Medical Association. (First of its kind of Virtual National IMA Conference) In this horrid times of the Pandemic with Covid-19 changing its shape and structure every week the necessity to hold the Conference in a Virtual manner is highly appreciable.

Dr Mohan Gupta has made all efforts for wide spread publicity and that very high academic stadards are achieved in this Virtual Conference. We will always be there together to see that Conference is made a great success. We wish the AMS team all the very best.

As Secretary of IMA Telangana State, I will be more than happy to assist and perform my duties over and the above the call of Dr Mohan Gupta. This Conference will benefit in day to day practice of our Modern Medicine that is Allopathic.

I once again congratulate the whole team and we wish a great success to this Virtual IMA National Conference of Academy of Medical Specialities to be held from Hyderabad.

Thanking you,

Dr Sanjeev Singh Yadav
Inauguration Ceremony
From 10.00 am to 12.00 noon

Inviting / Introducing the dignitaries
IMA Prayer & Flag Salutation
Welcome Address by Dr M S Ashraf, Chairman IMA AMS Hqrs
Secretary Report by Dr Mohan Gupta, Hon Secretary IMA AMS Hqrs
President Address Dr Rajan Sharma, President IMA Hqrs
Address by Dr Santanu Sen, Imm. Past President IMA Hqrs
Address by Dr R V Asokan, Hony Secretary General IMA Hqrs
Address by Dr Natwar Sharada, Imm. Past Chairman IMA AMS Hqrs
Address by Dr E Vijayendr Reddy, President IMA Telangana State
Address by Dr Sanjeev Singh Yadav, Hon Secretary IMA Telangana State
Release of IM AMS Annual Annals-2020
Awards Ceremony
Vote of Thanks

Convocation Ceremony
From 12.00 noon to 01.00 pm

Inviting / Introducing the Dignitaries
National Anthem
Welcome Address by Dr. M. S. Ashraf, Chairman, IMA AMS Hqrs
Address by Dr. K. Ramesh Reddy, DME, Govt of Telangana
Address by Dr. Ravindra Reddy, Chairman, Telangana State Medical Council
Address by Dr. E. Vijayendr Reddy, President, IMA Telangana State
Address by Dr. R. V. Asokan, Hony Secretary General, IMA Hqrs
Presidential Address by Dr. Rajan Sharma, National President, IMA Hqrs
Introduction of Dr. (Smt.) Dr Tamilisai Soundararajan, Hon'ble Governor of Telangana
"Keynote Address" by Dr. (Smt.) Dr Tamilisai Soundararajan,
Hon'ble Governor of Telangana

Awarding Fellowship Certificates
Presentation of Memento to Dr. (Smt.) Tamilisai Soundararajan,
Hon'ble Governor of Telangana

Vote of Thanks by Dr. Mona Desai, Joint Secretary, IMA AMS Hqrs
National Anthem
Academic Sessions
From 02.00 pm to 06.00 pm

Chairperson

Dr A Marthanda Pillai
National Past President IMA Hqrs

02:00 pm to 02:20 pm
Topic:
"Echo-Cardiogram for the Practicing Physician"
Prof Dr V Amuthan
Madurai

02:20 pm to 02:40 pm
Topic:
"Emerging Scope of Telemedicine"
Dr Pawan Goyal
Rewari

02:40 pm to 03:10 pm
Panel Discussion: “Organ Transplant”
Moderators

Chairperson

Dr R Kannan
Puducherry

Dr V Rajesh Babu
Coimbatore

Panelists

Prof Dr A Rathinavel
Madurai

Dr Vinodh Raj Kumar
Coimbatore

Dr N Anand Vijai
Coimbatore

Dr V Thangavelu
Coimbatore

Dr Raja Shanmuga Krishnan
Coimbatore

Dr M Ramalingam
Coimbatore

Dr S P Thyagarajan
Coimbatore

03:10 pm to 03:30 pm
Topic:
“RT PCR Interpretation My Experience”
Dr (Mrs) Lakshmi Kandasamy
Tiruchirapalli

03:30 pm to 03:50 pm
Topic:
“COVID-19; Metronidazole and the Immune System”
Dr Raj Shekhar Pande
Jabalpur
**Academic Sessions**
From 02.00 pm to 06.00 pm

**Chairperson**
Dr K K Aggarwal  
National Past President IMA Hqrs

**03:50 pm to 04:10 pm**
Topic: "Newer insights into Covid-19 in Pregnancy & Management of Complications"
**Dr Manpreet Kaur**  
Vijayapur

**04:10 pm to 04:30 pm**
**Dr Avinash Bhondwe**  
Pune
Topic: "Good, Bad & Ugly of COVID - in the Perspective of Maharashtra"
**Dr Rajeev Agarwal**  
Thane

**04:30 pm to 05:00 pm**
**Panel Discussion:** “Clinical Management of Covid 19 - Mild/ Moderate/Severe”
**Moderator**
**Dr Srirang Abkari**  
Hyderabad

**Panelists**
Dr Naval Chandra  
Hyderabad
Dr Samavedam Srinivas  
Hyderabad
Dr Sudhir Prasad  
Hyderabad

**Chairperson**
**Dr Ravi S Wankhedkar**  
National Past President IMA Hqrs

**05:00 pm to 05:20 pm**
Topic: "Management of Benign Ano-Rectal Diseases"
**Dr Shalabh Gupta**  
Ghaziabad

**05:20 pm to 05:40 pm**
Topic: "Minimally Invasive Brain and Spine Surgery"
**Dr Jagath Lal Gangadharan**  
Perumbavoor

**05:40 pm to 06:00 pm**
Topic: "Quit Tobacco How and Why?"
**Dr Dilip Kumar Acharya**  
Indore
AIMS of IMA AMS:

- To provide a forum to Specialists and Super-specialties of all branches of Medicine to discuss multi-disciplinary matters of academic interest
- To promote and encourage unity among the members of IMA
- To enhance image of IMA
- To increase Life Membership and of Fellowship of IMAAMS
- To update all the members of IMA of the recent advances in the field of Medicine and allied subjects
- To conduct C.M. Es all over India
- To conduct various Specialty and sub-specialty courses

Membership:
There are 19 State Chapters and 191 Branch Chapters of IMA AMS, including two new branches Nemom and Kazhakootam in Kerala State, with 15341 Life Members and 2487 Fellows as on the date. There are 418 membership applications are pending and 20 Fellowship applications have received for this year as on 16th September 2020.
The state wise details of life members and fellows are as follows…

The state wise details of life members and fellows are as follows…
TOTAL as on 16-09-2020

<table>
<thead>
<tr>
<th>Life Members &amp; Associate LM</th>
<th>Fellows of IMA AMS</th>
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<tr>
<td>15341</td>
<td>2487</td>
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Life Memberships & Fellowships received from 1st Jan 2020 to till date

<table>
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<tr>
<th>Life Memberships</th>
<th>Fellows</th>
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<tr>
<td>-</td>
<td>216</td>
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<tr>
<td>-</td>
<td>20</td>
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Non enrollment of Members in IMAAMS:
A few states such as Goa, Himachal Pradesh and Manipur have not enrolled any members to IMA AMS from year 2009 up to the date. Communications are regularly being sent to all the State Presidents and Hon State Secretaries and to the Chairmen and State Secretaries of IMA AMS to increase membership and fellowships of IMAAMS.

IMA AMS Fees details and Mode of Payment details are given below:

1. Life Membership Fee : Rs 1000/- total
   (Hqrs Share: Rs 400/-, State Share: Rs 300/-, Branch Share: Rs 300/-)
3. Fellowship Fee : Rs. 5000/- total
   (Hqrs Share: Rs 2000/-, State Share: Rs 1500/-, Branch Share: Rs 1500/-)
4. Fellowship fee of Overseas Members U.S. Dollars 400 (No Share)
5. Direct Members: Life Membership Fee Rs. 700/- and Fellowship Fee Rs. 3500/-
   (There shall be no branch share for direct members)

**IMAAMS Courses**

IMAAMS conducts courses in medical specialties with sole intention of improving knowledge and skills of medical professionals in their respective fields. The duration of course in general is one year. These courses, however, are not recognized by MCI and doctors undertaking these courses are not permitted to claim themselves as specialist or to display these certificates as additional qualification.

While conducting the courses the following pattern of revenue sharing has been adopted.

1. 40% share to IMAAMS Headquarters
2. 40% share to academic session
3. 20% share IMAAMS State for its maintenance

Following is the provisional list of courses being offered by IMAAcademy of Medical Specialities:

1. Infertility, 2. Fluorescein Angiography, 3. Laser Photocoagulation in Retinal problems

All fellowships shall be of one year duration with 3 to 4 days of theory classes in a month. Due importance shall be given for clinical sessions.

At the end of the course i.e. after one year, exams shall be conducted with theory exam on day One and practical exams including clinicals, log book discussions and general viva on day Two. Examination results shall be announced within one week of the exam and shall be informed to the Headquarters.

State shall conduct graduation ceremony and invite AMS National Chairman & National Secretary for this function. IMA AMS Hqrs will be responsible for arranging the certificates for distribution to the students who have passed the exams, shall be awarded fellowship certificates.

All such courses are to be conducted by State branches of IMAAMS with help from IMAAMS Hqrs only after due registration of such courses and after entering into a MOU with the IMAAMS Hqrs. 40% of the fee collected for the course shall be contributed towards Hqrs share, 40% to the centre conducting the course and 20% to the respective State Branch. The amount saved after the expenditure shall be utilized to promote IMAAMS activities at the State and Branch level and to update Doctors with the latest knowledge and skills in their respective fields. The fellowship course certificates will be issued only by IMA AMS HQs. Signatures of Chairman & Secretary - IMAAMS Hqrs are compulsory on all the certificates. National leaders of IMA and IMAAMS Hqrs shall be invited to certificate distribution ceremony.

This year IMA AMS State Branches Telangana State & Karnataka State have conducted Infertility Course with permission of IMAAMS Hqrs

**AMS Fellowship & Professorship:**

I request all the State Branches to gear up and enrol more members and increase Life Memberships and Fellowships. Application forms can be downloaded from IMA AMS
Hon Professorships were being given to eligible candidates on application for professorship. The Associate Life members are not eligible for Professorship and so also those who did not complete 25 years post in PG or Diploma. IMA Professorships are now awarded only on approval by IMA Accreditation Council, New Delhi. Interested members are requested to send filled application form along with required documents to Hon Secretary General, IMA Hqrs, New Delhi address and one copy to Hon Secretary, IMAAMS Hqrs, Hyderabad on or before 31st July every year.

**IMAAMS Hqrs Activities**

1. Dr Mohan Gupta, Hon Secretary IMAAMS Hqrs attended Chairman Installation Ceremony on 12th Jan 2020 at Trichy.

2. Dr M S Ashraf, Chairman and Dr Mohan Gupta, Secretary IMAAMS Hqrs attended the Action Committee Meeting at Delhi to discuss issues to curb violence on Medical professionals

3. Dr M S Ashraf, Chairman IMA AMS Hqrs attended President and Secretaries meet at Hqrs New Delhi.

4. Dr M S Ashraf, Chairman IMAAMS Hqrs attended Founder’s Day Celebrations and distributed to 274 Students of Shrimati Indira Gandhi College and sister Institutions National College Higher Secondary School in Tiruchi.

5. IMAAMS Hqrs conducted webinar on 20th May 2020 at 5 PM to 6:30 PM under Chairmanship of Dr M S Ashraf. Inauguration by Dr Rajan Sharma National President and in the presence of Dr R V Ashokan, Hony Secretary General and various State Chairman & Secretaries and IMA senior leaders are participated. The topic on Laparoscopy & Endoscopy Covid 19 virtual reorientation of practice update.

6. IMA AMS Haryana State in association with IMA AMS Hqrs is organized a 1st Webinar on “Survival Strategy for Small and Medium Hospital through Covid Pandemic” on 29th July 2020 at 5:00 PM to 6:00 PM. Our Worthy National President Dr. Rajan Sharma graced the occasion as Chief Guest. Dr M S Ashraf, IMA AMS National Chairman and Dr Mohan Gupta Hony Secretary Hqrs are Guest of Honours.

7. IMAAMS Madhya Pradesh State in association with IMAAMS Hqrs is organized a Webinar on “Fungal Infections/ Dermatophytosis diagnosis and details” on 2nd Aug 2020 4:00 PM to 5 PM. The Scientific Webinar was inaugurated by Dr M S Ashraf, National Chairman, and Dr Mohan Gupta, Hony Secretary IMAAMS Hqrs.

8. IMA AMS Uttar Pradesh State in association with IMA AMS Hqrs is organized a National Webinar on “Recent Advances on Taming the Covid-19 Pandemic” on 8th Aug 2020 at 4:00 PM to 6:00 PM. Dr R V Asokan, Hony Secretary IMA Hqrs, Dr J A Jayalal, National Vice
President-2018-19 IMA Hqrs Dr M S Ashraf, IMA AMS National Chairman and Dr. Mohan Gupta Hony Secretary Hqrs graced the occasion as Guest of Honours.

9. IMA AMS Maharashtra State in association with IMA AMS Hqrs is organized a National Webinar on “Taxation ( Income Tax) for Doctors & Hospitals - What’s new & how to save Tax” on 9th Aug 2020 at 10:00 AM to 1:00 PM. Dr M S Ashraf, IMAAMS National Chairman and Dr Mohan Gupta Hony Secretary Hqrs graced the occasion as Guest of Honours.

10. IMA AMS Haryana State in association with IMA AMS Hqrs is organized a 2nd Webinar on Update on NAFLD” on 14th August 2020 at 5:00 PM to 6:00 PM. Our Worthy National Chairman of IMA AMS Hqrs Dr M S Ashraf graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.

11. IMA AMS Karnataka State in association with IMA AMS Hqrs is organized a Webinar on “Living with COVID” on 16th August 2020 at 11:00 AM to 1:00 PM. Our National Chairman of IMAAMS Dr M S Ashraf and Dr Mohan Gupta Hony Secretary Hqrs graced the occasion as Guest of Honours.

12. IMA AMS Haryana State in association with IMA AMS Hqrs is organized a 3rd Webinar on “CHRONIC KIDNEY DISEASE AND KIDNEY TRANSPLANTATION-RAISING THE CURTAIN FOR A GENERAL PHYSICIAN” on 22nd August 2020. Dr M S Ashraf, Chairman IMAAMS Hqrs graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.

13. IMAAMS Madhya Pradesh in association with IMAAMS Hqrs and with the MP Chapter of the Indian Association of Dermatologists, Venereologists, and Leprologists is organized a 2nd webinar was on SKIN - Signs and Symptoms of Diseases we see in the OPD & Skin Manifestations of Endocrine Disorders on 23rd August 2020 at 5:00 pm to 7:00 pm. Dr M S Ashraf, Chairman IMAAMS Hqrs graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.

14. IMA AMS Haryana State in association with IMA AMS Hqrs is organized a 4th Webinar on “Frozen Shoulder: Decision Making by Dr Manit Arora” on 5th September 2020 at 5:00 pm to 6:00 pm. Dr M S Ashraf, Chairman IMAAMS Hqrs graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.

15. IMA AMS Tamil Nadu State in association with IMAAMS Hqrs is organized a Webinar on “Systematic Management of Obstetric Cases” on 9th September 2020 at 4:30 pm to 6:00 pm. Dr M S Ashraf, National Chairman & Dr Mohan Gupta, Hony Secretary IMAAMS Headquarters attending the meeting and felicitating the webinar.

16. IMA AMS Haryana State in association with IMAAMS Hqrs is organized a 5th Webinar on “How Not To Die Of Heart Disease” on 10th September 2020 at 5:00 pm to 6:00 pm. Dr M S Ashraf, Chairman IMAAMS Hqrs graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.

17. IMAAMS Madhya Pradesh in association with IMAAMS Hqrs and with the MP Chapter of the Indian Association is organized a 3rd webinar was on “Endocrine Symposium-2020” on 11th September 2020 at 6:00 pm to 7:30 pm. Dr M S Ashraf, Chairman IMAAMS Hqrs graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.

**Bihar State Activities :**

IMA AMS Bihar State is organized a webinar on “Cardio-Neuro management during COVID period” on 23rd Aug 2020 at 7:00 PM. Dr Prof B B Thakur for inaugurating the scientific sessions, Dr Prof Kamalesh Tewari tobe the Chief Guest, Dr A N Rai as Chairman and blessings, Dr Sahajanand PD Singh as IMA past President and Dr B C Roy Awardee, dynamic speakers Dr B P Singh and Dr Sanjay Kumar, Dr H S Sharma, Dr Mahavir Thakur Dr Sudhir Jha Dr Krishna Kumar, Dr Ranjiv Ranjan master of ceremony and all esteemed participants crossing 150 at some point of time. Very informative session.
Chhattisgarh State Activities:
IMAAMS Bhilai Branch in association with IMAAMS Chhattisgarh state is organized a Webinar on “Hernia Basic to Advanced” on 22nd July 2020 at 4 PM to 5 PM Speaker will be Dr Rajesh Sinha Laparoscopic Surgeon.

Haryana State Activities:

1st Webinar on 29-07-2020: At the outset I would like to express our gratitude for your gracious presence and valuable inputs for the first ever webinar of IMAAMS Haryana. The First National webinar in the series of webinars of IMA AMS was organized by IMA AMS HARYANA on 29.07.2020.

Dr Naveen Chitkara Member QCI was the speaker for the above topic. Our Worthy National President Dr. Rajan Sharma graced the occasion as Chief Guest. Dr M S Ashraf, IMA AMS National Chairman and Dr. Mohan Gupta Hony Secretary Hqrs, Dr. Prabhakar Sharma President IMA Haryana and Dr. Vivek Malhotra Hony Secretary IMA Haryana state were our worthy Guests of Honour. The session was chaired by Dr Suresh Jain, Former Chairman IMAAMS HARYANA.

The interactive session was attended by approx. 65 delegates. It was a very useful session and we got a huge response from the delegates in form of questions and comments.

2nd Webinar on 14-08-2020: We are requesting your worthy presence for upcoming webinar of IMAAMS HARYANA on Upper Gi Bleed on 14.08.2020 at 5 pm as our worthy Guests of Honour.

At the outset I would like to express our gratitude for your gracious presence and valuable inputs for the 2ND webinar of IMAAMS Haryana.

The 2ND National webinar in the series of webinars of IMA AMS was organized by IMA AMS HARYANA on 14.08.2020.

Dr. DAKSH KHURANA, CONSULTANT GASTROENTEROLOGIST, ALCHEMIST HOSPITAL, PANCHKULA, HARYANA, was the speaker for the above topic. Our Worthy National Chairman of IMA AMS Dr. M.S. ASHRAF graced the occasion as Chief Guest. Dr. Mohan Gupta Hony Secretary, IMA AMS HQ, and Dr. Vivek Malhotra, Secretary, IMA HARYANA were the Guests of Honour. Dr. Prabhakar Sharma President IMA Haryana chaired the session.

3rd Webinar on 22-08-2020: The 3rd National webinar in the series of webinars of IMA AMS Haryana organized by IMAAMS Haryana on 22nd August 2020 on “CHRONIC KIDNEY DISEASE AND KIDNEY TRANSPLANTATION-RAISING THE CURTAINS FOR A GENERAL PHYSICIAN” Dr. SUNIL KUMAR, CONSULTANT KIDNEY TRANSPLANT SURGEON, FORTIS HOSPITAL MOHALI, PUNJAB, was the speaker for the above topic. Our Worthy National Chairman of IMA AMS Dr. M.S. ASHRAF graced the occasion as Chief Guest. Dr. Mohan Gupta Hony Secretary, IMAAMS HQ, Dr Prabhakar Sharma, President IMA Haryana and Dr. Vivek Malhotra, Secretary,
IMA HARYANA were the Guests of Honour. Dr. KARAN PUNIA, President Elect 2021 IMA Haryana chaired the session.

The interactive session was attended by approx. 30 delegates. It was a very useful session and we got a huge response from the delegates in form of questions and comments.

4th Webinar on 05-09-2020: At the outset I would like to express our gratitude for your gracious presence and valuable inputs for the 4th webinar of IMAAMS Haryana

The 4th National webinar in the series of webinars of IMA AMS was organized by IMA AMS HARYANA on 05.09.2020.

Dr. MANIT ARORA, ORTHOPEDIC AND SPORTS MEDICINE CONSULTANT, FORTIS HOSPITAL, MOHALI, PUNJAB, the speaker for the above topic. Our Worthy National Chairman of IMAAMS Dr. M S ASHRAF graced the occasion as Chief Guest. Dr. Mohan Gupta Hony Secretary, IMAAMS Hqrs DR PRABHAKAR SHARMA, PRESIDENT IMA HARYANA and Dr. Vivek Malhotra, Secretary, IMA HARYANA were the Guests of Honour. Dr. R K ANEJA, CHAIRMAN HARYANA MEDICAL COUNCIL, PANCHKULA chaired the session.

The interactive session was attended by approx. 37-40 delegates. It was a very useful session and we got a huge response from the delegates in form of questions and comments.

5th Webinar on 10-09-2020: At the outset I would like to express our gratitude for your gracious presence and valuable inputs for the 5th webinar of IMAAMS Haryana

The 5TH National webinar in the series of webinars of IMA AMS was organised by IMA AMS HARYANA on 10.09.2020.

Dr. RAKESH SAPRA, Sr INTERVENTIONAL CARDIOLOGIST & CHAIRMAN CARDIAC SCIENCES QRS HEALTH CITY FARIDABAD was the speaker for the above topic. Our Worthy National Chairman of IMAAMS Dr. M.S. ASHRAF graced the occasion as Chief Guest. Dr. Mohan Gupta Hony Secretary, IMAAMS Hq, DR PRABHAKAR SHARMA, PRESIDENT IMA HARYANA and Dr. Vivek Malhotra, Secretary, IMA HARYANA were the Guests of Honour. Dr. ASHOK TANEJA Sr. PHYSICIAN FROM GURGAON, CHAIRMAN RSSDII HARYANA, FORMER PRESIDENT CSI HARYANA chaired the session.

The interactive session was attended by approx. 45 TO 50 delegates. It was a very useful session and we got a huge response from the delegates in form of questions and comments.

Karnataka State Activities:

January 2020 was warmly welcomed by Karnataka State Branch by 1st Batch fellowship students undergoing exams held on 23rd and 24th January at Centre, GarbhaGudi Institute of Reproductive Health and Research.

The results we quiet promising as 23 students have successfully completed their course, of which-

8- Passed out with Distinction
13- Passed in First class
2- Successfully completed

Then in the month of February we had their Convocation Ceremony held at Bangalore which was attended by our Chairman Dr. S. T. Yavagal.

Unfortunately due to COVID-19 which started taking up it’s toll March onwards and Awards Ceremony which was proposed for the 1st batch was not conducted.

The 2nd batch of 22 students took admissions and started their course however due to COVID the classes have not be conducted physically but are conducted online.
IMAAMS Karnataka State in association with IMAAMS HQ is organizing a Webinar on “Living with COVID” on 16th August 2020 at 11:00 AM to 1:00 PM. The webinar meeting started with Welcome address, followed by IMA PRAYER and Introduction of the Chief Guest and Guests of Honour by – Hon Sec IMAAMS KSB, Dr Jaspalsingh Tehalia, who first acknowledged all the senior members of IMA HQ, IMAAMS HQ and of IMA KSB. He then invited Dr M S Ashraf, IMAAMS Chairman Hqrs, to address the members with his opening remarks and his vision on the academic activities of IMA-AMS.

Next he requested Dr Mohan Gupta, IMAAMS Hqrs Hon Secretary, to say a few words of wisdom. Dr Madhusudan Kariganur, President IMA Karnataka State Branch then addressed and appreciated the need of the hour was to impart more information about the changing scenario about covid 19 diagnosis and management.

Dr Srinivasa S., IMA Karnataka Hon Secretary, spoke how in Karnataka IMA was rendering its services by assisting local branches in, this need of the hour.

Dr S T Yavagal, Chairman, IMAAMS KSB, then spoke about involvement of IMA-AMS in associating with garbh gudi institute and taking active part in fellowship courses in infertility and training young OBG graduates successfully.

Topics discussed:
1. CPR during Covid Pandemic - Dr S T Yavagal D M Cardiology, Former Professor & HOD of Cardiology, Shri Jayadeva Institute Of Cardiology
Consultant & HOD, DNB, OBG, District Hospital, Vijayapur.

4. Approach to Surgery in this Covid Era- Dr S S Soppimath M S Gen Surger, Laparoscopic Surgeon Chairman KSC-ASI.


Questions and answers session- Much appreciated by the audience and went on for almost 30 minutes.

Vote of thanks was delivered Dr. Jaspalsingh Tehalia Secretary IMAAMS KSB.

Kerala State Activities:

WDW of IMA Nemom branch organised a "Breast cancer detection and awareness" camp at Kanjiramkulam in connection with the World Cancer Day observance. Smt. Sarasi Kuttappan, the President of Grama panchayat inaugurated. Nemom IMA Vice President Dr. S. Gopinathan Nair presided. Dr. Indira Amma and Dr. Jayakumar spoke on the occasion. Sree M. R. Rajagurubal welcomed and Sree J T Japasing proposed vote of thanks. Dr. Indira Amma and Dr. Nidhi led the cancer detection camp and Dr. Mohanan Nair led the awareness class. Free Diabetes and Hypertension detection and awareness session on their prevention was also conducted.

11.02.2020: "EMPOWER-NIAMS UPDATES" Inaugurated. "EMPOWER" the specialty updates project of Nemom IMAAMS was inaugurated by Dr. John Panicker, Former State Chairman of IMA AMS in a solemn function in Hotel Residency Tower, Thiruvananthapuram. Dr. (Prof) A. Santhosh Kumar, HOD, Paediatrics and Superintendent, SAT hospital conducted the first update in the EMPOWER Series- “and Corona Update”. Dr. V. Mohanan Nair, Chairman, and AMS Nemom chapter presided. More specialty updates aimed at updating and empowering the Doctors will follow under this project.

05.03. 2020: IMA AMS Mini JPEF CME: Dr. V. Mohanan Nair, Chairman, Nemom Chapter of IMA AMS presided over two sessions and led the panel discussion in the Mini CME organized by the JPEF in the Hotel Residency Tower, Trivandrum. The theme of the CME was “Heart Matters” and
eminent faculty like Dr. George Koshy, Dr. Jothidev Kesavadev and Dr. Titu Oommen participated. Dr. Jothidev Kesavadev is an active member of IMA Nemom and is currently in charge of the academic sessions under the AMS chapter of the branch.

28-05-2020 : IMAAMS Trivendrum Branch, Kerala State is organized a webinar on “How to choose correct antibiotic for Respiratory infections” on 28th May 2020 at 8:00 PM on Zoom Platform. 120 Members are attended this webinar.

11-06-2020 : IMA AMS N. Paravur Branch, Kerala State is organized a webinar on “Fat can clog lungs and airways, not just your heart alone” on 11th June 2020 at 8:00 PM on Zoom Platform. 60 Members are attended this webinar.

11-06-2020 : IMA AMS Muvattupuzha Branch, Kerala State is organized a webinar on “Dengue Fever outbreak- Panel Discussion” on 11th June 2020 at 8:45 PM on Zoom Platform. 40 Members are attended this webinar.

08-08-2020 : IMAAMS Thrissur Branch, Kerala State is organized a webinar on “Covid-19 Myths, Facts and Update and “Covid-19 the Houston Critical Care” on 8th August 2020 at 7:30 PM on Zoom Platform. 150 Members are attended this webinar.

Madhya Pradesh State Activities :

2nd August 2020: A webinar on “Fungal Infections / Dermatophytosis: Diagnosis and Details. Fight against abuse of Topical Corticosteroids — when and How to refer to a Dermatologist was organized by the IMA Academy of Medical Specialties, Madhya Pradesh State Branch in joint association with the MP Chapter of the Indian Association of Dermatologist, Venereologists and Leprol ogists.

Dr. Siddharth Sonthalia, Seniro Consultant Dermatologist, Dermoscopist, Darmato Surgeon — “SK INNOCENCE” The Skin Clinic and Research Centre Gurugram was the Guest Speaker who spoke at length on the different aspects and Recent Advances on Fungal Infections with special emphasis on Anti-fungal Therapeutic Failure (AFTF) and the need for both systemic and topical use of Antifungal agents. A detailed comparison of the use of current drugs Terbinafine, Intraconazole and Griseofulvin vis a vis their advantages and disadvantages was the high light of this session.

The Scientific Webinar was inaugurated by Dr. M.S. Ashraf, National Chairman, and Dr. Mohan Gupta, Hony. Secretary IMA AMS HQs. Chairpersons Dr. Raj Shekhar Pande and Dr. Kajeev Saxena, introduced the topic and stressed the need for greater importance and research on the subject. The Co-ordinators, Dr. Sangeeta Shrivastava, President, IMA Jabalpur Branch enlightened us with her views on Fungal Infections in Gynaecological Practice and Dr. Nachiket Pansey, Hony. Secretary, IMAAMS Jabalpur Branch on the need for many such webinars in future.
The Anchor and Moderator, Dr. Amarendra Pandey with valuable inputs by Dr. Nihit Agrawal put up an excellent show backed up by a lively interactive question — answer session with participants from all over the country.

Our next webinar is on Sunday the 23rd August 2020 between 5.00 p.m. to 6.00 p.m. The topic is “Common Skin Signs and Symptoms Seen in Clinical Practice” by Dr. Shaunak Patel, Consultant Dermatologist and Aesthetic Expert, Adorn Cosmetic Clinic, Ahmedabad.

23rd August 2020: A Webinar was organized by the IMA Academy of Medical Specialties, Madhya Pradesh in association with the MP Chapter of the Indian Association of Dermatologists, Venereologists, and Leprologists. The speakers were as follows:-

1. Dr. Shaunak Patel MD, DVL (Gold Medal) Consultant Dermatologist and Aesthetic Expert, Adorn Cosmetic Clinic, Ahmedabad.
   “SKIN - Signs and Symptoms of Diseases we see in the OPD”

2. Dr. (Prof.) V K Bharadwaj MD (Paed.), DM (Endocrinology) Founder Member, Indian Society for Paediatric and Adolescent Endocrinology, Jabalpur.
   “Skin Manifestations of Endocrine Disorders”.

Dr. Shaunak Patel, in his very informative talk covered system wise skin manifestations. From the basics: Diagnosis vs Symptoms to Morbidity vs Mortality; Black sheep to Blamegame; Susceptibility to Preventive action – everything was detailed. He summarised the Health Care Service Setup and emphasized on the importance of Nature i.e. Sunlight and Nutrition i.e. Vit. C, Vit. K, Vit. D3 in dealing with skin problems. A novel concept of associating Skin as an Endocrine gland was presented. “The Skin has micro levels of different hormones in different cells that selectively activate or deactivate under the influence of triggers from the body and brain. Hence, impart autonomous and autogenic influence for the Skin.”

Dr. (Prof.) V.K. Bharadwaj presented the wonderful association of different Endocrine glands and their Skin Manifestations with special emphasis on Diabetes Mellitus, Hypo and Hyper thyroidism, Addisson’s Disease among others. His talk covered all age groups i.e children, adolescents and adults providing food for thought.

Our Chief Guest, Dr. M S Ashraf, National Chairman, IMA Academy of Medical Specialties, and Guests of Honor, Dr. Mohan Gupta, Hony Secretary IMA Academy of Medical Specialties Hqrs., Dr. Mukul Tiwari, President, IMA MP State Branch, Dr. Pushpraj Bhatale, Hon State Secretary, IMA MP State Branch, Dr. Rajeev Saxena, Hony Secretary, IADVL MP State and Dr. Sangeeta Shrivastava, President, IMA Jabalpur Branch were formally introduced.

Chairperson Dr Ranjan Sheorey, President IADVL MP State introduced and gave a brief introduction of the topic. Dr. Rajeev Saxena, Hony Secretary IADVL MP State shared his experiences on the use of Lasers for removal of unwanted hair. Dr. Sangeeta Shrivastava enquired about managing post episiotomy scars and Dr. Sparsh Naik on the development of Keloids post-surgery and its management. A splendid show was put up by the Anchor and Moderator Dr. Amarendra Pandey who lighted up the lively question answer session.

Dr. Raj Shekhar Pande, Chairman IMAAMS MP State Branch apologized for the delay in start of the Webinar due to unforeseen weather and electricity failure. He very briefly summed up the day’s proceedings thanking both the speakers and all associated with the successful organization of the Webinar.

11th Sept 2020: IMA AMS Madhya Pradesh in association with IMA AMS Hqrs and with the MP Chapter of the Indian Association is organized a 3rd webinar was on “Endocrine Symposium-2020” on 11th September 2020 at 6:00 pm to 7:30 pm. Dr M S Ashraf, Chairman IMA AMS Hqrs graced the occasion as Chief Guest. Dr Mohan Gupta Hony Secretary Hqrs is Guest of Honour.
Maharashtra State Activities:
Moderator were Dr Rajeev Agarwal, Dr Jayesh Lele
Esteemed Panellist were CA Ashok Bansal, CA Ravi Gupta, Mr. Ashok P. Jakhanwal (Dy. Commissioner of Income Tax Thane), Shri Kailash C Naredi (Retired Principal Income tax Commissioner – Ahmedabad), Mr. Sanket Baralay (Founder – DigiShield).
Attended by 500 + delegates from all across India & Maharashtra with dignitaries like Dr Rajan Sharma (President IMA HQ), Dr M S Ashraf (Chairman IMAAMS HQ), Dr Mohan Gupta (Hon. Secretary IMAAMS HQ), Dr Avinash Bhondwe (President IMA MS), Dr Pankaj Bandarkar (Hon Sec IMAAMS), Dr Rajeev Agarwal (Chairman IMAAMS), Dr Snehal Fegade (Hon Sec IMAAMS). IMA Mira Bhayander partnered it. The webinar was You tube live.

Tamil Nadu State Activities:
1. South Zone Workshop on Fetal Echocardiography by TNSB AMS with IAE Madurai chapter Bimonthly Meeting & Dept of Cardiology, Madurai Medical College has been organized on 7th March 2020 4 PM at Dept. of Cardiology, Govt. Rajaji Hospital, Madurai. Dr. Saji Philips, Paediatric Cardiologist and Dr. S. Manohar, Consultant Radiologist, Madurai shall conduct the workshop. All IMAAMS members of IMA Tamil Nadu shall have free registration.
2. Proposed to form a sub chapter jointly by three small and adjacent branches of IMA. Musiri Kulithalai branch, Lalgudi branch and Thuraiyar branch.

Webinar I: IMAAMS TNSB organized a webinar on 21 May 2020 on the topic “ECG Basics during Covid Era. Are we ready for the wearable devices?” The speaker was Prof M Chenniappan, Adjunct Professor, The Tamil Nadu Dr MGR Medical University. The program overview was given by Prof Amuthan, Chairman IMAAMS TNSB. Presidential address was by Dr CN Raja, President IMA TNSB and Dr AK Ravikumar Hon. State Secretary IMA TNSB address. Felicitations by Dr Ashraf, Chairman, IMAAMS National Headquarters. Prof Chenniappan gave a brief account of pathophysiology of Covid and Heart and usefulness of ECG in identifying various
cardiac abnormalities in Covid. He also addressed how ECG helps in managing these abnormalities and its utility in monitoring drug therapy. A bird’s eye view of latest gadgets to record ECG in Covid and Non Covid hospitals. The webinar was the first of its kind in whole India and was an instant success with about 380 participants who had attended the meeting.

**Webinar II :** IMA-AMS Tamil Nadu State Branch conducted Webinar Meeting on 3rd June 2020 at 4:30 pm to 6:00 pm. Topic on Symposium on Diabetic Foot Management, Speakers by Dr. Arthur J. Asirvatham Dr. A K Ravikumar and Dr. D N Sharmila. More than 300 people are participated in this webinar meeting.

**Webinar III :** was a Symposium on CURRENT MANAGEMENT OF COVID 19 INFECTION. This meeting was unique because there were the Galaxy of leaders from National IMA and IMA AMS Headquarters attending the meeting and facilitating the webinar. We would like to thank our Honourable National President Dr. Rajan Sharma for his eloquent Presidential address and he mentioned that as doctors we should always be ready to work in the frontline and do our best to fight the COVID 19 infection. Honourable Secretary General Dr. R. V. Asokan offered his felicitations. Tamilnadu State Branch President Dr. C. N. Raja Sir was also present and gave his Keynote address and this was followed by felicitations by National IMAAMS Headquarters Chairman Dr. M S Ashraf and National IMA AMS Headquarters Secretary Dr. Mohan Gupta. The topics were our State President Dr. C.N. Raja Sir spoke about Management of COVID 19 by IMA along with Dr. V. N. Alagavenketesan, Professor of Medicine, Madurai Medical College on - COVID 19 current medical Management and Dr. Elamparithi, Pulmonologist, Vadamalayyan Hospitals on - Management of Lung complications during COVID 19 infections. 270 delegates attended this meeting.

**Webinar IV :** IMA-AMS TNSB Conducted webinar on 17th June 2020 at 4:30 PM on the topic “COVID 19 CURRENT MANAGEMENT” in the presence of Dr Rajan Sharma, National President, Dr. R V Ashokan, Hon. Secretary General, Dr M S Ashraf, Chairman IMA AMS Hqrs, Dr Mohan Gupta, Hony. Secretary IMA AMS Hqrs, Dr C N Raja, State President IMA TN and Dr A K Ravi Kumar, Secretary IMA TN, Dr. V. N. Alagavenketesan and Dr Elamparithi and other members are participated.

**Webinar V :** IMA-AMS TNSB Conducted webinar on 8th July 2020 at 4:30 to 6:00 PM topic on “IV Symposium on Arthritis Management”. Dr M S Ashraf, Chairman IMA AMS Hqrs and Dr Mohan Gupta, Hony. Secretary IMAAMS Hqrs attended the webinar.

**Webinar VI :** IMA-AMS TNSB Conducted webinar on 29th July 2020 at 4:30 PM to 5:30 PM topic on Symposium on Covid 19 Management. In the presence of Dr Arul Raj, Past President IMA Hqrs, Dr J A Jayalal, Past Vice President IMA Hqrs, Dr T Neelambujan, Dr M S Ashraf, Chairman IMA AMS Hqrs, Dr V Amuthan, Chairman IMAAMS TN State, Dr Kannan, Secretary IMAAMS TN State Dr V Rajesh Babu, Joint Secretary IMAAMS TN State, Dr C N Raja, President IMA TN, Dr A K Ravi Kumar, Hony Secretary IMA TN State and Senior members are attended this meeting.

**Webinar VII :** was organized by our Joint Secretary, IMA AMS TNSB Dr. V. Rajesh Babu in association with IMA AMS Coimbatore on the occasion of “World Organ Donation day”. “Symposium On Organ Donation” was held on 26 Aug 2020 Wed (4.30pm to 6.00pm) through Zoom Link. It was moderated by Prof. Dr. A. Rathinavel. MS MCH PhD, Dean, Govt. Sivaganga Medical College & Former HOD, CVTS, MMC, Madurai. Dr. V. Rajesh Babu, MS MCH, Consultant Neurosurgeon, Ganga Hospital, Coimbatore spoke on “Issues in Brain Death & Organ Donation”. “Skin Donation & Skin Bank” was addressed by Dr. R. Raja Shanmuga Krishnan, MS MRCS DNB(Plastic), Consultant Plastic Surgeon, Ganga Hospital. The Panellists were Dr. Vinodh Raj Kumar, MS MCH Consultant Pediatric & Laparoscopic Surgeon, SGR Hospital, Coimbatore, Dr. M. Ramalingam, MS MCH Consultant Urologist, Urology Clinic, Hindustan Hospital, Coimbatore, Dr. SP. Thiagarajan, MD DM, Former Professor of Nephrology, Coimbatore Medical College, Coimbatore, Dr. N. Anand Vijai, MS FNAS FACS PhD, Consultant Liver Transplant & Hepatobiliary Surgery and Dr. V. Thangavelu, MS, President Tamil Nadu Ophthalmology Association.

**Webinar VIII :** was webinar on “Obstetric Ultrasound” and was a great success story. “First
Trimester Ultrasound” was addressed by Dr. S. Manohar. MD DMRD, Radiologist, Doppler Scans, Madurai. Dr. Rekha Kurian spoke on “High risk Pregnancy”. There was a symposium on “Management of Obstetric cases” greatly organized and moderated by Dr. Latha Chaturvedula MD DGO DNB, Professor & HOD, Dept. of OG, JIPMER, Pondicherry. The panellists were Dr. Sumathi Anand, MD DGO Consultant Gynaecologist, Sumathi Hospital, Madurai, Dr. Sunita Samal MD DGO, Professor & HOD,
SRM Medical College Hospital & Research Institute, Chennai, Dr. Rekha Kurian, MRCOG, Hon. Consultant, Southern Railway headquarters hospital, Chennai and Dr. Monna MD(OG), Department of Reproductive Medicine and Surgery, SRIHER, Chennai. More than one hundred and fifty Obstetricians participated in the webinar.

Telangana State Activities:

1. IMA AMS Fellowship Certificate in Infertility Examination conducted for 2018-2019 Batch on 13th December 2019 theory exams at IMA Building. On 14th Dec 2019 Clinical Examination at respective centers. Total 88 students are attended for the exam out of 105 students. Results were announced. All students are passed the examination. Certificates will be given during Convocation.

2. IMA AMS Telangana State started in Fellowship Certification Course in infertility for the MS OBG and MD DGO Doctors inauguration held on 4th Feb 2020 at IMA Building, Dr. G. K. Kirloskar Hall, and Hyderabad. Inauguration conducted by IMA AMS Telangana State, Chief Guest of the function Dr E Vijayendra Reddy, President IMA Telangana State, Guest of Honour Dr Sanjeev Singh Yadav, and Hony Secretary IMA Telangana State, Dr M Shivalingam, Treasurer IMA Telangana State, Elect President IMA Telangana State Dr Lava Kumar Reddy, Dr V S Rao, Vice Chairman IMA AMS Hqrs, Dr Mohan Gupta, Hony Secretary IMAAMS Hqrs, Executive Editor of IMAAMS Hqrs Dr B Narender Reddy and Past President IMA Telangana State Dr B Pratap Reddy, Swetha Agarwal, HOD Southern Gem Hospital and Dr. Uma Maheswari, Neelima Mom Hospital, Dr C Jyothi, HOD Ferty 9 Hospital, Dr K Narmada, HOD Genesis Hospital and, Dr E Prabhavathi, Past Chairman IMA AMS Telangana State and Dr V Janaki, and IMAAMS Telangana State body Dr G R Linga Murthy, Chairman IMAAMS TS and Dr Nusrath Farees IMAAMS TS and other dignitaries are participated. The course will be for one year. Total 103 students are enrolled. Theory and Clinicals at Neelima Mom Hospital, Genesis Centre and Ferty 9 Hospital and Research Centre and Southern Gem Hospital.
Uttar Pradesh State Activities:
National Webinar was hosted by UPIMAAMS and UPIMA on 8th August 2020 from 4:00 PM to 6:00 PM Dr. M S Ashraf National Chairman IMAAMS HQ and Dr. Mohan Gupta Hon. Secretary IMAAMS HQ are Guest of Honors.
Scientific Content was for 7 mins duration each on Recent Advances on TAMING THE COVID 19 PANDEMIC.

Following were the topics and speakers:
IPC requirements in Covid times - Dr Shalabh Gupta, Hony Secretary, UP IMAAMS
How to run OPD in Covid - Dr S P S Chauhan - Sr Consultant Internal Medicine & Past President UPIMA.
Types of Covid testing and relevance – Dr Jyotsna Madan, Sr Pathologist & Dean, PGTI, Noida
Mix of Pregnant pt – Dr Divya Choudhary, Sr Gynaecologist, Aligarh Intubate or not to intubate a Covid pt – Dr Anil Kumar, Senior Intensivist, Ghaziabad.
Drugs recommendation in Covid pts - Dr Ashish Agarwal, Sr Pulmonologist, Ghaziabad
Challenges in opening a New Pvt Covid Hospital - Dr Sharad Agarwal, National Past VP IMA, Gaziabad.

More than 125 IMA Members attended the webinar. Dr Ashokan Hony Secretary IMA HQ blessed the meeting with his words of wisdom. Meeting was interactive and everyone appreciated the content. Dr M S Ashraf also complimented the webinar arrangements and its scientific content.
Dr Mohan Gupta was thanked for his active role in planning and executing the webinar.
Meeting was organized by Dr M S Ashraf Chairman IMAAMS Hqrs and Dr Mohan Gupta, Hony Secretary IMAAMS Hqrs.

My sincere thanks to Dr Rajan Sharma, National President, IMA HQs, Dr R V Asokan, Hon. Secretary General, IMA HQs, Dr Ramesh Kumar Dutta, Finance Secretary IMA Hqrs, Dr M S Ashraf, National Chairman, IMAAMS HQs and Dr V S Rao, Vice Chairman, IMAAMS HQs, Dr Mona P Desai, Dr Rajendra Kumar Yadav and Dr Ravi Shankar Joint Secretaries of IMAAMS HQs, Dr S P Singh, Editor of Annals and Dr B Narender Reddy, Executive Editor Annals of IMAAMS HQs for their valuable guidance and suggestions. I appreciate Mrs N Saritha, Office-in-charge for her exemplary services and her support in smooth conduct of the office activities.

Jai Hind
Dr. M S Ashraf Chairman IMAAMS HQs

Jai IMA
Dr. V S Rao Vice Chairman IMAAMS HQs

Jai IMAAMS
Dr. Mohan Gupta Hon Secretary IMAAMS HQs
From the Editor’s Desk

Academy of Medical Specialties – the prestigious academic wing of Indian Medical Association happens to be one of the very distinguished academic bodies in medical fraternity dedicated to improve the standards and best practices of the clinicians.

Annals 2020 of Academy of Medical Specialties is for the first time being published in the e-version owning to the present Covid 19 pandemic. It has articles contributed by eminent clinicians from across the country on various topics of Medicine. We are sure that the readers will throughly enjoy this academic feast, and incorporate the knowledge in their clinical practice which in turn will benefit the patient.

We sincerely would like to thank all the authors who have contributed very meaningful, relevant and recent updates in medicine which are enriched with their vast experience and wisdom.

We would place on record our appreciation and sincere thanks to all the members of our editorial board without whom it would not have been possible to complete this novel assignment.

We would like to recognise the efforts and commitment of our Office assistant Mrs. N. Saritha.

Thanking you,

Dr S P Singh
Editor for Annals
IMA AMS HQrs

Dr Boodida Narender Reddy
Executive Editor
IMA AMS Hqrs
How to Balance your Work and Family

Dr Neelam Mohan
DNB(Pediatrics), MNAMS, FPGH(UK), FIMSA, FRCPCH (UK), FACG(USA)
Dr. B.C. Roy National Awardee (Presidential award)
Director - Department of Pediatric Gastroenterology,
Hepatology and Liver Transplantation
Medanta Medicity – Gurgaon (Delhi NCR)

Work plays a significant part in life. It keeps the lights on, pays the mortgage, makes the car payment, funds retirement and permits vacations. Doctors are mostly very occupied and seems most are having a hard time to balance their professional life with personal life nowadays. The hardest part of growing your career isn’t dealing with your boss and daily demands; it’s finding time for your personal life.

Balancing work and family can often feel like a difficult job. Here are just a few things you can try to help balance out your life.

Schedule Some Down Time

We all schedule our work hours and important appointments like doctors’ visits, but do you schedule fun for yourself? Or maybe you’re the type to hop online and go dungeon diving with your guild. Anything that helps you relax is something you should make time for. A nice bath or a workout can help some folks with stress relief, or maybe you just need a good old nap. By scheduling something you can look forward to, you won’t feel so overwhelmed and depressed when you glance at your schedule. Sure you have work Tuesday, but you’re also going to have fun that evening!

Develop Healthy Patterns

Try to reduce interference. Usually trying to avoid doing something takes more time than time to do the work itself! Adopt the rule of not postponing any case. Do everything only once. If you come back to a task multiple times, that will not only consume a lot of time but will be tiring and distracting as well.

Rearrange Your Errands

See if you can arrange your errands so that they take up the least time. Maybe you can drop your dry cleaning off and pay your bills on your way to the grocery. Maybe you can pay a kid down the street to walk your dog. By making the most of the time you spend running errands, you may find you have a lot more time to relax. Also, consider exchanging chores with neighbors.

A Little Relaxation Goes a Long Way

You don’t have to make dramatic changes to bring balance to your life. Leaving the office a little early one night a week will give you a little extra down time when you really need it. When it comes to adding more fun activities, add them slowly, just one at a time. If you try to pack all of your favorite activities into one week, you may find yourself more stressed than you were before! If you’re having an especially hard day, take 15 minutes to do breathing exercises, take a bath, listen to music, have a snack, or go on a walk. Anything that will help you de-stress and gives you a little boost.

Exercise

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons, including increasing growth and development, preventing aging, strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, and also enjoyment. It can be hard to work exercise into a busy schedule, but the fact is, exercise reduces stress and heightens feel-good hormones. Many people find they are more alert, have better concentration and are more productive when they sneak regular exercise into their lives, even if it’s just a short walk every day. Besides, you’ll feel healthier and proud of yourself. That’s always a confidence boost!
Create and Organize a Family Calendar

Figure out your family's priorities. A calendar can include dates when bills are due, a chore chart for the kids, a list of school and family events, extracurricular activities, birthdays, and more. You can do it by using Google calendars, which can be easily shared and synced on smart phones.

Make the Mornings Easier

Avoid starting the day on a frazzled note by getting organized the night before. You should organize the things to avoid hustle-bustle in the morning. Pack the kids' lunches, lay out their clothes (plus your own), and have everyone shower. You should also decide what to make for breakfast, and repack the diaper bag, backpacks, purses, or work bags to be placed by the door, right next to your keys, so you can grab them and lock up on your way out. It will help you to go freely at your work place.

Parenting

Its responsibility of both parents to give time to their children. We are not born parents. Parenting is both an art and science. We need to learn the various styles of parenting for a child or an adolescent. The most preferred style is authoritative parenting in which the child grows in a non threatening environment with reasonable and nurturing attitude. Parents respect children’s ability as well as shortcomings and find solutions together without threatening the child.

Experts say that other parenting styles as Permissive (do anything you want), Neglectful (parents not involved) and Authoritarian (“Just do as I say”) lead to various issues in children and adolescents such as low self esteem difficult to get along with peers unhappiness and behaviour and mood issues.

Create Special Family Activities

Making time for your kids is crucial, both during the week and on the weekends, to nurture your family dynamic and allow everyone to bond. If you're pressed for time, have a family breakfast or a family night with board games or movies. Create activities that regularly fit into your schedule so everyone knows what to expect and what to look forward to when you do have family outings, avoid talking about work or checking your phone. Instead, focus on your kids' interests such as friends, classes, and hobbies. With older children, ask for their activity suggestions and try to meet their needs. In the end, it doesn't really matter what you do as long as you do it together.

Spend Time With Your Partner

Remember to nurture your relationship with your partner, who will often be the number one person by your side. Start by having monthly date nights to get closer, feel rejuvenated, and enjoy each other's company. Often, if you're busy with work and home, your partner is the first to get neglected. Fostering this relationship will bring back some excitement to the marriage or partnership and help you to "check in" with each other. For some couples, going out on a monthly date can be difficult and expensive, but that doesn't mean you can't focus on each other. Have an indoor date or even sitting together with a glass of wine or orcohe and mum talking (but not about work or the kids).

Create Moments for Yourself

By managing time wisely, you can fit in valuable "me" time regularly. You can't be an effective spouse or parent if you're cranky, so take time to care for yourself to feel relaxed and effective. Lose yourself in a book before you go to sleep, take a bubble bath or treat yourself to a spa day or a movie or an outing with friends.

In the end, I would say first like we organize ourselves at work we need to also learn to organize time for family and self.
Necessity has been the mother of invention in the response to the COVID-19 pandemic, triggering many an innovation, often without the luxury of time to test these makeshift solutions to pressing problems. But there is much to be learned from times of crisis for times of plenty.

COVID-19 has required unprecedented responses from all countries. Such has been the speed and severity of the pandemic that few countries have been afforded the luxury of following traditional processes of testing and trailing new technologies, processes and medicines. Countries that have delayed their response to COVID-19 seem to be faring worse. The lack of time and resources available to respond to the crisis, as well as the need for rapid scaling in every context, has led to an explosion of innovative responses.

There have been some extraordinary moves. India and Pakistan are refitting their rolling stock of trains to become hospital wards for patients with COVID-19. China constructed a 1,000-bed hospital in 10 days (ref. 2). Distilleries have pivoted to produce millions of bottles of hand sanitizer3. Nations that uphold free choice, movement and competition have suddenly foregone many fundamental values and privileges. For example, in addition to enacting widespread social-distancing measures, the UK, in a landmark deal, has commissioned all of its private-sector hospitals for use by the National Health Service, at cost, expanding capacity by 8,000 beds4.

These responses bear the hallmarks of so-called ‘frugal innovation’—that is, doing more, with less, for the many, and being creative, innovative and resourceful in the face of institutional voids and resource constraints5. This has been the reality of the experience of many low- and middle-income countries, even before the COVID-19 pandemic, which is why so many frugal innovations emerge from these contexts6,7,8. Frugal innovation has been touted for its merits in serving the needs of the poor or the bottom of the pyramid9, for making business internationally competitive10 and for achieving sustainable development11.

Frugal innovation in healthcare does not mean low quality but instead means the ability to provide safe healthcare in the best way possible under given circumstances and constraints. Challenging as the current public-health crisis is, frugal innovation provides opportunities to expand access to care and to ensure that the care, although perhaps not perfect (yet), is good enough under the current circumstances. While there is a predominant emphasis on affordability and low cost in frugal innovation, there are many other associated drivers, competencies and dimensions as well12. Of these, we believe three approaches help us to relate the examples we have encountered thus far in responding to the COVID-19 threat: repurposing, reuse and rapid deployment. Although it is not an exhaustive list, Table 1 describes several such frugal innovations in some detail.

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<td>Hydroxychloroquine</td>
<td>Anecdotal evidence and case series have suggested some benefit as prophylaxis and treatment when used in combination with</td>
<td>Repurposing from malaria prophylaxis and treatment</td>
<td>Cheap and readily available. The government of India has approved its use for COVID-19 prophylaxis</td>
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<tr>
<td>Anecdotal evidence and case series have suggested some benefit as prophylaxis and treatment when used in combination with azithromycin and zinc sulfate.</td>
<td>Repurposing from malaria prophylaxis and treatment</td>
<td>Cheap and readily available. The government of India has approved its use for COVID-19 prophylaxis (at 400 mg twice a day on first day, then 400 mg once weekly for 7 weeks)24. The American College of Cardiology has produced a risk-stratification system to ascertain whether it can be used as prophylaxis in low-risk groups25. 3D printing enables rapid prototyping and production. Designs for production are available open source. Potential to ventilate up to seven patients on one ventilator machine could radically transform access to urgent therapy when needed. Tube lengthening to up to 20 feet does not alter ventilation performance, per a protocol released by New York–Presbyterian Hospital for ventilator sharing26. Open-source designs enable distributed manufacturing and allow countries to tailor designs suitable for their own manufacturing capabilities. Portability, simplicity, and use of fewer components allow ramping-up of production and distribution. Such features conform to the UK’s Rapidly Manufactured Ventilator System specifications, which call for robustness, intuitive operation and use of local materials in anticipation of global supply chain disruptions30.</td>
<td>The evidence base is currently weak and requires formal evaluation and trials. The drug is available by prescription only, and carries cardiac risk (QT prolongation), so it is unsuitable for people with heart disease. The confusing array of tubing around the ventilator machine could lead to human error. Testing under lab conditions has demonstrated its potential, but it has not yet been field tested or tested on human subjects. Due to limited features, such ventilators, although touted as useful for many patients with COVID-19, may not be suitable for all types of patients.</td>
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- **Ventilator multipliers**
  - Open-source 3D-printed device available to connect multiple ventilator hoses to a single ventilator machine. Two colors are used to identify inhalation and exhalation components. Using a Nellcor Puritan Bennett 840 Ventilator System, innovators were able to provide a tidal volume of 450 per patient, inspiratory.
  - Rapid production and reuse of existing ventilator machines.

- **Portable and open-source designs of ventilators**
  - Pressure of 25 cm H2O and positive end-expiratory pressure of 10 cm H2O (S. Anwar, personal communication).
  - OxVent (UK) has redesigned ventilators to use and repurpose 90% off-the-shelf parts27. Medtronic (Ireland) is sharing its portable ventilator design specifications and code free of charge to all manufacturers worldwide under a free license valid until the official pandemic emergency is declared over by the WH028. AgVa Healthcare (India) is also sharing designs of its portable ventilator, which weighs ~3.5 kg, oxygenates room air and costs ~US$2,000, with much of the software functionality provided by an app installed on the operator’s smartphone (https://www.agvahc.com/).
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<td>Face masks and visors</td>
<td>covid-19 [29]. By comparison, contemporary ventilators such as the Siemens Maquet Servo-i weigh 20 kg, require medical air and cost &gt;US$10,000</td>
<td>Reuse of existing material and assets available widely in the office place</td>
<td>Extremely simple workaround to partially obviate the need for full face protection. The transparent sheet enables full vision and protects the wearer against aerosol contamination of the eyes and surrounding area. In the absence of full PPE, this simple workaround might afford some protection where risk of aerosol spread is high.</td>
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<td>Aerosol boxes for intubation</td>
<td>extended protection of the acetate sheet covers the eyes and neck area to protect the wearer from aerosols.</td>
<td>Reuse of existing material</td>
<td>In the absence of full PPE, this simple innovation can provide some useful, needed protection against aerosol spread of COVID-19, particularly for anesthetists. Compared to intubating with full PPE, the TracheoBox might provide improved usability.</td>
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<td>Task shifting in ICUs</td>
<td>After each intubation, the box can be cleaned with 70% alcohol or bleach to be readied for reuse (sourced as the TracheoBox).</td>
<td>Rapid transformation of existing operating infrastructure and repurposing of human resources</td>
<td>Massive expansion of hospital beds in makeshift hospitals: for example, NHS Nightingale in the UK has 4,000 beds, with two more sites planned elsewhere in the country. Such expansion of capacity requires task-shifted roles so expert capacity can be leveraged across a wide range and number of cases.</td>
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Drawing on lean management techniques, ICUs can be reorganized to ensure that more rapid, expanded care is provided to a far larger number of patients than are usually found in regular ICUs. Lower-level healthcare assistants or nurses can prepare the patients in groups, with consultants or specialists intubating one patient after another in rapid succession. Such models of care have been used in the Aravind Eye Hospital, India, for several years, which has led to a substantial increase in the
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<td>CHW-led response at community level</td>
<td>number of cataract operations that can be performed by one ophthalmic surgeon, relative to similar operations conducted in the USA.8. Training lay CHWs to provide household-level advice and support during an epidemic provides a distributed public-health response where it is needed most: in households. CHWs are able to prevent, detect and respond to epidemics, as demonstrated from longstanding experience of scaled community health workforces in Brazil, Ethiopia, India and Pakistan that have enabled effective responses during Zika, Ebola and cholera epidemics31,32,33. Using risk-assessment tools based on the most basic protocols, CHWs can identify at-risk groups, refer patients to the health system, understand the local determinants of health and develop community-wide interventions to support the</td>
<td>Repurposing of human resources to improve existing or develop new skills</td>
<td>Online massive open online courses to train CHWs are available from several higher-education institutions. The WHO’s Health Emergency Programme Learning and Capacity Development Unit will launch online training for COVID-19 response soon. In the UK, the launch of NHS Volunteers has seen 700,000 people register to provide support to those in need, although so far there has been little guidance or policy about what the volunteers will be used for and how</td>
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<td>DIY face masks</td>
<td>national response. Task shifting to lower-level healthcare workers is effective and efficient, given their shorter training times and lower salary costs. Although the WHO suggests there is no evidence that face masks provide sufficient protection, the Czech Republic is one of a few countries to make wearing a face</td>
<td>Reuse of existing material, skills and assets for rapid</td>
<td>With social distancing in place, idle workforce in homes and other places can be utilized to produce protective equipment</td>
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<td>Prone self-ventilation</td>
<td>mask mandatory35. This has spurred a do-it-yourself movement with people making their own masks using household material and domestic sewing machines. Although placing patients in a prone position is an acceptable practice for ventilated patients, the COVID-19 pandemic has led clinicians to try it for non-ventilated hospitalized patients — a completely novel, frugal clinical</td>
<td>Simple, no-cost technique to improve outcomes</td>
<td>For instance, in Pakistan and the Czech Republic, the prison service has distributed the task to prison inmates34.. Several randomized, controlled trials have shown improved oxygenation compared with that in the supine position, from improved pulmonary secretion drainage, alveolar</td>
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been shared, nimbly, rapidly and without borders, that it may have left many wondering whether this will disrupt traditional academic publishing altogether.

There are many underlying lessons. Necessity is the mother of invention, and human beings can be resourceful, particularly in crisis, in coming up with frugal solutions that get the job done. It is sometimes necessary to forego high regulatory standards in order to rapidly address new demands at low cost, and although the imperative for frugal approaches to healthcare provision has been witnessed in developing countries for many years, the value of humble approaches to innovation is now being seen even in the most technologically advanced countries. It remains to be seen whether this global crisis will permanently disrupt how innovation occurs in healthcare. Furthermore, the unconscious biases faced by researchers from low-income countries14,15, may be mitigated by this improved global knowledge flow, and this may result in improved uptake of innovations from these contexts, so-called ‘reverse innovation’

After the world finishes dealing with the COVID-19 pandemic, the important lesson for humanity here might be to learn from everyone and for everyone. The pandemic may serve as the greatest leveller of our time and teach us to recognize the fragility in all our healthcare systems. There may be, at least, this one positive outcome.

References
Sudden Cardiac arrest is an event of abrupt cessation of heart function. It usually results from defect in electrical impulse conductance that disrupts its pumping action and stopping blood flow to the body. This leads to loss of consciousness and loss of respiratory function also. This can happen even when the heart is beating but due to in coordination of different chambers, there is loss of effective pumping action. Sudden cardiac arrest is different from a heart attack, wherein blood flow to a part of the heart is blocked. However, heart attack can sometimes trigger an electrical disturbance that eventually would lead to cardiac arrest.

Cardio Pulmonary Resuscitation (CPR) is a series of steps to assist the heart to deliver blood to various organs with adequate pressure, in particular the brain, goes back to 18th century. In 1740, Paris Academy of Sciences advocated mouth to mouth resuscitation as the key component of CPR for drowning victims. Throughout 18th and 19th centuries, chest compression and mouth to mouth respiration were the key components of CPR. In 1891, Friedrich Mass performed documented chest compression. George Crile, in 1903 was the first to describe successful use of external chest compression. James Elam and Peter Safar described the modern technique of mouth to mouth resuscitation. Asmund Laerdal, a toy company owner developed Resusci Anne manikin in 1956. He had a very a strong emotional element in its development after he found his little son, Tore, lifeless in the water. He and Bjørn Lind, an Anaesthesiologist worked closely to make a manikin that was anatomically correct in all aspects. In 1960, Asmund and Peter Safar published their work in JAMA and introduced it as the training Aid. American heart Association formally endorsed CPR in 1963. The first ever CPR guidelines were published in 1966 by the National Academy of Sciences. In 1972, first mass CPR training program was conducted in Seattle where about 100000 people received certification in the first two years. CPR over phone was started in 1981 by the operators of 199 (the Helpline number). In 1983, American Heart Association (AHA) convened a National conference to develop CPR guidelines for children and infants. Public Access Defibrillation programs were started in 1990 by making Automated External Defibrillators (AED) accessible to public. Considering the invariable delay in expert help reaching the patient outside the hospital, it was recommended that lay people should also be trained in chest compressions as the risk of any chest injury would be outweighed by the chance of preventing brain damage or death in the event of no CPR.

The International Liaison committee on Resuscitation was formed in 1992 to provide an opportunity for major organizations in resuscitation to work together on CPR and ECG protocols on the words of sick hearts “lllcor”. ILCOR composed of American Heart Association (AHA), the European Resuscitation Council (ERC), the Heart and Stroke Foundation of Canada (HSFC), the Australia and New Zealand Committee on Resuscitation (ANZCR), the Resuscitation Councils of South Africa (RCSA), the Resuscitation Councils of Asia (RCA) and the Inter American Heart Foundation (IAHF). This consensus mechanism will be used to provide consistent, evidence based International guidelines on emergency cardiac care for Basic Life Support (BLS), Pediatric Life Support (PALS) and Advanced Cardiac Life Support (ACLS). The steering committee addresses the effectiveness of education, training and coordination among the different Resuscitation committees. The AHA guidelines are reviewed and updated every five years.

2005 The AHA developed Family, Friends CPR Anytime kit to learn CPR, and in 2008 Hands only CPR. CPR 2010 guidelines are recognized as one of the most important public health initiatives in the last two generations and is estimated to have contributed to saving at least 2 million lives.

Considering the difference in the infrastructure and the transport system in India from the Western and
European countries, need was felt for India. Indian society of Anaesthesiologists took the lead and gave the responsibility to Dr. S S C Chakra Rao, Past President of ISA National to develop India specific guidelines that would be more appropriately suitable to the local needs. After a series of meetings, a committee headed by him and consisting of Dr. Rakesh Garg, New Delhi; Dr. Syed Ahmed Moied, Aligarh; Dr. Mukul Kapoor, New Delhi; Dr. Baljit Sigh, New Delhi, Dr. JV Divatia, Mumbai and Dr. Rasesh Diwan, Ahmedabad drafted the three guidelines; Compression only Life Support (COLS), Basic Cardiopulmonary Life Support (BCLS), Comprehensive Cardiopulmonary Life Support (CCLS). These were published after peer review as the Indian Resuscitation guidelines in the Nov 2017 issue of Indian Journal of Anaesthesia. Just when the guidelines were being written, Indian Resuscitation Council was formed as a separate wing of ISA with Dr S S C Chakra Rao as the chairman.

The Indian Resuscitation guidelines differ from the AHA in many ways. India is a country of different cultures, religions, languages besides a large population and a low literacy level in some of the states. The emergency medical system is not well organized, paramedics are not properly trained, AEDs are not available everywhere, so guidelines suitable to meets the needs of different strata of the populace was the need of the day. Compression Only Life Support (COLS), is for any lay person willing to help as a good Samaritan even though he is not trained and is outside the hospital. He can resuscitate a victim with just two hands without any devices and handover the victim safe to the paramedics who come to the rescue. Basic Cardiopulmonary Life Support (BCLS) is for trained paramedics and medics outside the hospital where besides the chest compression, the trained rescuer can use Ambu bag and AED to resuscitate the patient. Comprehensive Cardiopulmonary Life Support (CCLS) is for cardiac arrest within the hospital, where all the necessary help and equipment is available.

The Indian Resuscitation Council is in the process of establishing training centers in every Medical and Dental college to train all medical and paramedical staff. To begin with, availability of the manikins was difficult. This shortage of has been overcome with support of Indian Society of Anaesthesiologists who allotted one manikin free to each city branch of ISA. So far 156 manikins have been distributed to various city branches all over the country. IRC is imparting COLS training to all the school children and laymen without any charge. A very meager amount to meet the incidental expenses is being charged for BCLS and CCLS training programs. The Cardiopulmonary Resuscitation movement by IRC/ISA is growing at a rapid pace in India as an initiative of Indian Society of Anaesthesiologists and supported by Indian Medical Association and other societies. The Motto of Indian Resuscitation Council is to make “Every Citizen A Life Saver” with a slogan “Your Two Hands Can Save A Life”

Ilcor encouraged IRC to participate in the World Restart A Heart Day 16th October to train a large number of school children and laymen in COLS all over India as a collective team effort. It was a matter of immense pride that IRC imparted training to 2,25,000 persons in 2018 and 5,00,268 in 2019. The core committee members of IRC are invited as guest members for all the meetings of ILCOR since 2018. The Indian Resuscitation Council has come up with videos to demonstrate COLS in many languages of India, encouraging to produce AEDs in all the regional Indian languages. IRC has been negotiating with Laerdal company, the largest manufacture of manikins and other quality CPR devices. IRC in association with Dr AKN Sinha institute of Medical Academy had conducted a Global webinar on resuscitation which was attended by SAARC Countries on 9th June 2019. IRC would be pleased to train all the doctors and IMA members on resuscitation in various centers in the country so that each member becomes a life saver.

Now with our country in the midst of Covid-19 pandemic, many people are becoming victims of sudden cardiac arrest. Normally about 4,280 per 1,00,000 population every year suffer sudden cardiac arrest in India. But because of the ongoing COVID-19 infection, a much greater number of sudden cardiac arrest are being reported and about 80% of them occur at home. IRC is now are advising Home CPR to train general public and family members to save precious lives as the incidence of sudden cardiac arrest occurring at home has increased. Training all the members in a family for CPR, would help save lives because the crucial period of time between occurrence of cardiac arrest and the time when expert help arrives can be effectively managed to provide some circulation to the patient.

Indian resuscitation council, in an endeavor to keep pace with the need of the time, will be updating guidelines for commonly occurring emergency situations in India like pesticide poisoning, snake bite, heat stroke, acute coronary
syndromes etc. A taskforce committee has been formed that includes members from various other professional bodies and associations of other specialties like critical care, emergency medicine, cardiology, pediatrics etc. for their scientific input and contribution. In my capacity of the chairman of IRC, I request all the Doctors, IMA members to train their family members in COLS so that they can save lives of their near and dear ones in an unfortunate event of sudden cardiac arrest at home. IRC would be pleased to award the certificates online to everyone who undergoes training as per IRC guidelines.

Long Live IMA
Long Live ISA
Long Live IRC
EVERY CITIZEN A LIFE SAVER

Cover Story
Quality: Is it a Priority in the Healthcare Sector?
Hysteroscopy a magic wand in Gynaecologists hand

Dr L Fahmida Banu  
MD, DGO, DNBE, FRCOG, FICOG  
Minimally Invasive Surgeon  
Consultant Obstetrician & Gynaecologist  
Hyderabad

Hysteroscopy has revolutionised the diagnosis and management of uterine pathologies in modern Gynaecological practice. It is an important tool required in day to day practice to increase the precision of diagnosis and to treat conservatively various endometrial pathologies. The condition could be as simple as endometrial cavity visualisation to procedures like excision of endometrial polys, septal resection, removal of impacted intrauterine contraceptive device to complex procedures like resection of submucous fibroids and endometrial resection.

Nowadays, hysteroscopy has become `gold-standard' procedure to describe the morphology of the uterine cavity and the presence of intrauterine lesions (De laco et al., 2000) and to treat them.

History: The first scientist to conduct light into the human body was Bozzini in 1805. In 1869 Commander DC Pantaleoni ruise performed the first hysteroscopy with the aid of Desormeaux’s endoscope

Instrumentation: The instruments are very essential “The machine is important but the (wo)men behind the machine is more important” The armamentarium of instrumentation are very essential for the excellent skill to be performed as the skill depends upon the tools provided. This includes a good imaging system with camera CCU, telescope with their sheaths, monitor, light source, various energy sources, fluid management system and recoding with documentation facility. Not only equipment a skilled surgeon and team which includes anaesthetist with anaesthesia station and vigilant OT staff all are mandatory. Recoding and feedback always improve the skill of the team also to propagate the teaching and to impart the knowledge to students. The success of this procedure depends on the instruments used, the operator, and energy sources and the distension medium (Baggish, 1989).
**Resectoscope:** The depth of thermal damage is based on multiple factors, degree of endometrial thinning, speed, pressure, and duration of contact during motion power setting. It is available with a 4-mm ball, roller barrel, ellipsoid, and a 5 to 7 mm cutting loop. A thin electrode can cut tissue, whereas a larger surface area, such as a ball or barrel, is more suited for coagulation.

**Energy sources:** An important component of operative hysteroscopy. The energy sources either Monopolar or bipolar energy are used in resecting the polyps. The bipolar energy under water cutting sources are safe to use with normal saline as distention media. Whereas with monopolar energy sources distention media should non electrolyte type and it may be associated with fluid overload and dilutional hyponatremia.

**Simulators:** The simulators are the boon to this generation of students who want to learn and excel the hysteroscopic skills. Practice on simulators and improving the skills minimises the complications. It is like pilots learning the flying a jet on simulators before they embark the real flight.

**Various Hysteroscopic Procedures:** Many diagnostic and operative procedures can be performed through hysteroscopy. In office hysteroscopy procedures can be performed with local anaesthesia and various major procedures can be done with proper planning under regional or general anaesthesia. Intraoperative vigilant monitoring is mandatory.

**Septate Uterus**

Septate uterus is the commonest congenital anomaly we come across in practice which can lead to infertility1, pregnancy loss or preterm delivery. Hysteroscopic resection of this congenital defect through hysteroscopic cutting of serum with bipolar or unipolar energy Collins knife is single sitting procedure can be performed as day care procedure which enhances fertility and obstetrics outcome. The management of the uterine septum has changed dramatically with these minimally invasive techniques. Diagnosis and classification of Mullerian anomalies also became more accurate and facilitated these techniques.

**Uterine Polyps:** Uterine polyps are common cause for menorrhagia and some cases leading to overtreatment with Hysterectomy can be conservatively managed by resecting the polyp with hysteroscopic resectoscope. It is a very rewarding procedure which gives relief to the women with retaining her uterus.
**Blocked Fallopian tubes:** Fallopian tubes which are blocked leaves the women who is suffering from infertility with option of IVF. These women can considered for tubal cannulation and reestablishing the patency to restore her fertility.

**Assessing the patency:** Patency of the tubes can be assessed through vortex formation of the fluid dynamics in hysteroscopy – Fehmisign

**Fibroid Uterus:** A submucous fibroid often leads to hysterectomy which may be a great loss to women who wants to retain uterus. Operative hysteroscopy with resectoscope has tremendously contributed in saving the uterus by resecting the fibroid and relieving the symptoms like heavy bleeding, dysmenorrhea, anaemia and infertility.

Trans cervical resection of fibroids is preferred due to higher efficacy, reduction in surgical morbidity, absence of abdominal scar and very satisfactory outcome. Various skillfull methods of hysteroscopic myomectomy are available either cutting using electrosurgical loop which is very effective. Also vaporization or cutting through Morcellation – Mechanical (FDA Approved) is also possible.

**RPOC:** Retained Products of conception which are adherent and leading to persistent bleeding can be treated with under vision by excising the adherent products and controlling the bleeding and following with HPE.

**Postmenopausal Bleeding:** in postmenopausal women bleeding per vaginum should be considered as a serious issue and needs to be evaluated. Blind D&C procedure can miss the pathology and diagnosis may be delayed. In hysteroscopic visualisation of the entire uterine and cervical canal can be seen and under vision biopsy taken from suspected area. The cornual ends which are often missed in blind curetting procedures are taken care in hysteroscopy and the diagnosis is more accurate.
Endometrial Carcinoma

Hyperplastic Endometrium

Endometrial Carcinoma

The lesions can be inspected and especially the pathology near the cornual ends which is usually missed in blind curettage can be taken care. Accurate specimen from the lesion taken for the HPE

**Pre requisites**

A detailed history to exclude pregnancy, find out any allergy to medicines, stop taking any medicines like aspirin or warfarin. If there is infection of vagina, cervix or pelvis treat before taking up for the procedure. Evaluate for cardiac or respiratory problems. A proper clinical general and Gynaecological examination and relevant surgical profile to be performed.

Misoprostol in operative hysteroscopy: its role is controversial there is no strong supportive evidence to place it routinely in all cases but it is beneficial in post menopausal women.

**Complications**: They could be due to anaesthesia or procedure related. Procedure related complications will get reduced as the expertise and skill of the operating surgeon increases. The immediate complications could be perforation of the uterus, excessive bleeding, fluid overload, electrolyte imbalance, embolism and rarely adjacent organ injury. A team management with experienced surgeon, proper equipment, energy sources, vigilant anaesthetist, anaesthesia station all are essential to perform more complicated cases.

The wand is important but the hand which turns the wand is also very important.

**References**:


3. There was an increase in side effects (cramps, vaginal bleeding, nausea, and diarrhea) in the misoprostol group (four studies, 374 patients; RR 4.28, 95% CI 1.43-12.85)


5. Diagnostic and Operative Hysteroscopy Hardcover – Import, 1 January 1989 by Michael S. Baggish
Introduction

The novel coronavirus continues to spread around the world, with new cases being reported all the time. Spreading just as fast, it seems, are conspiracy theories that claim powerful actors are plotting something sinister to do with the virus. The conspiracy theories shows that this has the potential to be just as dangerous for societies as the outbreak itself.

The pandemic has given rise to many new conspiracy theories. Certain groups are more prone to being targeted, including particular religions and people with different sexual orientation. Counter-actions include calling out false information, contacting the author, and taking care not to spread it further.

From those that question the moon landings to theories about JFK’s assassination, you don’t have to look far to find a conspiracy theory. And while we may find some of the most out-there theories laughable, the problem is, they’re not always easy to recognize.

The internet is the perfect breeding ground for them, and the uncertainty created by the coronavirus outbreak is allowing them to flourish.

How conspiracy theories flourish?

Conspiracy theories often start as a suspicion based on someone benefiting from an event or situation. ‘Evidence’ is then forced to fit around the theory. It can be hard to refute them because the person doing so is often seen as part of the conspiracy.

The theories can spread rapidly, particularly over social media, where people are easily taken in by them. Others spread them because they want to deliberately provoke or manipulate. Conspiracy theories can often target or discriminate against an entire group which are perceived to benefit. Some groups are particularly prone to being targeted, including people of particular religions or sexual orientation. For example, various conspiracies have falsely accused groups including people of assumed Asian origin, Jews and Muslims as spreading COVID-19 in Europe.

As a result, conspiracies can polarize societies, worsen existing tensions and fuel violent extremism.

How to stop them spreading?

Key to stopping the spread of conspiracy theories is educating people to be on the lookout for misleading information – and teaching them to be suspicious of certain sources. But there is no hard and fast rule as to how best to identify or react to potentially damaging and misleading information. It can be particularly difficult when the theories are being sent from friends and family.

The link to COVID-19

Uncertainty and worry create the perfect environment for conspiracies to be born. Although it is still not confirmed where or how COVID-19 originated, theories abound. They largely ignore scientific evidence and attempt to come up with reasons why the pandemic happened and who stands to benefit.

One conspiracy theory proposes that the coronavirus is actually a bio-weapon engineered by the CIA as a way to wage war on China.
Others are convinced that the UK and US governments introduced the coronavirus as a way to make money from a potential vaccine.

Although many of these conspiracy theories seem far-fetched, the belief that evil powers are pursuing a secret plan is widespread in every society. Often these relate to health. A large 2019 YouGov poll found 16% of respondents in Spain believe that HIV was created and spread around the world on purpose by a secret group or organisation. And 27% of French and 12% of British respondents were convinced that “the truth about the harmful effects of vaccines is being deliberately hidden from the public”.

The spread of fake news and conspiracy theories around the coronavirus is such a significant problem that the World Health Organisation (WHO) has created a “myth busters” webpage to try and tackle them.

**Spread of conspiracy theories**

Research shows that conspiracy theories have a tendency to arise in relation to moments of crisis in society — like terrorist attacks, rapid political changes or economic crisis. Conspiracy theories bloom in periods of uncertainty and threat, where we seek to make sense of a chaotic world. These are the same conditions produced by virus outbreaks, which explains the spread of conspiracy theories in relation to coronavirus.

Similar conditions occurred with the 2015-16 outbreak of Zika virus. Zika conspiracy theories proposed that the virus was a biological weapon rather than a natural occurrence. Research examining comments on Reddit during the Zika virus outbreak found conspiracy talk emerged as a way for people to cope with the extreme uncertainty they felt over Zika.

Trust in the recommendations from health professionals and organisations is an important resource for dealing with a health crisis. But people who believe in conspiracy theories generally do not trust groups they perceive as powerful, including managers, politicians and drug companies. If people do not trust, they are less likely to follow medical advice.

Researchers have shown that medical conspiracy theories have the power to increase distrust in medical authorities, which can impact people’s willingness to protect themselves. People who endorse medical conspiracy theories are less likely to get vaccinated or use antibiotics and are more likely to take herbal supplements or vitamins. Plus, they are more likely to say they would trust medical advice from nonprofessionals such as friends and family.

**Severe consequences**

In light of these results, people who endorse conspiracy theories about the coronavirus may be less likely to follow health advice like frequent hand-cleaning with alcohol-based hand rub or soap, or self-isolating after visiting at-risk areas.

Instead, these people may be more likely to have negative attitudes towards prevention behaviour or use dangerous alternatives as treatments. This would increase the likelihood of the virus spreading and put more people in danger.

Already, we can see “alternative healing approaches” to coronavirus cropping up — some of them very dangerous. Promoters of the popular QAnon conspiracy theory, for example, have said the coronavirus was planned by the so-called “deep state” and claimed the virus can be warded off by drinking bleach.

The spread of medical conspiracy theories can also have severe consequences for other sections of society. For example, during the Black Death in Europe, Jews were scapegoated as responsible for the pandemic. These conspiracy theories led to violent attacks and massacres of Jewish communities all over Europe. The outbreak of the coronavirus has led to a worldwide increase in racist attacks targeted towards people perceived as East Asian.

It is possible to intervene and halt the spread of conspiracy theories, however. Research shows that campaigns promoting counterarguments to medical conspiracy theories are likely to have some success in rectifying conspiracy beliefs. Games such as Bad News, in which people can take the role of a fake news producer, have been shown to improve people’s ability to spot and resist misinformation.
Conspiracy theories can be very harmful for society. Not only can they influence people’s health choices, they can interfere with how different groups relate to each other and increase hostility and violence towards those who are perceived to be “conspiring”. So as well as acting to combat the spread of the coronavirus, governments should also act to stop misinformation and conspiracy theories relating to the virus from getting out of hand.

The 7 traits of conspiratorial thinking

A new guide outlines 7 distinctive traits of conspiratorial thinking. The research could help identify such theories and prevent them spreading and taking hold. This is especially important as coronavirus theories spread.

The conspiracy theory video “Plandemic” recently went viral. Despite being taken down by YouTube and Facebook, it continues to get uploaded and viewed millions of times. The video is an interview with conspiracy theorist Judy Mikovits, a disgraced former virology researcher who believes the COVID-19 pandemic is based on vast deception, with the purpose of profiting from selling vaccinations.

The video is rife with misinformation and conspiracy theories. Many high-quality fact-checks and debunkings have been published by reputable outlets such as Science, Politifact and FactCheck.

As scholars who research how to counter science misinformation and conspiracy theories, we believe there is also value in exposing the rhetorical techniques used in “Plandemic.”

There are seven distinctive traits of conspiratorial thinking.

Learning these traits can help you spot the red flags of a baseless conspiracy theory and hopefully build up some resistance to being taken in by this kind of thinking. This is an important skill given the current surge of pandemic-fueled conspiracy theories.

1. Contradictory beliefs

Conspiracy theorists are so committed to disbelieving an official account, it doesn’t matter if their belief system is internally contradictory. The “Plandemic” video advances two false origin stories for the coronavirus. It argues that SARS-CoV-2 came from a lab in Wuhan – but also argues that everybody already has the coronavirus from previous vaccinations, and wearing masks activates it. Believing both causes is mutually inconsistent.

2. Overriding suspicion

Conspiracy theorists are overwhelmingly suspicious toward the official account. That means any scientific evidence that doesn’t fit into the conspiracy theory must be faked.

But if you think the scientific data is faked, that leads down the rabbit hole of believing that any scientific organization publishing or endorsing research consistent with the “official account” must be in on the conspiracy. For COVID-19, this includes the World Health Organization, the U.S. Centers for Disease Control and Prevention, the Food and Drug Administration, Anthony Fauci… basically, any group or person who actually knows anything about science must be part of the conspiracy.

3. Nefarious intent

In a conspiracy theory, the conspirators are assumed to have evil motives. In the case of “Plandemic,” there’s no limit to the nefarious intent. The video suggests scientists including Anthony Fauci engineered the COVID-19 pandemic, a plot which involves killing hundreds of thousands of people so far for potentially billions of dollars of profit.

4. Conviction something’s wrong

Conspiracy theorists may occasionally abandon specific ideas when they become untenable. But those revisions tend not to change their overall conclusion that “something must be wrong” and that the official account is based on deception.
5. Persecuted victim

Conspiracy theorists think of themselves as the victims of organized persecution. “Pandemic” further ratchets up the persecuted victimhood by characterizing the entire world population as victims of a vast deception, which is disseminated by the media and even ourselves as unwitting accomplices.

At the same time, conspiracy theorists see themselves as brave heroes taking on the villainous conspirators.

6. Immunity to evidence

It’s so hard to change a conspiracy theorist’s mind because their theories are self-sealing. Even absence of evidence for a theory becomes evidence for the theory: The reason there’s no proof of the conspiracy is because the conspirators did such a good job covering it up.

7. Reinterpreting randomness

Conspiracy theorists see patterns everywhere – they’re all about connecting the dots. Random events are reinterpreted as being caused by the conspiracy and woven into a broader, interconnected pattern. Any connections are imbued with sinister meaning.

Critical thinking is the antidote

There are a variety of strategies you can use in response to conspiracy theories.

One approach is to inoculate yourself and your social networks by identifying and calling out the traits of conspiratorial thinking. Another approach is to “cognitively empower” people, by encouraging them to think analytically. The antidote to conspiratorial thinking is critical thinking, which involves healthy skepticism of official accounts while carefully considering available evidence.

Understanding and revealing the techniques of conspiracy theorists is key to inoculating yourself and others from being misled, especially when we are most vulnerable: in times of crises and uncertainty.
The year 2020 has largely been in the focus for the despair caused by the Covid-19 pandemic. However, on the brighter side, there have been twenty plus twenty ie. forty new drug approvals by the United States Food and Drug Administration (US FDA) so far this year. This article presents the new drugs approved with a brief mention of their mechanism of action, indication and the dosage. I hope it will help the reader to get quick and relevant information about these new drug approvals which can be used in their clinical practice and ultimately benefit the patient.

1. **AVAPRITINIB**
   - **Mechanism of action:** Kinase inhibitor
   - **Indication:** To treat adults with unresectable or metastatic gastrointestinal stromal tumor (GIST) harboring a platelet-derived growth factor receptor alpha (PDGFRA) exon 18 mutation, including D842V mutations.
   - **Dosage:** 300 mg orally once daily on an empty stomach, at least one hour before and two hours after a meal.

2. **TEPROTUMUMAB-TRBW**
   - **Mechanism of action:** Insulin-like growth factor-1 receptor inhibitor
   - **Indication:** To treat Thyroid eye disease
   - **Dosage:** 10 mg/kg for first intravenous infusion, followed by 20 mg/kg every 3 weeks for 7 additional infusions each over 60 to 90 minutes.

3. **TAZEMETOSTAT**
   - **Mechanism of action:** Methyltransferase inhibitor
   - **Indication:** To treat metastatic or locally advanced epithelioid sarcoma not eligible for complete resection.
   - **Dosage:** 800 mg taken orally twice daily

4. **LACTITOL**
   - **Mechanism of action:** Osmotic laxative
   - **Indication:** To treat chronic idiopathic constipation (CIC) in adults
   - **Dosage:** 20 grams orally daily, preferably with meals

5. **BEMPEDOIC ACID**
   - **Mechanism of action:** Non-statin inhibitor of ATP citrate lyase, which is involved in the liver's biosynthesis of cholesterol upstream of HMG-CoA reductase, the enzyme that is blocked by statins.
   - **Indication:** To treat adults with heterozygous familial hypercholesterolemia or established atherosclerotic cardiovascular disease who require additional lowering of LDL-Cholesterol.
   - **Dosage:** 180mg once daily
6. **EPTINEZUMAB-JJMR**
   - Mechanism of action: Calcitonin gene-related peptide antagonist
   - Indication: Preventive treatment of migraine in adults.
   - Dosage: 100 mg as an intravenous infusion over approximately 30 minutes every 3 months

7. **AMISULPRIDE**
   - Mechanism of action: Dopamine-2 (D2) antagonist
   - Indication: Prevention and treatment of postoperative nausea and vomiting (PONV)
   - Dosage:
     - Prevention of PONV: 5 mg as a single intravenous dose infused over 1 to 2 minutes at the time of induction of anesthesia.
     - Treatment of PONV: 10 mg as a single intravenous dose infused over 1 to 2 minutes in the event of nausea and/or vomiting after a surgical procedure.

8. **RIMEGEPANT**
   - Mechanism of action: Calcitonin gene-related peptide receptor antagonist
   - Indication: For the acute treatment of migraine with or without aura in adults
   - Dosage: 75 mg taken orally, as needed. The maximum dose in a 24-hour period is 75 mg.

9. **ISATUXIMAB**
   - Mechanism of action: CD38-directed cytolytic antibody
   - Indication: In combination with pomalidomide and dexamethasone, for the treatment of adult patients with multiple myeloma who have received at least two prior therapies including lenalidomide and a proteasome inhibitor.
   - Dosage: 10 mg/kg as an intravenous infusion every week for 4 weeks followed by every 2 weeks in combination with pomalidomide and dexamethasone until disease progression or unacceptable toxicity.

10. **OSILODROSTAT**
    - Mechanism of action: Cortisol synthesis inhibitor
    - Indication: To treat adults with Cushing’s disease who either cannot undergo pituitary gland surgery or have undergone the surgery but still have the disease
    - Dosage: Initiate dosage at 2 mg orally twice daily, with or without food, then titrate dosage by 1 to 2 mg twice daily, no more frequently than every 2 weeks based on rate of cortisol changes, individual tolerability and improvement in signs and symptoms, maximum recommended dosage is 30 mg twice daily.

11. **OZANIMOD**
    - Mechanism of action: Sphingosine 1-phosphate receptor modulator
    - Indication: Treatment of relapsing forms of multiple sclerosis
    - Dosage: Titration is required for treatment initiation, the recommended maintenance dosage is 0.92 mg orally once daily

12. **SELUMETINIB**
    - Mechanism of action: Kinase inhibitor
    - Indication: Treatment of pediatric patients 2 years of age and older with neurofibromatosis type 1 (NF1) who have
symptomatic, inoperable plexiform neurofibromas

**Dosage:** 25 mg/m² taken orally twice daily on an empty stomach

**13. TUCATINIB**

**Mechanism of action:** Kinase inhibitor

**Indication:** To treat advanced unresectable or metastatic HER2-positive breast cancer

**Dosage:** 300 mg taken orally twice daily

**14. PEMIGATINIB**

**Mechanism of action:** Kinase inhibitor

**Indication:** To treat previously treated, unresectable, locally advanced or metastatic cholangiocarcinoma with a fibroblast growth factor receptor 2 (FGFR2) fusion or other rearrangement

**Dosage:** 13.5 mg orally once daily for 14 consecutive days followed by 7 days off therapy in 21-day cycles.

**15. SACITUZUMAB GOVITECAN-HZIY**

**Mechanism of action:** Trop-2-directed antibody and topoisomerase inhibitor conjugate

**Indication:** Treatment of adult patients with metastatic triple-negative breast cancer who have received at least two prior therapies for metastatic disease.

**Dosage:** Intravenous infusion, 10 mg/kg once weekly on Days 1 and 8 of continuous 21-day treatment cycles

**16. OPICAPONE**

**Mechanism of action:** Catechol-O-methyltransferase (COMT) inhibitor

**Indication:** As adjunctive treatment to levodopa/carbidopa in patients with Parkinson’s disease (PD) experiencing “off” episodes.

**Dosage:** 50 mg orally once daily at bedtime.

**17. CAPMATINIB**

**Mechanism of action:** Kinase inhibitor

**Indication:** Treatment of adult patients with metastatic non-small cell lung cancer (NSCLC) whose tumors have a mutation that leads to mesenchymal-epithelial transition (MET) exon 14 skipping

**Dosage:** 400 mg orally twice daily

**18. SELPERCATINIB**

**Mechanism of action:** Kinase inhibitor

**Indication:** Treatment of

- Adult patients with metastatic RET fusion-positive non-small cell lung cancer (NSCLC)
- Adult and pediatric patients 12 years of age and older with advanced or metastatic RET-mutant medullary thyroid cancer (MTC) who require systemic therapy
- Adult and pediatric patients 12 years of age and older with advanced or metastatic RET fusion-positive thyroid cancer who require systemic therapy and who are radioactive iodine-refractory

**Dosage:**

- Less than 50 kg: 120 mg orally twice daily
- 50 kg or greater: 160 mg orally twice daily
19. RIPRETINIB  
Mechanism of action: Kinase inhibitor  
Indication: Treatment of adult patients with advanced gastrointestinal stromal tumor (GIST) who have received prior treatment with 3 or more kinase inhibitors, including imatinib.  
Dosage: 150 mg orally once daily

20. FLUOROESTRDIOL F18  
Mechanism of action: Radioactive diagnostic agent  
Indication: Use with positron emission tomography (PET) imaging for the detection of estrogen receptor (ER)-positive lesions as an adjunct to biopsy in patients with recurrent or metastatic breast cancer  
Dosage: 222 MBq (6 mCi), with a range of 111 MBq to 222 MBq (3 mCi to 6 mCi), administered as an intravenous injection over 1 to 2 minutes. Recommended imaging start time is 80 minutes (range 20 minutes to 80 minutes) after drug administration.

21. ARTESUNATE  
Mechanism of action: Artemisinin derivative  
Indication: Treatment of severe malaria in adult and pediatric patients in USA. There had been no FDA-approved drug for treatment of severe malaria in the United States since the marketing of quinine was discontinued by the manufacturer in March 2019.  
Dosage: 2.4 mg/kg given intravenously at 0, 12 and 24 hours, then daily up to seven days, until the patient is able to tolerate oral medications.

22. FLORTAUCIPIR F18  
Mechanism of action: Radioactive diagnostic agent  
Indication: For positron emission tomography (PET) imaging of the brain to estimate the density and distribution of aggregated tau neurofibrillary tangles (NFTs) in adult patients with cognitive impairment who are being evaluated for Alzheimer’s disease  
Dosage: 370 MBq (10 mCi), administered as a bolus intravenous injection. Initiate imaging approximately 80 minutes after drug administration.

23. INEBILIZUMAB-CDON  
Mechanism of action: CD19-directed cytolytic antibody  
Indication: Treatment of neuromyelitis optica spectrum disorder (NMOSD) in adult patients who are anti-aquaporin-4 (AQP4) antibody positive  
Dosage:  
- Initial dose: 300 mg intravenous infusion followed two weeks later by a second 300 mg intravenous infusion.  
- Subsequent doses (starting 6 months from the first infusion): single 300 mg intravenous infusion every 6 months

24. LURBINECTEDIN  
Mechanism of action: Alkylating drug  
Indication: Treatment of adult patients with metastatic small cell lung cancer (SCLC) with disease progression on or after platinum-based chemotherapy  
Dosage: 3.2 mg/m2 every 21 days as an intravenous infusion over 60 minutes.
25. TRIHEPTANOIN

Mechanism of action: Medium-chain triglyceride

Indication: As a source of calories and fatty acids for the treatment of pediatric and adult patients with molecularly confirmed long-chain fatty acid oxidation disorders

Dosage: 35% of the patient’s total prescribed daily caloric intake divided into at least four doses and administered orally diluted with foods, liquids, or formula via a silicone or polyurethane feeding tube.

26. REMIMAZOLAM

Mechanism of action: Benzodiazepine derivative

Indication: Induction and maintenance of procedural sedation in adults undergoing procedures lasting 30 min or less.

Dosage:

Induction of Procedural Sedation:

For adult patients: Administer 5 mg intravenously over a 1-minute time period.

Maintenance of Procedural Sedation:

For adult patients: Administer 2.5 mg intravenously over 15 seconds. At least 2 minutes must elapse prior to administration of any supplemental dose.

27. FOSTEMSAVIR

Mechanism of action: GP 120-directed attachment inhibitor

Indication: Treatment of HIV-1 infection indicated for use in combination with other antiretroviral (ARV) therapies in heavily treatment-experienced (HTE) adults with multidrug-resistant HIV-1 infection, who are failing their current ARV regimen due to resistance, intolerance or safety considerations.

Dosage: 600 mg twice daily

28. DECITABINE AND CEDAZURIDINE

Mechanism of action: Decitabine is a nucleoside metabolic inhibitor, and cedazuridine is a cytidine deaminase inhibitor

Indication: Treatment of adult patients with myelodysplastic syndromes (MDS), including previously treated and untreated, de novo and secondary MDS with the following French American-British subtypes (refractory anemia, refractory anemia with ringed sideroblasts, refractory anemia with excess blasts, and chronic myelomonocytic leukemia [CMML]) and intermediate-1, intermediate-2, and high-risk International Prognostic Scoring System groups

Dosage: 1 tablet (35 mg decitabine and 100 mg cedazuridine) taken orally once daily on Days 1 through 5 of each 28-day cycle

29. ABAMETAPIR

Mechanism of action: Pediculicide

Indication: Topical treatment of head lice infestation in patients 6 months of age and older.

Dosage: Apply to dry hair in an amount sufficient (up to the full content of one bottle) to thoroughly coat the hair and scalp. Avoid contact with eyes. Massage into the scalp and throughout the hair; leave on the hair and scalp for 10 minutes and then rinse off with warm water. Treatment involves a single application.

30. TAFASITAMAB-CXIX

Mechanism of action: CD19-directed cytolytic antibody
**Indication**: In combination with lenalidomide for the treatment of adult patients with relapsed or refractory diffuse large B-cell lymphoma (DLBCL) not otherwise specified, including DLBCL arising from low grade lymphoma, and who are not eligible for autologous stem cell transplant

**Dosage**: 12 mg/kg as an intravenous infusion according to the following dosing schedule:
- Cycle 1: Days 1, 4, 8, 15 and 22 of the 28-day cycle.
- Cycles 2 and 3: Days 1, 8, 15 and 22 of each 28-day cycle.
- Cycle 4 and beyond: Days 1 and 15 of each 28-day cycle.

### 31. BELANTAMAB MAFODOTIN-BLMF

**Mechanism of action**: B-cell maturation antigen (BCMA)-directed antibody and microtubule inhibitor conjugate

**Indication**: Treatment of adult patients with relapsed or refractory multiple myeloma who have received at least 4 prior therapies including an anti-CD38 monoclonal antibody, a proteasome inhibitor, and an immunomodulatory agent.

**Dosage**: 2.5 mg/kg as an intravenous infusion over approximately 30 minutes once every 3 weeks

### 32. NIFURTIMOX

**Mechanism of action**: Nitrofuran antiprotozoal

**Indication**: In pediatric patients (birth to less than 18 years of age and weighing at least 2.5 kg) for the treatment of Chagas disease (American Trypanosomiasis), caused by Trypanosoma cruzi.

**Dosage**:

<table>
<thead>
<tr>
<th>Body Weight Group</th>
<th>Total Daily Dose of nifurtimox (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 kg or greater</td>
<td>8 to 10</td>
</tr>
<tr>
<td>Less than 40 kg</td>
<td>10 to 20</td>
</tr>
</tbody>
</table>

Administer tablets orally, three times daily with food for 60 days.

### 33. RISDIPLAM

**Mechanism of action**: Survival of motor neuron 2 (SMN2) splicing modifier

**Indication**: Treatment of spinal muscular atrophy (SMA) in patients 2 months of age and older

**Dosage**:

<table>
<thead>
<tr>
<th>Age and Body Weight</th>
<th>Recommended Daily Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 months to &lt; 2 years of age</td>
<td>0.2 mg/kg</td>
</tr>
<tr>
<td>2 years and older, Wt &lt; 20 kg</td>
<td>0.25 mg/kg</td>
</tr>
<tr>
<td>2 years and older, Wt &gt; 20 kg or more</td>
<td>5 mg</td>
</tr>
</tbody>
</table>

### 34. OLICERIDINE

**Mechanism of action**: Opioid agonist

**Indication**: Management of acute pain severe enough to require an intravenous opioid analgesic and for whom alternative treatments are inadequate in adults.

**Dosage**: Initiate treatment with a 1.5 mg dose. For patient controlled analgesia (PCA), recommended demand dose is 0.35 mg, with a 6-minute lock-out. A demand dose of 0.5 mg may be considered. Supplemental doses of 0.75 mg can be administered, beginning 1 hour after the initial dose and hourly thereafter, as needed.
35. VILTOLARSEN

**Mechanism of action**: Antisense oligonucleotide

**Indication**: Treatment of Duchenne muscular dystrophy (DMD) in patients who have a confirmed mutation of the DMD gene that is amenable to exon 53 skipping.

**Dosage**: 80 milligrams per kilogram of body weight once weekly. Administer as an intravenous infusion over 60 minutes.

36. SATRALIZUMAB-MWGE

**Mechanism of action**: Interleukin-6 (IL-6) receptor antagonist

**Indication**: Treatment of neuromyelitis optica spectrum disorder (NMOSD) in adult patients who are anti-aquaporin-4 (AQP4) antibody positive.

**Dosage**: Loading dosage for the first three administrations is 120 mg by subcutaneous injection at Weeks 0, 2, and 4, followed by a maintenance dosage of 120 mg every 4 weeks.

37. CLASCOTERONE

**Mechanism of action**: Androgen receptor inhibitor

**Indication**: Topical treatment of acne vulgaris in patients 12 years of age and older

**Dosage**: Apply a thin layer (approximately 1 gram) to the affected area twice daily

38. SOMAPACITAN-BECO

**Mechanism of action**: Human growth hormone analogue produced in Escherichia coli by recombinant DNA technology

**Indication**: Replacement of growth hormone in adults with growth hormone deficiency (GHD).

**Dosage**: Initiate with a dosage of 1.5 mg once weekly for treatment naïve patients and patients switching from daily growth hormone. Increase the weekly dosage every 2 to 4 weeks by approximately 0.5 mg to 1.5 mg until the desired response has been achieved. Titrate the dosage based on clinical response and serum insulin-like growth factor 1 (IGF-1) concentrations. The maximum recommended dosage is 8 mg once weekly.

39. COPPER CU 64 DOTATE INJECTION

**Mechanism of action**: Radioactive diagnostic agent

**Indication**: With positron emission tomography (PET) for the localization of somatostatin receptor–positive neuroendocrine tumors (NETs) in adult patients

**Dosage**: 148 MBq (4 mCi) administered as an intravenous bolus injection. Begin acquiring images 45 to 90 minutes after drug administration.

40. PRALSETINIB

**Mechanism of action**: Kinase inhibitor

**Indication**: Treatment of adult patients with metastatic rearranged during transfection (RET) fusion- positive non-small cell lung cancer (NSCLC)

**Dosage**: 400 mg orally once daily

Reference:
SAVE THE SINKING STETHOSCOPE

Dr S VIJAY MOHAN
M.D.
Sr. Consultant Physician, Care Hospitals,
Professor & HoD, Dept. of Internal Medicine,
Deccan College of Medical Sciences, Hyderabad (T.S) India.
E-mail: dr.s.vijaymohan@gmail.com

“I was surprised and pleased to hear the beating of the heart much more clearly than if I had applied my ear directly to the chest” …… LAENNEC (1816)

The “ART OF HEALING” began in India thousands of years ago. Travelling through eras, cultures and civilizations, its journey has been a historic, phenomenal and eventful. This process of healing crafted by our ancestors helped them lessen their patient’s pain while prolonging the lives and saving many humans. Before the emergence of science as the basis of art of healing, ancient man attributed the disease to the anger of Gods, misalignment of planets and stars and foul play of evil spirits. He sought prayers, rituals and sacrifices as a remedy to all maladies. With a phenomenal evolution of medical diagnosis and treatment compared to the prehistoric times, this art slowly but steadily transformed itself into a sophisticated, scientific, research driven and evidence-based field of “Modern Medicine”. Thus the art became a science.

Medicine has become an increasingly complex and rapidly expanding field today. With newer concepts, guidelines and recommendations resurfacing every day, there also is a parallel emergence of novel investigational tools, procedures, devices and drugs. The emphasis placed on “evidence-based medicine” has taken health care to its highest standards.

Today “clinical medicine”, which is the foundation of a doctors formative training is unfortunately fading out. Quick and easy diagnostic techniques have invaded and eroded traditional clinical medicine. Both teachers and students are forgetting these clinical skills. Until recent times a good clinician's capabilities during competitive examinations was based on their clinical acumen and their application on the patient. Sadly the clinical medicine now is being pushed to the back seat. We are inclining more towards laboratory investigations, machines and electronic gadgets, as they are seemingly more objective. This glaringly visible change has had a negative impact on the teaching and learning standards which is causing the budding doctors to conveniently forget these important clinical skills. A doctor’s healing touch, checking the pulse, performing a physical exam has become a rare scene today.

The stethoscope which used to be doctor’s best friend and companion and a symbol of patient’s faith in doctors is now finding its place in cupboards. The days of diagnosing difficult cardiac valve lesions near accurately by auscultating with a stethoscope are a completely bygone entity.

Presently the steely grip of Coronavirus with mandatory masks and physical distance norms further added to the no-touch practice by many doctors. This created a huge dent in the whatever left of the clinical medicine. Many doctors are avoiding stethoscopes for fear of the virus which is understandable to a certain extent given the demands of the pandemic.

As a senior physician, professor of internal medicine, a strenuous protagonist of the modern medical education system and a contributor to various articles on the ‘Medical Education System in India’, I feel pained witnessing this downfall of clinical medicine. My staring stethoscope cries out to me saying, “hey I cared about you all these years and look what you are doing to me now”. When I Look up into the skies with brimmed eyes, I see my
departed teachers joining Laennec (the inventor of stethoscope) from heavens literally pitying and laughing at my loss.

History of Stethoscope - **LAENNEC 1816**

![Stethoscope History](image)

Dear doctors and students, it is high time we change our mindset and realize the true value of clinical medicine. Let us learn medicine at the patient’s bedside and not just with books or laptops. Our patients are our best teachers. Inculcate clinical skills and habits in everyday practice and you will see a better doctor in yourself. A good clinician is always respected and looked highly upon. Once the pandemic ends my dear friends, let us rededicate ourselves to this noble profession by cherishing the pearls of clinical medicine. Utilize the social distancing times reading and assimilating the art of clinical medicine so that you are all set to apply this during your regular medical practice tomorrow. Blow off the dust on that untouched stethoscope, hang it around your neck with pride and expand your horizons of clinical knowledge. Let the Corona Virus not come between doctors & stethoscope.

Together we can “Save the Sinking Stethoscope”...........

Reviewed by: **Dr. Divya Pramod Nimmatoori**, GreenField Health Portland, Oregon, US
Diseases affecting children are categorized as congenital, infective, inflammatory, injury related, malignancies and exogenous poisons or intoxications. Poisoning forms around 2% of the hospital admissions in children. Again, the mortality among the admitted are approximately 2%

What is the difference between intoxication (Poisoning) in children and adults?

In general, adults declare the consumption of poison when they come to the hospital. But children do not disclose, but presents like any other medical emergency such as respiratory distress after kerosene ingestion, shock after consumption of iron tablets or convulsions following ingestion of INH tablets. Hence the onus is on the pediatrician to consider the possibility of poisoning.

When will you consider poisoning as a differential diagnosis in children?

It is mandatory for every pediatrician to have low threshold to consider poisoning as a DD particularly in the following situations.

1. If there is vacuum in the history. A child who was well after getting up and taking morning feeds, suddenly develops breathing difficulty after few hours. When eliciting the history mother may say that “I saw him well at 9 am, I was busy in my work I thought he is playing with his friends in the hall. Suddenly found to be drowsy or started sleeping at an unusual time at 1.00 noon. This is vacuum in the history.

2. Sudden onset of organ disturbance in a well child. A child with febrile seizures or meningitis will have fever to begin with and fits after few hours or 2-3 days. But if a child is well till a particular point of time and develops convulsions suddenly and did not recover in one hour as expected in epileptic seizures, suspect poisoning as a DD.

3. After eliciting history and performing physical examination, if you are unable to label a known medical diagnosis like pneumonia, septic shock, or meningoencephalitis, you raise the question whether the whole problem is because of poisoning. It is justified to collect more environmental and examination clues on those lines. A clinician should ask “What medicines are available in your home? Any open bottles? Any spillage of household substances? These are the right question than whether your child have consumed any poisons?

What are the substances commonly consumed by children?

Most common ones are household substances such as kerosene, detergent, camphor, naphthalene etc. In rural home pesticides or insecticides are added to this. Next categories are medicines which are commonly available at home which are oral antidiabetics, anti hypertensives or anticonvulsants or antidepressants or thyroxin. Last but an important category is inadvertent administration of wrong doses.

What are toxidromes?

Toxidrome is the constellation of clinical features that when present indicates the strong possibility of a toxin or drug. As toxicology assay is not widely available, knowledge about toxidrome is considered more useful than the assay.
Table 1. Toxidrome

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Symptoms</th>
<th>Common causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholinergic (Nicotinic)</td>
<td>Abdominal pain, fasciculation, hypertension, paresis, tachycardia, seizure</td>
<td>Organophosphorus compound, nicotine</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>Delirium, mydriasis, tachycardia, hyperthermia, dry skin, urinary retention</td>
<td>Antihistaminics, atropine, tricyclic antidepressants, psychoactive drugs</td>
</tr>
<tr>
<td>DUMBELS</td>
<td>Diarrhea, Urination, miosis/muscle weakness, bronchitis, bradycardia, emesis, laceration, salivation/sweating</td>
<td>Organophosphates</td>
</tr>
<tr>
<td>Symptomimetics</td>
<td>Mydriasis, tachycardia, hypertension, seizure</td>
<td>Cocaine, amphetamine, ephedrine, theophylline</td>
</tr>
<tr>
<td>Sedative</td>
<td>Drowsiness, stupor, coma, bradycardia, bradypnea, hypotension, constricted pupil</td>
<td>Phenobarbitone</td>
</tr>
<tr>
<td>Myocardial depressant</td>
<td>Bradycardia, hypotension, tachyarrhythmia, acute cardiac failure, cardiogenic shock</td>
<td>Beta-blockers, calcium channel blocker, oleandar, digoxin, tricyclic antidepressants</td>
</tr>
<tr>
<td>Hepatotoxicity</td>
<td>Raised transaminases, jaundice, bleeding tendency</td>
<td>Paracetamol, rat killers</td>
</tr>
<tr>
<td>Corrosive</td>
<td>Deroiling of saliva, change in voice, lips and tongue appearing white and necrotic</td>
<td>Acids, detergents, bathroom cleaners, button battery</td>
</tr>
</tbody>
</table>

What are the various steps in management of a child with poisoning?

PALS - RESUSCITATE-RESUSCITATE
FOCUSED H/O AND EXAMN
TOXIDROME
DECONTAMINATION
ANTIDOTE
MONITORING
MLC - EDUCATE

In all situation effective resuscitation irrespective of the poison or toxin consumed will show excellent results. Decontamination has three important components. 1. Gastric lavage 2. Administration of activated charcoal 3. Whole bowel irrigation.

Antidotes are available only for very few poisons. e.g N acetyl cysteine for paracetamol. Following are the list of antidotes which must be available in all the hospitals. They are not expensive. They are equivalent and as essential like a fire extinguishers

Table 2. Antidotes

<table>
<thead>
<tr>
<th>Toxin or drug involved in poisoning</th>
<th>Antidote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>Desferoxamine</td>
</tr>
<tr>
<td>Cholinergics</td>
<td>Atropine, P2 AM</td>
</tr>
<tr>
<td>Anticholinergics</td>
<td>Physostigmine</td>
</tr>
<tr>
<td>Opiate</td>
<td>Naloxone</td>
</tr>
<tr>
<td>Warfarin</td>
<td>Vitamin K</td>
</tr>
<tr>
<td>Oral antidiabetic</td>
<td>Octreotide</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Flumazenil</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>N—acetyl cysteine</td>
</tr>
<tr>
<td>Methemoglobinemia</td>
<td>Methylene blue</td>
</tr>
<tr>
<td>INH</td>
<td>Injections &amp; Tab Pyridoxine</td>
</tr>
</tbody>
</table>

Common poisoning case scenario

Case scenario 1: A 14 years old girl returned from school at 4 PM. When mother (single parent) returned from work at 9.00 pm, saw her unconscious and convulsing. Referred as variceal bleed, because of reddish vomitus. Presented with status epilepticus. ABC stabilized, intubated and ventilated. Urgent CT done excluded traumatic brain injury and intracranial bleed. Because of the sudden onset of afebrile seizures, back ground family circumstances, vacuum in the history, poisoning was strongly suspected. No tachycardia or bradycardia and pupils were normal and reacting. Oral antidiabetic drugs, tricyclic antidepressant, INH and theophylline were considered as possibilities. Poisoning with house hold substances is uncommon in older children. It was also observed that urine color also was reddish like gasric aspirate and vomitus.

Presence of the triad of convulsions, hyperglycemia and high anion gap metabolic acidosis strongly suggested the diagnosis of INH poisoning. Based on this child underwent gastric lavage, activated charcoal administration and IV pyridoxin started. Pyridoxin has to be given weight by weight equivalent to the amount of INH consumed. It is presumed that presence of toxic symptoms indicated the child has consumed more than 70 mg/kg of INH. Hence she required total doses of 3 gm. We administered IV and oral tablets crushed and administered through NGT because of non availability of large dose of parenteral Pyridoxin. Later help sought from the tuberculosis research centre who confirmed the presence of INH in the patient’s blood. After 36 hours seizures got controlled, acidosis got resolved and the child was extubated. Before discharge history was elicited from the girl. She confessed taking 30 tablets of INH and rifampicin. INH consumption caused convulsions and rifampicin lead to discoloration of gastric aspirate and urine. Discharged after counselling the family and the child by child psychiatrist.

**Case scenario 2:** This is an infant weighing 6 kg. Two days of fever. Mother has Paracetamol drops which contains 125 mg/mL and syrup which contains 120 mg/5 mL. By mistake mother has administered 5 mL of drops (containing 125 mg/mL) every 4 hourly. After 2 days of this drug dosing, she consulted the Paediatrician who recognized the fact that child had been overdosed. Baby was receiving nearly 200 mg/kg, 12 doses. Huge amount of paracetamol given inadvertently. Except vomiting baby was stable. Hospitalized because of this large dose, probably child must have been in stage 1. Lab reports were alarming. SGOT and SGPT were 4800 and 3600. HCO3 was 19 creatinine 0.5. Bilirubin, PT, INR were mildly prolonged. And other investigations were normal. Started on N Acetyl Cysteine bolus, followed by infusion for 72 hours. Child clinically and laboratory wise improved. Lessons learnt here is avoid keeping paracetamol with multiple strengths. Our prescriptions should be very clear in strength, volume and frequency.

Points to remember:

- Whenever any pediatric emergency does not conform to a known medical illness, consider poisoning as an important differential diagnosis
- After focussed history and problem-oriented examination, try to fit in the case with any one of the toxicidromes
- Stock all the antidotes, ensure their availability and expired dates are appropriate.
- Never forget medicolegal entry
- Parents should keep all the medications safely and beyond the reach of children.
- Every home should be a safe place for the kids.
Recent Advancements in Genetic Technologies in Treatment of Recurrent Pregnancy Loss (RPL) patients

Dr. Jayant Sharma
Aligarh, UP

INTRODUCTION

Spontaneous loss of pregnancy is one of the most common complications of pregnancy. It’s been estimated that approximately 70% of all human conceptions fails to achieve viability and approximately 15-20% of clinically recognized pregnancies ends up as pregnancy loss with approximately 5% of them experiences two consecutive miscarriages. 1,2, 3 The exact prevalence of RPL is difficult to estimate but few studies show 1-2% of women affected with RPL.4 The burden of recurrent miscarriages in India is higher as compared to reported literature word-wide i.e. around 7.4%.5

Clinically Early Pregnancy Loss is defined as a non-viable, intrauterine pregnancy with either an empty gestational sac or a gestational sac containing an embryo or fetus without fetal heart activity within the first 12 6/7 weeks of gestation. Whereas Pregnancy Loss (miscarriage) is the spontaneous demise of a pregnancy before the fetus reaches viability from time of conception until 24 weeks of gestation. Recurrent Pregnancy Loss is assigned to a state when there is loss of two or more failed pregnancies in first trimester.6, 7

ETIOLOGY OF RPL

At present there are many studies that have reported various etiologies in RPL patients including genetic abnormalities, uterine anatomic abnormalities, antiphospholipid syndrome, endocrine abnormalities, infections, hormonal or metabolic disorders, sperm quality and lifestyle related disorders (Figure 1). There are also recommendations from different international professional bodies (ASRM, ESHRE, ACOG) based on evidence from the published studies regarding evaluation and management of RPL (Table 1). 6, 7 At present diagnosis and management of RPL can be done only in 50% of patient while remaining patients had to be categorized under false idiopathic category with no diagnosis.

Figure 1: Pie-chart showing various etiologies observed in RPL patients
Table 1: Summary of current recommendations from different professional bodies for genetic evaluation of RPL

<table>
<thead>
<tr>
<th>Professional</th>
<th>Current Recommendations</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESHRE *7</td>
<td>Array based comparative genomic hybridization (array-CGH) or microarray is recommended based on a reduction in maternal cell contamination. Genetic analysis of pregnancy tissue though is not routinely recommended in RPL but it could be performed for explanatory purposes. Parental Karyotyping at present not routinely recommended in couple with RPL, but it could be carried out after individuals risk assessment.</td>
<td>Strong Conditional Conditional</td>
</tr>
<tr>
<td>ASRM*6</td>
<td>Peripheral karyotyping is preferred for parents for detection of balanced structural chromosome abnormalities. Karyotype analysis of POC may be useful in the setting of ongoing therapy of RPL but there is possibility of maternal tissue contamination in the specimen</td>
<td>Strong Conditional</td>
</tr>
<tr>
<td>ACOG/SMFM M* 12</td>
<td>In cases of intra uterine fetal demise or still birth further cytogenetic analysis is desired, Chromosomal microarray analysis on the fetal tissue (i.e. amniotic fluid, placenta, or products of conception) is recommended in the evaluation with increased likelihood of obtaining results and improved detection of causative abnormalities</td>
<td>Recommended</td>
</tr>
</tbody>
</table>


CHALLENGES IN MANAGEMENT OF RPL

1. Differentiation between sporadic miscarriages from RPL.
2. Accuracy of self-reported loss by patient may not be accurate.
3. Current investigations and interventions recommended by guidelines are with evidences of low, very low & moderate quality.
4. Treatment interventions in idiopathic (50%) cases.
5. Counseling is difficult in patient with no definitive diagnosis and with no definitive cause of pregnancy loss.

COMMON GENETIC ABNORMALITIES IN RPL

Random chromosome abnormalities are the single most common cause of pregnancy loss of sporadic losses before 10 weeks of gestation and are due to numeric chromosome abnormalities(>60%) including whole chromosome aneuploidies specifically trisomy, monosomy and polyploidy.\(^6,8,9,10\) It can be further summarized that pregnancy loss can be due to (a) Numerical chromosomal abnormalities i.e.trisomy, monosomy (60-80%) (b) Structural chromosomal abnormalities, translocations or inversions (2-5%), (c) Polyploidy including triploidy or tetraploidy (20%) arising due to aberrant fertilization. The most common structural chromosome abnormality are balanced translocation that could be either robertsonian translocation (within same chromosome) or reciprocal translocation (involving two different chromosome) and is observed in 2-5% of couples with recurrent miscarriage. The most common hypothesis proposed for aneuploidy is random error in segregation or non-disjunction of chromosome in...
meiosis I or II during embryogenesis or germ cell development. In recent years due to advancement of genetic technologies there are various methodologies utilized for examination of embryonic/fetal material (POC) and advantages and disadvantages of all technologies are been summarized in Table 2.

**TABLE 2: Comparison between some of the common technologies used for examination of embryonic/fetal material (product of conception)**

<table>
<thead>
<tr>
<th>Method Characteristics (Technique)</th>
<th>Microarray (Comparative Genomic Hybridization)</th>
<th>Karyotype (Conventional Culture technique)</th>
<th>FISH (Fluorescence in-situ Hybridization)</th>
<th>QF-PCR (Quantitative Fluorescent Polymerase chain Reaction)</th>
<th>NGS (Next Generation Sequencing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detect</td>
<td>Chromosome abnormalities (aneuploidies, triploidy), Unbalanced structural changes (duplication, deletion, amplification)</td>
<td>Changes in chromosome number (aneuploidies, polyploidy) Structural Abnormalities (balanced &amp; unbalanced translocation)</td>
<td>Chromosome aneuploidies Diagnosis of sub-microscopic chromosome aberration, Structural translocation</td>
<td>Detect aneuploidies for chromosome 13, 18, 21, X, Y, 15, 16 and 22</td>
<td>Sequencing of large genomic regions, high number of genes with high throughput</td>
</tr>
<tr>
<td>Samples Type</td>
<td>Fresh Tissue FFPE Block</td>
<td>Fresh Tissue culture cells</td>
<td>Fresh Tissue uncultured (interphase) cells</td>
<td>Fresh Tissue DNA</td>
<td>Fresh/ FFPE DNA</td>
</tr>
<tr>
<td>Limitation</td>
<td>Cannot detect unbalanced translocation &amp; low level of mosaicism (&lt;10%), The requirement of culture of cells, (high culture failure rate 10-20%)</td>
<td>Diagnosis specific and limited to probes utilized in kit</td>
<td>Diagnosis within intended use of kit only</td>
<td>Very high sensitivity, excess of information, uninterpretable for diagnosis the genetic cause</td>
<td></td>
</tr>
<tr>
<td>Culture Failures</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Diagnostic Yield</td>
<td>High (100-400 kb)</td>
<td>Low (5-10 MB)</td>
<td>Moderate (100–200 Kb)</td>
<td>Moderate</td>
<td>Very High (&lt;50Kb)</td>
</tr>
<tr>
<td>Maternal Cell Contamination (MCC)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Turn Around Time (TAT) for getting results</td>
<td>10-12 days</td>
<td>14-21 days</td>
<td>24-48 hours</td>
<td>&lt; 24 hours</td>
<td>21-28 days</td>
</tr>
<tr>
<td>Recommended by Guidelines</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Cost (INR)</td>
<td>15000-18000</td>
<td>7000-8000</td>
<td>5000-7000</td>
<td>4000-6000</td>
<td>20000-25000</td>
</tr>
</tbody>
</table>

Kilobases (Kb), MB (Megabase), FFPE (Fresh Frozen Paraffin Embedded Tissue)
Microarray

Chromosomal microarray analysis (CMA) is method of choice for measuring gains and losses of DNA throughout the human genome. Microarray can also identify chromosomal aneuploidy, submicroscopic abnormalities, and large structural abnormalities of chromosomes. Results obtained are expressed as Copy Number Variants (CNVs) that is defined as duplicated or deleted segments of DNA of at least 1000 base pairs (1 Kb) in size with difference from reference genome. CNVs obtained are expressed as:

1. **Pathogenic:** CNV of clinical significance detected; 15% genetic disease burden
2. **Nonpathogenic:** CNV of no clinical significance
3. **Variants of uncertain significance (VOUS):** CNV of uncertain significance

One of the latest study identified probable cause of pregnancy loss in majority of RPL patients by evaluation of POC through 24-chromosome pair microarray along with standard RPL workup by ASRM guidelines. It was concluded that evaluation of POC using 24-chromosome microarray analysis adds significantly to the existing ASRM guidelines recommended for RPL evaluation. It was also concluded that all couples with RPL should be offered genetic evaluation on miscarriage tissue obtained at the time of the second and subsequent pregnancy losses. There was a testing algorithm proposed in combination of a genetic evaluation that will identify a probable or definitive cause of RPL in over 90% of miscarriages (Figure 2).

![1st Miscarriage](image)

- (No action taken unless clinically indicated)
- 2nd Miscarriage

- Obtain POC for CMA test
  - Aneuploid POC, CMA Results
    - No further Evaluation
    - Perform Parental Karyotype
      - Genetic Counseling, PGT
  - Unbalanced Translocation or Inversion
    - RPL Workup as per ASRM
  - Euploid (Normal) POC CMA Results

Figure 2: Algorithm for recurrent pregnancy loss (RPL) evaluation and treatment based on chromosome microarray analysis (CMA) 11.
INHERITED THROMBOPHILIA AS A CAUSE OF RPL

Thrombophilia can be defined as a predisposition to form clots inappropriately. It is common in women with a history of venous thromboembolism and is caused due to deficiency in endogenous anticoagulant-antithrombin-III, protein C or protein S deficiencies that are though uncommon but strongly thrombogenic. Inherited thrombophilias are also caused by the mutations in factor-V Leiden, prothrombin gene mutation (20210A) that are though common but have weak thrombogenic effect. At present there is no, or weak association between thrombophilia and RPL. Therefore, routine testing of women with RPL for inherited thrombophilias is not currently recommended in any published guidelines unless it is indicated with clinical symptoms and family history. Some of the common mutations observed in women with inherited thrombophilias are for factor V Leiden mutation (R506Q/G1691A, T1328C) that renders resistant to cleavage by activated protein C (APC), factor II /prothrombin gene mutation (G20210A) that raises plasma concentrations of prothrombin thereby increasing the risk of thrombosis and MTHFR gene mutations (A222V/C677T + E429A/A1298C) that causes mild to moderate hyperhomocysteinemia.

CONCLUSION

Most of the professional bodies including ACOG, ASRM, RCOG and ESHRE advocate chromosomal evaluation of POC samples as part of the clinical management of couples with RPL. This helps in identifying 50-60% of women having pregnancy loss due to gross chromosomal abnormality. CMA prevents patients from undergoing unnecessary costly investigations whereas negative results should be followed with routine RPL work as suggested by ASRM guidelines. POC Microarray along with ASRM RPL work-up can identify causes of miscarriage in majority of cases and it is a better technology as compared to POC Karyotype in terms of diagnostic yield. The genetic evaluation of RPL work-up can be started by offering couple karyotyping to rule out balanced translocation after two or more failed pregnancies in first trimester followed by in-vitro fertilization and preimplantation genetic screening. Genetic counseling should be offered to couples along with informed consent explaining the advantages and limitations for any genetic investigation. Routine genetic analysis for inherited thrombophilia is not recommended in women with RPL unless indicated or if family history exists.

REFERENCES

7. European Society of Human Reproduction and Embryology (ESHRE) Guideline Group on RPL. Hum Reprod Open. 2018(February (2)).


INTRODUCTION: Corona virus is a common microorganism which causes infections of upper respiratory tract and Pneumonia. These are enveloped RNA viruses\(^1\) which are distributed among human, animals as well as birds and are of four types Alpha, Beta, Gamma, and Delta. 2019-nCoV (Now called COVID-19) which falls into genus Beta coronavirus which is found in human, bats and other wild animals. On December 31, 2019 China reported a cluster of cases of Pneumonia from Wuhan associated with seafood. This was later diagnosed to be associated with novel Corona virus, which is different from previous two variants. Till now 21st century has seen a total of 6 pandemics. COVID 19 is the sixth pandemic.

EPIDEMIOLOGY: Currently COVID 19 cases worldwide has crossed nearly 30 million with nearly 21 million recovered and 942,478 deaths. As far India is concerned now it occupies second spot after United states of America(USA) which tops the list of active cases. Currently India has crossed nearly 5 million cases and nearly 4 million recovered and 83,000 deaths. Maharashtra, Andhra Pradesh and Tamil Nadu are the top three states with COVID 19 cases. Uttar Pradesh occupying the fifth spot.

MODE OF INFECTION AND PATHOGENESIS:

Infection usually spreads from infected persons via droplet/aerosol from coughing and sneezing, in infected aerosols, the virus remain viable in air for 8 hours, from Fomites/Inanimate objects, person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes \(\{\text{\textcopyright}2\}\). The viability of virus in plastic board to steel is 2 – 3 days and in water and sewage is for weeks. SARS Cov2 infects the respiratory epithelial cells via the Angiotensin Converting Enzyme 2 (ACE 2) Receptors. Nasal epithelial cells, mainly the goblet cells or secretory cells and ciliated cells, display highest ACE2 expression in the respiratory tract. In the Early stage of COVID 19 Bronchial Epithelial Cells, Type I and II Alveolar Pneumocytes and Capillary Endothelial cells are infected and inflammatory response ensures. The Late COVID 19 stage has Alveolar Interstitial Thickening, Increased vascular permeability and Edema. Mild disease has low but efficient immune response with CD4 cells produce antibodies IgM last 12 weeks with IgG longer period. Critically ill COVID 19 patients which has imbalance and dysregulated immune response which leads to high production of inflammatory cytokines leading to cytokine storm.

The Incubation period is between 2-14 days. About 25% to 50% patients with COVID-19 may remain Asymptomatic, however they may be carrier and may spread the disease to others.

TIMELINE OF COVID 19 INFECTION (LAB WISE):

- **D0 - D5:** ASYMPTOMATIC PHASE
- **D0 -D7:** WINDOW PERIOD (ONLY PCR IS POSITIVE IN THIS PHASE)
- **D 14- D21:** DECLINE PHASE (STILL INFECTIVE)
- **D 21- D28:** CONVALESCENCE PHASE (may be STILL INFECTIVE)
- **Day 0:** infected
- **Upto Day 5:** Onset of symptoms
• Day 7: IgM positive (D7 - D 21)
• Day 14: IgG positive
• Days 1-28: SARS CoV2 RNA & Antigens will be positive
• Day 21: IgM disappears
• Day 28: SARS CoV2 RNA & Antigens disappear.

CLINICAL FEATURES AND SEVERITY:
COVID 19 is grouped into three categories Asymptomatic/Mild, Moderate and Severe groups{3}. Symptomatic patients present with Mild symptoms (81%), Moderate to severe symptoms(14%) and Critical illness(5%). Common clinical features at the onset of illness is fever in 88-99 %, fatigue in 38-70 %, dry cough in 59-68%, anorexia in 40 %, myalgias in 15-35 %, dyspnea in 19-31 % and Sputum production in 27-34 %. Other, less common symptoms headache, Sore throat, Rhinorrhea Gastrointestinal symptoms (eg: nausea and diarrhea). Asymptomatic or Patients with mild symptoms has got Respiratory rate RR < 24/m & SpO2 > 94% in room air. Symptomatic patient with mild to moderate Pneumonia with no signs of severe disease has Respiratory Rate: 24-30/m (or) SPO2: 90%-94% at Room Air. Symptomatic patient with Severe Pneumonia with Respiratory Rate > 30/min (or) SPO2 < 90% at Room Air (or) less than 94% with oxygen, Acute Respiratory Distress Syndrome {4} and Septic Shock. The Complications Of COVID-19 Infection are Respiratory Complications: Acute Respiratory Distress Syndrome and Non respiratory complications such as Septic Shock, Acute Kidney Injury,Disseminated Intravascular Coagulation, Rhabdomyolysis and Acute Cardiac Injury which includes Fulminant Myocarditis and Arrythmia.

DIAGNOSIS AND INVESTIGATIONS:
The Diagnosis involves Samples to be collected which includes Nasopharyngeal and oropharyngeal swab, Sputum and Broncho alveolar lavage (BAL): The samples require storage at 2-8 degrees celsius. The current COVID 19 tests done in India includes Real Time PCR which has sensitivity of around 70% takes around 4-5 hrs. True NAAT and CBNAAT have 73% sensitivity has been used as screening test needs to be confirmed by RT PCR Test. The Rapid point of care antigen detection test has (sensitivity 30% & specificity 100%) takes around 30 – 60 minutes. All symptomatic negative patients should be essentially referred to a RT-PCR for COVID-19. The IgG antibody test for COVID-19 is used for Only for Surveillance and not for Diagnosis. The COVID 19 testing has highest sensitivity for Bronchoalveolar fluid around 93%, nasopharyngeal swab is 63% and oropharyngeal swab is 32% and lowest in blood is 1%. Radiology includes X ray chest which shows Bilateral, hazy Peripheral opacities, Computed Tomography shows bilateral Ground Glass opacities (GGO), crazy paving, consolidation. Patients of mild cases should undergo blood investigations such as Complete blood count, Random blood sugar, HBA1c, Liver function test, kidney function test, D – dimer and serum electrolytes. For moderate and severe cases, in addition to the investigations of mild cases other investigations include Neutrophil/lymphocyte ratio in blood count, serum lactate dehydrogenase (LDH), Serum Ferritin, C – Reactive protein (CRP), Procalcitonin, Trop T and I, ABG, PT/INR, Pro calcitonin and interleukin- 6 and ECG. 2D echo cardiography to be done for associated co morbities. High risk patients are those with co-morbidities such as age more than 50 years, Ischemic heart disease, Diabetes mellitus, Hypertension, Chronic Obstructive Pulmonary disease, Post tubercular sequelae, chronic liver disease, chronic kidney disease, HIV/AIDS and Malignancy. Clinically if the patient has hypoxia spo2< 94%, tachycardia greater than 100, Respiratory rate more than 30. Systolic hypotension BP < 90 mmHg and altered sensorium and laboratory value with Lymphopenia (<20) with Neutrophil/Lymphocyte ratio >17, CRP >100 mg/L, Serum Ferritin >300 microg/L, S.LDH >450 and D-Dimer > 1000ng/ml can be categorized into high risk group.
The Diagnosis involves Samples to be collected which includes Nasopharyngeal and oropharyngeal swab, Sputum and Broncho alveolar lavage (BAL). The samples require storage at 2-8 degrees celsius. The current COVID 19 tests done in India includes Real Time PCR which has sensitivity of around 70% takes around 4-5 hrs. True NAAT and CBNAAT have 73% sensitivity has been used as screening test needs to be confirmed by RT PCR Test. The Rapid point of care antigen detection test has (sensitivity 30% & specificity 100%) takes around 30 -60 minutes. All symptomatic negative patients should be essentially referred to a RT-PCR for COVID-19. The IgG antibody test for COVID-19 is used for Only for Surveillance and not for Diagnosis. The COVID 19 testing has highest sensitivity for Bronchoalveolar fluid around 93%, nasopharyngeal swab is 63% and oropharyngeal swab is 32% and lowest in blood is 1%. Radiology includes X ray chest which shows Bilateral, hazy Peripheral opacities, Computed Tomography shows bilateral Ground Glass opacities (GGO), crazy paving, consolidation. Patients of mild cases should undergo blood investigations such as Complete blood count, Random blood sugar, HBA1c, Liver function test, kidney function test, D – dimer and serum electrolytes. For moderate and severe cases, in addition to the investigations of mild cases other investigations include Neutrophil/lymphocyte ratio in blood count, serum lactate dehydrogenase (S.LDH), Serum Ferritin, C – Reactive protein (CRP), Procalcitonin, Trop T and I, ABG, PT/INR, Pro calcitonin and interleukin- 6 and ECG. 2D echo cardiology to be done for associated co morbidities. High risk patients are those with co-morbidities such as age more than 50 years, Ischemic heart disease, Diabetes mellitus, Hypertension, Chronic Obstructive Pulmonary disease, Post tubercular sequelae, chronic liver disease, chronic kidney disease, HIV/AIDS and Malignancy. Clinically if the patient has hypoxia spo2< 94%, tachycardia greater than 100, Respiratory rate more than 30. Systolic hypotension BP< 90 mmHg and altered sensorium and laboratory value with Lymphopenia (<20) with Neutrophil/Lymphocyte ratio >17, CRP>100 mg/L, Serum Ferritin >300 microg/L, S.LDH >450 and D-Dimer > 1000ng/ml can be categorized into high risk group.
# CURRENT COVID-19 TESTS AS PER ICMR GUIDELINES

<table>
<thead>
<tr>
<th>Tests</th>
<th>Remarks</th>
<th>Time Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Real time PCR (RT-PCR)</td>
<td>GOLD STANDARD, More accurate in detection and ability to run 90 samples in a single run</td>
<td>Average around 4-5 hours</td>
</tr>
<tr>
<td>2. TrueNat and CBNAAT</td>
<td>Sensitive test, Used as Screening tests needs confirmation by RT-PCR tests</td>
<td>Quick turn around time 30-60 mins</td>
</tr>
<tr>
<td>3. Rapid point of care antigen detection test (SENSITIVITY 30% SPECIFICITY 100%)</td>
<td>Moderate sensitivity but high specificity Does not require a specialized machine and can be used in field settings. All symptomatic negative patients should be essentially referred to a RT-PCR for COVID-19.</td>
<td>15-30 mins</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Tests</th>
<th>Remarks</th>
<th>Time Taken</th>
</tr>
</thead>
</table>
| IgG antibody test for COVID-19 | Only for Surveillance and not for Diagnosis. IgG antibodies generally start appearing after two weeks of onset of infection. Detection of IgG antibodies for SARS-CoV-2 may be useful in the following situations: A) Serosurveys to understand the proportion of population exposed to infection with SARS-CoV-2 including asymptomatic individuals. B) Survey in high risk or vulnerable populations (health care workers, individuals in containment zones etc.) to know who has been infected in the past and has now recovered. | 15-30 mins

(Source: the bmj | BMJ 2020;370:m2516 | doi: 10.1136/bmj.m2516)
## COVID-19 Testing Positivity Rates

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Type of Specimen</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bronchoalveolar lavage fluid</td>
<td>93%</td>
</tr>
<tr>
<td>2</td>
<td>Bronchoscopic brush biopsy</td>
<td>46%</td>
</tr>
<tr>
<td>3</td>
<td>Sputum</td>
<td>72%</td>
</tr>
<tr>
<td>4</td>
<td>Nasopharyngeal swab</td>
<td>63%</td>
</tr>
<tr>
<td>5</td>
<td>Oropharyngeal swab</td>
<td>32%</td>
</tr>
<tr>
<td>6</td>
<td>Feces</td>
<td>29%</td>
</tr>
<tr>
<td>7</td>
<td>Blood</td>
<td>1%</td>
</tr>
<tr>
<td>8</td>
<td>Urine</td>
<td>0%</td>
</tr>
</tbody>
</table>

## Treatment:

**Specific Treatment**

<table>
<thead>
<tr>
<th>Asymptomatic</th>
<th>No Symptoms</th>
<th>SpO2 ≥ 94% in room air</th>
<th>RR ≤ 24/m</th>
<th>No evidence of hypoxemia or breathlessness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Patients with uncomplicated upper respiratory tract infection.</td>
<td>SpO2 ≥ 94% in room air</td>
<td>RR ≤ 24/m</td>
<td>No evidence of hypoxemia or breathlessness</td>
</tr>
<tr>
<td>Moderate</td>
<td>Pneumonia with no signs of severe disease</td>
<td>SpO2: 94%-90% in room air</td>
<td>RR: 24-30/m</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>Signs of severe pneumonia</td>
<td>SpO2: &lt; 90% room air</td>
<td>RR: &gt;30/m</td>
<td></td>
</tr>
</tbody>
</table>
MILD CASES

ANTIVIRAL THERAPY
• **Tab Hydroxychloroquine** (HCQ) 400mg BD for 1 day followed by 200mg 1-0-1 x 4 day for patients in COVID Care Centre/Home Isolation (OR)
  
  **Tab Favipiravir** 1800mg 1-0-1 on Day 1 followed by 800mg 1-0-1 for 6 days (total 7 days) for Patients in DCHC (OR)
  
  **Cap Doxycyclin** 100mg 1-0-1 for 5 days
  
  +
  
  **Tab Ivermectin** 12mg 1-0-0 for 3 days

ANTICOAGULANTS
• **Inj enoxaparin** 40mg S/C 1-0-0 x 7 days (If D-Dimer is more than 1000ng/ml (OR) X Ray/CT Thorax showing ground glass opacities)

MODERATE CASES

ANTIVIRAL THERAPY
• **Inj Remdesivir** 200mg iv on day 1 followed by 100mg iv daily for 4 days (total 5 days) {5,6}

  **IF REMDESVIR IS NOT AVAILABLE** TO START **Tab Hydroxychloroquine** (HCQ) 400mg BD for 1 day followed by 200mg 1-0-1 x 4DAYS

STEROIDS
• **Inj Methyl Prednisolone** 0.5 – 1mg /kg
  
  (or)
  
  **Inj Dexamethasone** 0.1- 0.2 mg/kg for 3-5 days

ANTICOAGULANTS
• **Inj Enoxaparin** 40mg S/C 1-0-0 X 7 DAYS

IV ANTIBIOTICS ACCORDING TO LOCAL ANTIBIOGRAM
AWAKE PRONING
**CONVALASCENT PLASMA THERAPY** : 4 to 13 ML/KG (USUALLY 200ML SINGLE DOSE GIVEN SLOWLY OVER NOT LESS THAN 2 HOURS)
SEVERE CASES

ANTIVIRAL THERAPY
If the patient has not received Inj REMDESIVIR, such patients can be started on Inj REMDESIVIR.
Inj REMDESIVIR 200mg IV on day 1 followed by 100mg IV daily for 4 days (total 5 days)

Inj TOCILIZUMAB 8mg/kg {6,7} (maximum 800mg at one time) given slowly in 100ml NS over 1 hour; dose can be repeated once after 12 to 24 hours if needed
(or)
Inj ITOLIZUMAB: 1ST DOSE – 1.6MG/KG dose iv infusion. Subsequent dose: weekly 0.8mh/kg dose infusion over 4 hours if required
(Indicated when IL-6 levels 50-100 fold higher than normal (Normal range 0 - 9.5pg/ml and Worsening trend of the inflammatory markers (Ferritin, LDH, CRP) )

STEROIDS
- Inj Methyl Prednisolone 1-2mg/kg (or)
- Inj Dexamethasone 0.2-0.4mg/kg for 5-7 days

ANTICOAGULANTS
- Inj ENOXAPARIN 1MG/KG body wt. s/c 1-0-1 x 7 days

PRONE VENTILATION
Inj CEFTRIAXONE 1gm IV 1-0-1 AND CAN BE ESCALATED ACCORDING TO LOCAL ANTIBIOTAGRAM OR TREATING PHYSICIAN

IVERMECTIN PROPHYLAXIS:

- PROPHYLAXIS {9}:
  - Day1, Day 7, Day 30 and monthly, 12mg OD (For Health care workers)
  - Day1, Day 7, 12mg OD (For Household contacts)

- TREATMENT:
  - 12mg OD for 3 Days along with Tab Doxycycline 100 mg BD for 5 days
    (As Per Gov of UP dated 6.8.2020)

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**Government Order**
INDIGENOUS TREATMENT

Indigenous immunity enhancers Sound sleep (7-8 hours), Regular Exercise/Yoga (at least 30-40 minutes), Healthy foods and food habits, Vitamin C & D, Hydration and Positive Mental Health and Healthy lifestyle should be advised for all patients. AYUSH Recommendation for immunity enhancing includes intake of Luke warm water and Steam inhalation to be taken, Practicing Yogasana, Pranayama and Meditation. Spices like Turmeric, Cumin, Coriander and garlic, Herbal tea, Decoction-Tulsi, Cinnamon, Ginger, black pepper to be taken during regularly.

VACCINATION ON COVID – 19:

All over the world there are more than 100 vaccines {11} in pre clinical evaluation and in India more than 20 centres are involved in vaccine production. Some examples COVAXIN - developed by Hyderabad-based Bharat Biotech International Limited (BBIL), in collaboration with Indian Council of Medical Research and National Institute of Virology, Pune. At present COVAXIN has got approval of phase II clinical trial by the DGCI. Zyus Cadila’s ZyCoV-D vaccine in Ahmedabad, is in phase II of clinical trial earmarked ZyCOV-D. The company is testing two versions of its vaccine, one which makes use of molecular DNA to elicit an immune response, while the other uses a live measles viral strain to provide protection. SPUTNIK-V, the experimental COVID-19 vaccine, which has been developed by scientists from the Gameleya Institute of Epidemiology and Microbiology in collaboration with Russia’s defence ministry has seen speedy work and development in the past two months. On August 12, Russia became the first nation in the world to successfully register a novel coronavirus vaccine in the world, nearly eight months after the pandemic started to spread. AstraZeneca is currently involved in the development adenovirus vector vaccine with the University of Oxford. currently in phase III of testing. The company has tied up with Pune based Serum Institute of India (SII) to mass-produce the vaccine once the company gets required approvals and licensing from medical boards. AstraZeneca is also hopeful of starting human trials of its vaccine in India, started in August.

References:
Prepared to fit into structure and educational goals suggested

The treatment of Biliary atresia is surgery.

The surgical options available include

1. Kasai’s Portoenterostomy
2. Choledochoportoanastomosis
3. Liver Transplantation

Early diagnosis and early establishment of biliary drainage yields better results and long term survivors to enable Liver transplantation.

Detailed discussion of diagnostic modalities are beyond the scope of this article. Early MRCP, Exploration and operative cholangiogram establish diagnosis of biliary atresia.

**Timing of Surgery:** Earlier the procedure, better are the results and irreversible changes in liver can be delayed. Best results are seen when portoenterostomy is performed before 60 days of life. Each day of delay, results are reduced by almost 10%. Results are uniformly poor if initial kasa's porto enterostomy is done beyond 100 days of life.

Pre operative preparation include the following

1. **Prepare the parents:** Prepare the parents by detailed counselling stressing the point that Portoenetersotomy is only a temporary procedure and to buy time for liver transplantation. Necessity for repeated LFT and early preparation for donor are particularly stressed.

2. **Prepare the liver:** Correct coagulopathy by FFP and bring PTT, and APTT to normal using Vit K.

3. **Prepare Colon:** Colon preparation by saline washes and by use of oral antibiotics

4. **Prevent hepato renal syndrome:** Hepato renal syndrome is avoided by maintaining fluid and electrolytes, particularly taking care to avoid Hypokalemeia

5. **Prevent Hepato pulmonary syndrome:** Early establishment of biliary flow and liver transplantation

6. **Prevent Sepsis:** Prophylactic Antibiotics pre operatively and post operatively as these children are more prone for sepsis

7. **Prepare surgeon:** Surgeon needs to be prepared to tackle all variants of biliary atresia. And use of a operative loop definitely improves the dissection and anastomosis

8. **Prepare the OR:** Small operating table, measures to prevent hypothermia and suture and proper retractors need to be planned.

Laparoscopic and accessories are confirmed a day before if laaroscopic portoenterosotomy is planned.

Availability of Robot and the necessary equipment is confirmed.

9. C ARM and contrast for operative cholangiogram need to be made available.
10. Prepare the anaesthetist: Discuss all the operative details and critical steps of hilar dissection

11. Prepare blood and blood products although rarely used.

The surgical options available are as follows.

1. Conventional open surgery
2. Laparoscopic portoenterostomy
3. Robotic assisted portoenterostomy

**Position of the baby:** Supine with limbs covered to prevent hypothermia. Slight elevation of Rt lower chest would facilitate liver surgery.

Facilities for operating cholangiogram need to be confirmed while positioning the baby.

**Incision:** Extended Rt Sub costal incision is the preferred incision although supra umbilical transverse incision with a mid line extension towards xiphisternum is used by some. If a mini lap is done for operative cholangiogram, the subcostal incision needs to be planned in such a way that it would be a part of final incision.

**Steps of surgery:** Operative cholangiogram is done routinely through gall bladder particularly when bile is aspirated from Gall bladder. This confirms diagnosis and also delineates distal and proximal anatomy. Routine frozen section Liver biopsy is no more used as, concept of correctable and in correctable biliary atresia based on the size of ducts is no more accepted.

**Dissection and exposure of hepatic hilum:**

There are two ways of doing this.

1. Initial dissection is lifting of the gall bladder from its bed approach cystic duct and cbd then onwards.
2. Distal cbd can be tied off and dissection is proceed proximally.

Gall bladder first is easier and simpler.

For atresia of CBD, CHD and RHD and LHD dissection is done along the anterior surface of left portal vein.

3. Excision of the atretic ductal system is followed by serial slicing of the liver parenchyma cranial to left portal vein till bile starts to be visible. 5 0 vickryl on the posterior rim of fibrotic tissue would help anastomosis and helps in avoiding injury to portal vein.

4. Preparation of Roux en y: The jejunal arcade is evaluated and jejunal is divided 10 cms distal to DJJ. A 25 to 40 cms long loop of jejunum is prepared and brought to the hilum through transverse mesocolon.

5. Portoenterostomy: The end of jejunum is closed and a small opening is made along the ante mesenteric border and anastomosed to liver surface at the prepared area using 50 vickryl.

Jejunojejunostomy completes the procedure.

**Contra indications of porto enterostomy**

There are no definite contra indications but many surgeons may not accept to perfume beyond 100 days of life.

**Cholecysto portostomy:** If operating cholangiogram shows Patent gall bladder and CBD, gall bladder is lifted off its bed preserving the cystic artery and is anastomosed to the liver.

Abdomen is closed leaving a drain in sub hepatic area. Isolated loops to prevent ascending cholangitis are obsolete. A liver biopsy is taken for prognostic evaluation.

**Liver transplantation:** Liver transplantation is cure for biliary surgery. Earlier better but small size has hindered
neonatal liver transplantation. Youngest is 6 months old at Kyoto university.

The options of liver transplantation are: “Planned elective LDLT Or unplanned cadaver split liver turns plant

The important components of liver transplantation are
1. Donor hepectomy usually left lobe or in vivo splitting of cadaver liver
2. Recipient hepectomy
3. Preparation of Graft on table
4. Orthotropic liver transplantation, hepatic vein anastomosis to either RHV or ivo, portal vein anastomosis, hepatic artery and biliary conduit.

Detailed discussion of liver transplantation is beyond the scope of this article.

Post operative care:

Continue liver support, antibiotic prophylaxis, UDCA, Steroids, ABCDE and zinc and take care of Nutritional aspects, in addition to neonatal ICU care

Prevention of ascending cholangitis is utmost important. Oral antibiotics might reduce the incidence. MCT may be helpful to take care of absorption issues.

Results of Portoenterostomy:

Major determinant of prognosis are
1. Age at diagnosis and initial surgery
2. Length of time of successful bile flow. Bilirubin at 3 months post op seems to be strongly predictive of long-term results.
3. The size and nature of liver at surgery
4. Post op cholangitis
5. Syndromic biliary atresia has poor prognosis Other possible factors predictive of poor prognosis
   a. Jaundice at birth, necessitating phototherapy at birth.
   b. Technique of portoenterostomy. Larger the number of procedures done at one institute, better are results.
   c. CMV hepatitis, associated hetrotaxia syndromes

Long term complications after Portoeneterostomy:

1. Cholangitis: Cholangitis typically occurs within first 2 years. 50% are affected. Recurrent episodes, and cholangitis with a satisfactory biliary flow seems to predict necessity of liver transplantation.
2. Portal Hypertension: Hyaluron levels are a good marker of cirrhosis and portal hypertension following portoenterostomy for biliary atresia
3. Metabolic and nutritional sequel: Fat soluble vitamin deficiency. Coagulopathy, osteopathy, enteropathy, biliopathy are some lone term complications.
4. Intra hepatic cysts: Seen in long term survivors and may lead to recurrent cholangitis. UDCA and antibiotics might help to reduce cholangitis. Liver transplant is indicated.
5. Cesation of bile flow: Sudden cessation of bile flow requires reestablishment of flow by steroids and UDCA and might require redo portoenterostomy.
6. Hepato pulmonary syndrome: Intra pulmonary shunting is the cause and can be diagnosed by ECHO cardiogram, arterial blood gases. Radionucleotide lung scans using tagged albumin helps in quantifying shunt. This is usually reversible with liver transplantation.

7. Hepatic malignancy

8. Ectopic intestinal varices

**Prognostic markers of long term results of portoenterostomy:**

1. Hyaluronan: Elevated levels indicate defective function of stellate cells of liver. A positive correlation of elevated hyaluronan levels and bilirubin has been established.

2. Collagen type IV and N terminal procollagen III peptide: Hepatic fibrosis is associated with increased production of these Extra cellular matrix components.

3. Endothelin: High levels are associated with portal hypertension

4. Transforming growth factor – beta isoforms: Highly indicative of progressive liver fibrosis

5. Hepatic ultrasound: Decreased portal venous flow and increased hepatic artery resistance correlate with hepatic fibrosis

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**IMA Public Activities**

- Elderly Care Initiative
- IMA Trauma Care Project Plan Initiative
- IMA Rare Blood Group Online Blood Bank Directory
- IMA Online TB Notification initiative
- Golden hours in medical practice
- IMA lauds Health Ministry for implementing 85% Pictorial Health
- Warnings on Tobacco products
- Report of IMA National Cancer & Tobacco Control Committee
- Why Promote Day Care and Home Care Health Care
- IMA White Paper Stop Child sexual abuse
- Preventing Diabetic Blindness (PDB) in India
- Aao Gaon Chale
- WORLD CANCER DAY
- Pharmaco Vigilance
THE CASE SCENARIO

45 year old female with breast cancer. Planned for elective mastectomy. Patient wants immediate reconstruction by plastic surgeon. General surgeon does mastectomy. Preference card is lost so instrument set not standard. Scrub tech leaves because of family emergency. Circulator becomes scrub nurse. Circulating nurse is now covering two OR’s . Plastic surgeon comes into room “early”. Wants to begin reconstruction before general surgeons is finished . Plastic surgeon “disruptive” saying procedure going “too slow”. General surgeon insists on completing the mastectomy first. The breast specimen was lost. Surgeons had never worked together before and did not talk before procedure. No “plan” for how surgery was to take place. Nursing staff very stressed by level of workload. Complete system breakdown.

“Imagine the chaos that can happen.”

Surgical procedures have the inherent capacity to cause unintended harm to the patient if performed without due care. It is the very nature of the specialty which by its invasiveness carries the risk of causing major or minor morbidity and sometimes even mortality.

The factors which may contribute towards adverse effects during surgical procedures are:

• Involvement of multiple personnel
• Residents in wards (who do the work up and pre-op orders)
• Nurses in the wards (who are responsible for carrying out the pre-op orders)
• Attenders (transport to and from the operating rooms)
• Operation Theatre nurses, technicians, surgeons, anesthesiologists
• Ancillary departments-Pathology and other laboratories which contribute to patient management
• Frequent change of personnel contributes to the possibility of errors since everyone assumes that someone has carried out the required instructions and occasionally no one really has.

EXTENT OF THE PROBLEM:

It has been estimated that the global volume of surgery amounts to 187-281 million procedures annually or approximately 1 per 25 human beings. The rate of complications varies from 3-22% in different countries. Half of these contributions are considered preventable. Taking an average death rate of 0.5% due to these complications (although the death rate varies from 0.4-0.8% in developed countries and 5-10% in developing countries), over one million patients die annually directly due to the consequences of surgery.

There is therefore, a crying need for attention to this matter and for steps which can reduce the potential harmful effects of surgery.

THE WHO INITIATIVE:

It is in this background that the WHO initiated a move to make surgery safer. The following material is drawn from the WHO publication - “WHO Guidelines for Safe Surgery, 2009, Safe Surgery Saves Life” and is largely a summary of the
same. The team was led by Atul Gawande of Harvard, University, USA. The findings of the team were published subsequently in the New England Journal of Medicine.

The problems visualized by the team included the fact that surgical safety was a complex issue. Surgical safety was yet to be recognized as a significant public health problem, data was sparse, even existing safety practices were not uniformly applied and there was lack of resources.

They felt that essentially there were areas which required to be addressed. These were:

a. **Prevention of SSI by**
   - Hand washing
   - Appropriate use of antibiotics
   - Antiseptic skin preparation
   - Atraumatic wound care
   - Instrument decontamination and sterility

b. **Establishing safety of Anesthesia by ensuring**
   - Presence of a trained anesthetist
   - Anesthesia machine and medication safety checks
   - Pulse oximetry, heart rate monitoring
   - Blood Pressure monitoring
   - Temperature monitoring

c. **Establishing safe surgical teams by**
   - Improved communication
   - Ensuring correct patient site and procedure
   - Informed consent

d. **Availability of all team members**
   - Adequate team preparation and planning for the procedure
   - Confirmation of patient allergies

The result of this work was the WHO Surgical Safety Checklist, launched in 2008. The WHO describes it as a “simple tool designed… to bring together the whole operating team (surgeons, anaesthesia providers and nurses) to perform key safety checks during vital phases of perioperative care: prior to the induction of anaesthesia, prior to skin incision and before the team leaves the operating room”.

The WHO team considered the following as their principal objectives:

**Objective I - operate on correct patient, correct site by**
- Verification
- Marking
- Checking before surgery

**Objective II - Measures to reduce harm from anesthesia and protect from pain by attention to**
- Equipments
- Gas supplies
- Monitoring
- Ancillary equipment and medication
- Instruments (supplies and standards)

**Objective III - Recognize and effectively prepare for life threatening loss of airway or respiratory function by**
- Airways assessment
- Airways management
- Aspiration of gastric contents

**Objective IV - Recognize and effectively prepare for risk of high blood loss by**
- Considering probability of blood loss
- Preparing adequately
- Managing optimally

**Objective V - avoid inducing allergic / adverse drug reaction for which patient is known to be at significant risk**

**Objective VI - consistently use methods known to reduce risk of Surgical site infection**

**Objective VII - Prevent inadvertent retention of instruments and sponges in the surgical wound**

**Objective VIII - Secure and accurately identify all surgical specimens**

**Objective IX - Effectively communicate and exchange critical infection for the safe conduct of the operation using checklists to improve communication**

**Objective X - Hospital and public health systems will establish routine surveillance of surgical capacity / volume/results. These should include considerations of**
- No. of surgeons, anesthetists, nurses, para-medicals
- Infrastructure
- Economic considerations
- Positive incentives
- Negative incentives
- Case mix and risk adjustment
A nineteen item check-list was finalized. It was so designed that it was “Do confirm type rather than a read do type”. Checklists remind us to do critical things.

ADVANTAGES OF THE CHECKLIST

PREOP

1. It improves the appropriate antibiotic administration and
2. Prevention of hypothermia
3. Availability of equipment in operating room
4. Communication, safety culture
5. It reduces the specimen problems – being lost or wrong test
6. Inaccuracies in documentation
7. Surgical related complications
8. Mortality and morbidity

How to run the checklist:

In three parts -

1) **Sign in**
   - Before induction of anaesthesia
   - Ready to go back to the theatre

2) **Time out**
   - Before skin incision
   - Safe to start operation or procedure

3) **Sign out**
   - Before patient leave operating room
   - Safe to end operation and safe to send patient to next point of care
OPERATING ROOM

1) SIGN IN -

- Takes place in the theatre reception and it is clean chit to make the patient safe to go back to the theatre.
- It is performed by preop nurse and circulator.
- It does not involve surgeon or anaesthetist.
- It helps in pre-procedure preparation and checking for relevant lab results, implant, devices, special equipment.
- DVT prophylaxis - assessment done and
- Warming device set up in operating room if needed

The check list would be

**Before Induction of Anesthesia**

- Has the patient confirmed his/her identity, site, procedure and consent?
- Is the site marked?
- Is the anesthesia machine and medication check complete?
- Is the pulse oximeter on the patient and functioning?
- Does the patient have a known allergy?
- Difficult airway or aspiration risk? If yes, is equipment and assistance available?
- Risk of blood loss - if >500ml or 7ml/kg in children, have two IV lines and central access and fluids been planned?

2) TIME OUT

- It is a point where in it is proclaimed to be safe to start the operation. It is performed by the entire surgical team.
- The team introductions is done.
- Pharmaceuticals e.g antibiotics and other medications given are informed.
- The risk of blood loss is also informed.
- Positioning/padding/straps are discussed or changes in position, equipment are informed.
- Radiology – relevant images reviewed/available.
- Equipment e.g implant, anything special anyone needs is also discussed.
- Fire risk assessment need to be done heat and fuel(e.g alcohol-based prep, O2).
- Expected duration of the surgery is planned. This helps in antibiotic re-dosing plan and plan for active warming and plan for DVT prophylaxis can be planned

**Before skin incision**

- Confirm team members have introduced themselves by name and role
- Confirm the patients name, procedure and where the incision will be made
- Has antibiotic prophylaxis been given within last 60 minutes?
Anticipated critical events

To Surgeon
- What are the critical and non-routine steps
- How long will the case take
- What is the anticipated blood loss

To Anesthetist
- Are there any patient specific concerns

To Nursing team
- Has sterility (including indicator results) been confirmed
- Are there equipment issues or any concerns

Is essential imaging displayed

3) SIGN OUT

Aim: Safe to end operation, safe to send patient to next point of care

- It is performed by the surgeon
- There are opportunities for improvement
- The patient recovery and management is checked.
- Postop expectation are discussed
1. Meds for e.g antibiotics, pain
2. Tubes/lines
3. Post-op studies (labs, radiology)

- The destination: ICU, HOME OR WARD is decided
- Key concerns expressed by the operating team discussed
- Operation note and orders have to be written clearly

C. Before patient leaves the operating room

Nurse verbally confirms
- Name of the procedure
- Completion of instrument, sponge and needle counts
- Specimen labeling check specimen labels aloud including patient's name
- Were there any equipment problems to be addressed?

To Surgeon, Anesthetist and Nurse:

What are the key concerns for recovery and management of this patient?

MODIFICATION

The Checklist can be modified to account for differences among

1. facilities with respect to their processes,
2. the culture of their operating rooms and
3. the degree of familiarity each team member has with each other.

However, removing safety steps because they cannot be accomplished in the existing environment or circumstances is strongly discouraged.

IMPLEMENTATION

Requires adapting the Checklist to local routines and expectations.

There has to be a sincere commitment by hospital leaders. The heads of surgery, anaesthesia and nursing departments must publicly embrace the belief that safety is a priority and that use of the WHO Surgical Safety Checklist can help make it a reality.

They should use the Checklist in their own cases and regularly ask others how implementation is proceeding.

BARRIER TO IMPLEMENTATION

- time constraints
- duplication of existing processes
- lack of communication between team members
checklist too long to complete
some items did not fit in their operating room
Could yes/no answer prevent moving on to the next question

CHALLENGES OR HURDLES IN IMPLEMENTATION

➢ Hierarchy
The hierarchy among operation theater personnel acts as a major hindrance in successful implementation of the checklist.

➢ Delays
The surgeon and staff exposed to checklist programs resent the delay before the start of surgery and interruption to workflow, especially during the sign phase of the checklist.

➢ Increase the workload
Paramedical staff working in the operation theaters with huge turnover of cases, consider checklist as an unnecessary interruption of their streamlined routine work and addition to the burden of the already overburdened staff.

➢ Lower applicability in emergency situations
There is often reluctance to follow the 19-item checklist during urgent or emergent surgeries.

➢ Raises the anxiety in awake patient
There have been concerns that patient might become restless or anxious hearing the checklist protocol, especially if deficiencies in preparation of the operation theater are revealed.

➢ Tick-box exercise
Accountability of each team member during the checklist protocol has a crucial role in the success of the checklist.

THE WAY FORWARD - OVERCOMING THE PROBLEM

There is a need to identify the barriers in implementation and then develop strategies to overcome them.

➢ Developing local champions
To float a new idea, we need to identify the people who are enthusiastic. The initial team should be formulated with these local champions.

➢ Start small
A more practical form is to implement the checklist in one or two operation theaters.

➢ Straight forward format
Measures should be taken for making checklist more of a straightforward, in a more participating format involving all theatre personnel rather making it one person job.

➢ Local adjustment and adaptation
To increase the feasibility and usefulness of checklist, emphasis is on the importance of local adjustment and adaptation

➢ Regular audits
Regular audits help to monitor the progress of a program.
CONCLUSION

Checklists have been useful in many different environments, including patient care settings. This WHO Surgical Safety Checklist has been used successfully in a diverse range of healthcare facilities with a range of resource constraints.

Studies show that with education, practice and leadership, barriers to implementation can be overcome. With proper planning and commitment, the Checklist steps are easily accomplished and can make a profound difference in the safety of surgical care and reducing mortality and morbidity.

REFERENCES:


“Echo Evaluation in Systemic Hypertension”

Prof Dr V Amuthan
MD DM FACC FEACVI FASE FESC FCSI FIAE
Emeritus Professor of Cardiology, The Tamil Nadu Dr. MGR Medical University
Former Professor & HOD of Cardiology, Madurai Medical College, Madurai
Director of 3D Echocardiography, Jeyalakshmi Heart Centre, Madurai
Senior Interventional Cardiologist, Vadamalayan Hospital, Madurai &
Dr. R.V.A. Ananth. MBBS PGDCC (MD)
Consultant Cardiologist, Jeyalakshmi Heart Centre, Madurai

Abstract

Cardiac problems develop in concert with development of Hypertension. Hypertension is ranked as the third most important risk factor for the burden of disease in South East Asian population. Prevalence of hypertension has been seen to rise from studies as early as 1980s to till date and the current prevalence rate is 33% of urban Indians and 25% of rural Indians1,2&3. Although the conventional two-dimensional echocardiography and doppler studies remain the sheet anchor of diagnosis, early diagnosis is missed by these technologies. The advantages of Echocardiography in the evaluation of hypertensive patients include:

1. The evaluation of cardiac chamber volumes and mass, which avoids geometric assumptions.
2. The assessment of regional left ventricular (LV) wall motion and quantification of systolic dyssynchrony.
3. Presentation and ease calculation of Left Atrial (LA) volume and Strain curves.
4. Evaluation of cardiac valves and volumetric evaluation of Regurgitant lesions with 3DE colour Doppler imaging and
5. Echocardiographic stress imaging. Evaluation of all hypertensive patients with echocardiography leads to detection of early and preventable changes. Thus, the treatment approaches may be changed in these conditions to include the cardio protective drugs, for an example ACEI, ARBs and statins.

Prevalence of hypertension has been seen to rise from studies as early as 1980s to till date and the current prevalence rate is 33% of urban Indians and 25% of rural Indians1,2&3. Echocardiography has been classified as the second line of investigation by 2013 ESC/ESH Guidelines for the patients with hypertension who have left ventricular hypertrophy, left atrial enlargement and other cardiac comorbidities (Class IIb)4. 2014 Canadian guidelines recommend Echocardiography in selected patients with hypertension. 5 Because of the blood pressure measurement pitfalls in patients with systemic hypertension and as left ventricle remains the main target of damage, the 2015 ASE/EACVI Guidelines on systemic hypertension emphasized the role of Echocardiography in assessment of left ventricular mass and left ventricular hypertrophy6. Apart from left ventricular hypertrophy, assessment of LV diastolic dysfunction, assessment of left atrial volume and strain, left ventricular systolic dysfunction, aortic dilatation and aortic regurgitation are important in systemic hypertension. Ruling out the causes of secondary hypertension like coarctation of aorta and renal artery stenosis should also be routinely done in echocardiographic evaluation of hypertension. Although the conventional two-dimensional echocardiography and doppler studies remain the sheet anchor of diagnosis, early diagnosis is missed by these technologies. Threedimensional echocardiography and the use of speckle tracking echocardiographic analysis of longitudinal, circumferential, radial strain and LV torsional deformation analysis score over the earlier techniques.

Fig 1: A. Calculation of LV Mass by using Anatomical M Mode. B: 3D Calculation of LV Mass

3D Echocardiography

The advantages of 3D/4D Echocardiography in the evaluation of hypertensive patients include the following and have been widely studied and recommended.
1. The evaluation of cardiac chamber hypertrophy, volumes and mass, without geometric assumptions.

2. The assessment of left ventricular strain and quantification of systolic dysynchrony.

3. The ease of calculation of 3D left atrial volume and strain

4. Realistic view of valves of the heart and volumetric evaluation of Regurgitant lesions

5. Three-dimensional Echocardiographic stress imaging.

**Echocardiographic Assessment of Left Ventricular Hypertrophy and LV Mass**

Calculation of LV Mass by M Mode (cube formula) and two-dimensional echocardiography

(Area length or Truncated Ellipse) are cumbersome geometrical assessments that are not applicable when there is left ventricular distortion or fore shortening, asymmetric left ventricular hypertrophy, dilated cardiomyopathy and in patients with regional wall motion abnormalities. The left ventricular mass calculation is based on converting volume to mass using multiplication of volume by myocardial density of 1.05 g/ml and is normalized for the body surface area as LV mass index. Left ventricular hypertrophy is defined as left ventricular mass index of $>115$ g/m² for men and $>95$ g/m² for women. 3D Echocardiographic quantification of LV Mass correlates better with CMR measurements. The methodology of 3D LV mass Assessment by using anatomical M Mode is shown in Fig 1A and 3D Echocardiography in Fig 1B.

**Diastolic function in Systemic Hypertension Abnormal E/A and Deceleration time :**

Abnormal relaxation characterised by decreased E/A ratio and prolonged Deceleration time and Restrictive pattern with increased E/A ratio and decreased Deceleration time are well described in early studies. (Fig 2)

**Abnormal E/e’ Ratio:** The ratio of early diastolic flow velocity of mitral inflow (E) to early diastolic mitral annular velocity (E/e’) has been shown to be the most accurate noninvasive marker of elevated LV filling pressure. In particular, echocardiographic indices of elevated LV filling pressure are clearly associated with poor cardiac functional and clinical outcome. $E/e’ > 15$ is the strongest predictor of cardiac death and readmission for heart failure. (Fig 2)

**3D Evaluation of Left Atrium:** Left atrial size is a powerful marker of prognosis in systemic hypertension under a variety of clinical situations and is a strong predictor of mortality and morbidity. Because, 3D volume calculation of left atrium is devoid of geometrical assumptions, it correlates better with Cardiac Magnetic Resonance Imaging. Normal left atrial maximal volume and total emptying fraction have been published. Regional assessment of left atrial function by Speckle tracking echocardiography has also evolved to be a novel echocardiographic technique. The steps which are performed to evaluate three-dimensional left atrial volume and strain are explained in Figures 3A and 3B. The American Society of Echocardiography has defined left atrial enlargement when left atrial volume is $28 + 6$ ml/m² whereas for defining LV diastolic dysfunction the left atrial volume cut off point is $>34$ ml/m². The presence LA volume by 3D $>40$ ml/m² and LA reservoir strain (LASr) $< 20\%$ in a patient with normal ejection fraction indicates the presence of heart failure with preserved ejection fraction. (HFpEF)

**3D Echocardiographic assessment of systolic dysfunction LV Ejection fraction:** The cornerstone of the prognostication and treatment schedule for echocardiographic evaluation of systemic hypertension starts with evaluation of left ventricular ejection fraction. The evidence base for modern cardiology is so heavily based on this simple measurement that it is unlikely to disappear. The problems in calculating EF as the ratio between stroke volume and end-diastolic volume are geometry dependence, load dependence, the effect of high and low heart rate
Fig 2: Mitral Flow Spectral Doppler, Tissue Doppler medial mitral annular movement and left ventricular basal and apical rotation (negative and positive waves) during one cardiac cycle.

A. Normal subject: Normal values for Mitral forward flow E/A ratio, E/e’ values, LV rotation and net twist angle in a recent study of a large group of healthy volunteers reported a mean value of peak LV twist angle as 7.7 ± 3.5° and LA strain > 40

B. Systemic hypertension without LV hypertrophy: Note altered E/A ratio, normal E/e’ values, less prominent initial clockwise twist, higher peak twist, delayed time to peak and lower untwisting during early diastole in the patient with diabetes compared with the normal subject and LA strain value of +30

C. Severe Systemic Hypertension and Left ventricular hypertrophy & Preserved Ejection fraction: Note the Pseudo Normal pattern of E/A ratio, abnormal E/e’ > 13, relatively preserved LV twist mechanics, although LV twisting and untwisting velocities, are both attenuated and delayed and LA strain of +20

D. Severe systemic hypertension and reduced Ejection Fraction: Restrictive pattern of E/A ratio, abnormal E/e’ > 13, markedly reduce LV twist and LA strain of +10

due to heart blocks, tachycardias (especially Atrial Fibrillation) and insensitivity to minor change when close to 50%-25. 3D imaging is now available with echocardiography and its results are comparable to Cardiac MRI. The main attraction and advantage of 3D imaging is to avoid geometric assumptions when calculations of LV volumes, and reduction of errors created by cutting a 3D structure in two dimensions. The current software for 3D evaluation of LVEF is much easier and can be performed within minutes in the setting of emergency room. The sphericity index derived from 3D echocardiography (LVEDV divided by the volume of a sphere whose diameter is the LV end-diastolic long axis) is an added by product and is the best predictor for LV dilatation

Table 1. Evaluation of Systemic Hypertension by Echocardiography in relation to severity

<table>
<thead>
<tr>
<th></th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Advantages/Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional 2D Echo, Doppler &amp; Tissue Doppler Imaging</td>
<td>Diastolic dysfunction 1. ↑ E/A 2. ↑ LV Mass 3. ↓ Cavity size 4. ↑ Deceleration Time 5. E/e’ &gt; 14</td>
<td>↑ LV Mass</td>
<td>↑ Systolic dysfunction ↓ LV Ejection Fraction</td>
<td>Universally available Interobserver Variability Quantification of myocardial velocities Angle dependent 3D Echo LVEF is comparable to CMR</td>
</tr>
<tr>
<td>3D Echo LVEF &amp; LV Mass</td>
<td>↑ LV Mass</td>
<td>↑ LV Mass</td>
<td>↑ Systolic dysfunction ↓ LV Ejection Fraction</td>
<td></td>
</tr>
<tr>
<td>3D Echocardiographic LV Strain</td>
<td>Abnormal Longitudinal &amp; Circumferential strain</td>
<td>Diastolic Strain abnormalities</td>
<td>Systolic Strain Abnormalities GLS &lt; -14</td>
<td>Technique is available only high-end machines and requires expertise</td>
</tr>
<tr>
<td>3D Echo LA Strain &amp; LA Volume</td>
<td>With Normal LVEF 3D LAV&gt;40 ml/m² LAsr ≤ 20% indicates HFpEF</td>
<td>Reduced LVEF, 3D LAV&gt;40 ml/m² LAsr ≤ 10% indicates HFpEF</td>
<td>Technique is available only high-end machines and requires expertise</td>
<td></td>
</tr>
</tbody>
</table>
Strain Imaging in decision making in Systemic Hypertension Global Longitudinal strain (GLS): Global longitudinal strain (GLS) has evolved as one of the most robust parameters, and this has been shown to identify subclinical LV dysfunction. GLS is calculated using a variety of proprietary software (EchoPAC, GE Medical Systems, Milwaukee, Wisconsin, USA; Syngo velocity vector imaging, Siemens, Mountain View, California, USA; LV analysis, TomTec GmbH, Unterschlesheim, Germany). GLS is well validated as a marker for the measurement of LV longitudinal deformation, which has emerged as a sensitive and specific marker to detect early and subtle myocardial dysfunction. In one of the recent metaanalysis, Kalam et al, have shown the independent prognostic significance of GLS in patients with mild LV global impairment. The prognostic value of this information seems likely to be superior to that provided by LVEF.

Current status of 3D Myocardial Strain Estimation: With developments in 3D transducer technology and improvements in hardware and software, 3D data sets with adequate temporal and spatial resolution are now possible and these 3D approaches can measure 3D strain from a multi beat acquisition with a frame rate set above 40 frames per second. The ability to estimate true 3D myocardial motion and deformation using various 3D Speckle Tracking echocardiography (STE) approaches may provide cardiologists with a better view of regional myocardial mechanics, which may be important for diagnosis, prognosis, and therapy.

LV Torsional deformation and 3-Dimensional Speckle Tracking Echocardiography: Shortening and lengthening which are the basic functions of the myocardial fibres result in a systolic twist followed by a diastolic untwisting of the left ventricle due to helical orientation of the fibres. In systole, the LV apex undergoes a counter clockwise rotation about its longitudinal axis as viewed from the apex. Rotation of the LV base in systole is opposite in direction compared to apical rotation. This motion has been compared with that used to squeeze water out of a wet towel. The main determinant of the LV twist is the apical rotation. Three-dimensional speckle tracking echocardiography has emerged as an alternative non-invasive technique to assess LV rotation. The problems with 2D Speckle Tracking Echocardiography are the lower values for apical rotation and LV twist, due to difficulties in selection of optimal imaging planes for computation, as the images are acquired separately from entirely different cardiac cycles and rotation at each level peaks at a different time in the cardiac cycle. A recent study by Muhammad Ashraf et al., to compute left ventricular (LV) twist from 3-dimensional (3D) echocardiography concluded despite lower spatiotemporal resolution of 3D echocardiography, LV twist and torsion can be computed accurately 27,28,29. LV twist is reduced in Dilated cardiomyopathy due to cardiac fibrosis resulting in alteration of myocardial fibre orientation30. Fig 2 shows twist and torsion in a normal individual, a patient with abnormal relaxation, in a pseudo normalization and finally in a patient with restriction and LV dysfunction. A decreased and delayed systolic LV torsion as well as depressed, delayed, and disorganised LV untwisting have been previously reported in patients with dilated cardiomyopathy31 (DCM). Moreover, paradoxical reversal of LV rotation, with the base rotating counter clockwise and the apex clockwise, with subsequent reduction or even loss of LV twist was observed in some patients with DCM.

Case Examples:

Case 1: A 42-year patient with systemic hypertension of seven years duration underwent echocardiography for fatigue. He had a blood pressure of 160/100 and was on Tablet Telmisartan 40 mg once daily. This patient had an LV mass of 137 g/m2, LVEF of 62% and LA strain of +40%. 3D LV strain evaluation revealed normal longitudinal strain (-24%), circumferential strain, area strain (-38%). Radial strain (+75%) was mildly increased and LV twist (70) was normal. All strain graphs were from the same cardiac cycle. As there was evidence of target organ damage, he was advised to increase the dose of telmisartan. (Fig. 3)
Case 2: In a 27-year-old patient with Coarctation of Aorta, 3D Echocardiography confirmed the diagnosis of post ductal coarctation. From the supra sternal notch, en- face view of the coarct segment was possible. (Fig 4) 3D trans thoracic echocardiography is especially useful during intervention. Validity of intra thoracic 3D echocardiography during surgery has been documented.

Conclusion: Evaluation of all systemic hypertensive patients with three-dimensional echocardiography for the presence of target organ damage leads to detection of early and preventable changes. Thus, the treatment approaches may be changed in these conditions to include the cardio protective drugs, for example beta blockers and statins.

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IMA Initiatives

- IMA Telemedicine Day 24th March
- IMA GAPIO Initiative
- IMA BAPIO Initiative
- Ima Mercury Phase Out Policy
- IMA ICP Initiative
- Ima Unesco Chair Bioethics Initiative
- IIMA UNICEF Initiative on Child Sexual Abuse
- IMA Blood Donation Initiative
- IMA Jan Aushadhi Initiative
- IMA Nepal Initiative
- NIPCCD
- Implementation of Swasth Bharat Abhiyan in Health Sector
- IMA NABH initiative
- Guidelines For IMA FFP2 Mask Initiative
Autoimmune-Associated Vasculitis Presenting as Ischemic Stroke With Hemorrhagic Transformation: A Case Report and Literature Review

Dr. Salil Uppal
DM Neurology

Abstract

Autoimmune-associated vasculitis is related to conditions like granulomatosis with polyangiitis (GPA) and eosinophilic polyangiitis with granulomatosis (EGPA), among many others. An unlikely scenario is patients with the above conditions presenting with ischemic strokes before any renal or pulmonary pathology. These conditions are associated with increased antineutrophilic cytoplasmic antibodies (C-ANCA) levels in the blood, and its decline after treatment is directly proportional to the recovery of the patient. We present a case of a previously healthy 38-year-old male patient who presented with acute/subacute ischemic stroke with elevated C-ANCA levels; his MRI brain images revealed multiple posterior circulation infarcts with hemorrhagic transformation. With pulse steroid therapy, he had significant improvement in neurological functions. This case report highlights the importance of maintaining a high degree of suspicion and providing early treatment for autoimmune strokes in young patients with no clear etiology for such a presentation.

Categories: Neurology, Allergy/Immunology, Rheumatology

Keywords: hemorrhagic stroke, wegener's granulomatosis, ischemic stroke, young onset stroke, neurological autoimmune disorders, autoimmune stroke, antineutrophil cytoplasmic antibody (anca) associated vasculitis (aav), central nervous system vasculitis, small vessel vasculitis

Introduction

Central nervous system (CNS) involvement in Wegener's granulomatosis (WG) often occurs in advanced stages with a wide range of latency period that ranges from five months to seven years; however, it occurs as the initial presentation in 1-2.5% cases [1]. The Trial of ORG 10172 in Acute Stroke Treatment (TOAST) [2] classifies stroke based on etiology into the following categories: 1. large artery atherosclerosis; 2. cardioembolism; 3. small vessel disease; 4. stroke of other determined etiology; and 5. stroke of undetermined etiology.

About 30 years ago, Davies et al. discovered antibodies typically staining ethanol-fixed neutrophils in a diffuse cytoplasmic manner. These antibodies were found to be against proteinase 3 (PR3) enzymes, and hence the terms anti-PR3 and antineutrophilic cytoplasmic antibodies (C-ANCA) are used interchangeably [3]. The group of diseases associated with the presence of C-ANCA in the blood is called ANCA-associated vasculitis (AAV). It includes WG, eosinophilic polyangiitis with granulomatosis (EGPA), microscopic polyangiitis (MPA), and pauci-immune glomerulonephritis [4]. Many studies have shown the CNS involvement in AAV, but with stroke, this association has not been well established, and hence it is a diagnostic dilemma for neurologists. Mourguet et al. were the first to prove a statistically increased incidence of cerebrovascular accidents (CVA) in patients with AAV, with a relative risk of 1.20 (95% CI: 0.98-1.48) [4]. We present a case of a middle-aged man who presented in a semiconscious state with a history of vertigo, which had led to an incidence of a fall. On brain imaging, he had multiple infarcts with hemorrhagic transformation but without any known risk factor. After ruling out all the possible causes of the stroke, high titer of C-ANCA antibodies were found in his blood in the absence of typical signs of vasculitis like renal or respiratory involvement. We hope this case report will shed some light on an unlikely presentation of autoimmune vasculitis and, simultaneously, a unique etiology associated with stroke.
Case Presentation

The patient was a 38-year-old male with no history of diabetes, hypertension, or drug abuse. He had complaints of fever for a month, followed by sudden-onset vertigo and a falling episode. Soon after the event, he had developed weakness of the left side of the body, resulting in a semiconscious state in which he was brought to the hospital.

On initial presentation, the patient had a Glasgow Coma Scale (GCS) score of 11 [E3 (eye opening to command) V3 (inappropriate speech) M5 (localizing to painful stimulus)]. He had a body mass index (BMI) of 28 kg/m² (normal range: 18.5-24.9 kg/m²), a temperature of 100°F (normal value: 98.6°F), and his blood pressure (BP) was within normal limits (WNL). Bilateral air entry was equal, and heart sounds were WNL. His power on the left side of the body was 0/5 on both upper limb (UL) and lower limb (LL), and that on the right side was 5/5. Both the pupils were equal (0.5 cm) and reactive to light. He had no neck stiffness, and Brudzinski and Kernig’s signs were negative. Immediately after the presentation, suspecting a CVA, the patient was taken for an MRI scan, which showed multiple areas of hyperintensities on T2/fluid-attenuated inversion recovery (FLAIR) images in the occipito-parieto-temporal regions bilaterally and also involving respective thalamus, suggestive of acute to subacute infarcts (Figure 1). His National Institute of Health Stroke Scale (NIHSS) score was 10 and the Modified Rankin Scale (MRS) score was 5 on presentation.

Based on the preliminary presentation, the patient was managed conservatively. Recombinant tissue-plasminogen activator (rtPA) was contraindicated due to delayed presentation and unclear etiology of his condition. Given his demographic and history, encephalitis and meningitis were considered as differentials. Due to the lack of digital subtraction angiography (DSA), a CT angiography (CTA) was performed instead, which showed no significant pathology. His routine blood biochemistry done on the same day showed blood glucose levels of 200 mg/dl (normal value: ≤200 mg/dl), deranged prothrombin time index (PTI), erythrocyte sedimentation rate (ESR) of 48 mm/hour (normal range: 0-16 mm/hour), platelet count of 4,65 lakh/cumm 2020 Uppal et al. Cureus 12(9): e10403. DOI 10.7759/cureus.10403 3 of 10(normal range: 1.3-4.50 lakh/cumm), and total leukocyte count (TLC) of 11,700/cumm (normal range: 4,000-11,000/cumm). Cerebrospinal fluid (CSF) analysis showed glucose level of 118 mg/dl (normal range: 40-80 mg/dl), proteins of 68 mg/dl (normal range: 20-40 mg/dl), and lymphocytes of 80/cumm (normal range: 0-6/cumm); adenosine deaminase (ADA) was negative as was acid-fast bacillus (AFB) stain.

On the second day, an echocardiogram was done considering an embolic phenomenon, which came out normal; yet he was fixed with a 24-hour Holter monitor, which showed no fibrillation or arrhythmias. A complete autoimmune panel was ordered on the third day in which indirect fluorescence showed C-ANCA on ethanol-fixed human neutrophils quantifying at 68.8 U/ml (normal value: <20 U/ml). Anti-neutrophil antibody (ANA) titers were not raised at the time (1:80). The antibodies against myeloperoxidase (P-ANCA) were also negative. His chest X-ra showed no pulmonary nodules or signs of hilar lymphadenopathy.

On the fourth day of hospitalization, the patient was again taken for a contrast-enhanced MRI (CEMRI). It showed altered signal with hyperintensities in the areas mentioned earlier on T2/FLAIR images (Figure 2) and blooming on gradient echo (GRE) sequences suggestive of hemorrhagic transformation superimposed on an already present acute
to subacute infarct (Figure 3). Due to the raised levels of C-ANCA, he was immediately given steroid pulse therapy, which was initiated with 750 mg/day methylprednisolone intravenously for five days, and he was otherwise managed conservatively.

![FIGURE 2: FLAIR sequence of MRI](image1.png)
The image shows areas of hyperintensities in the bilateral occipito-parietal-temporal regions and bilateral thalamus (yellow arrows)
MRL: magnetic resonance imaging; FLAIR: fluid-attenuated inversion recovery

![FIGURE 3: GRE sequence of CEMRI](image2.png)
The image shows a blooming (yellow arrow) pattern
CEMRI: contrast-enhanced magnetic resonance imaging
GRE: gradient echo

The patient recovered significantly with a gradual return of consciousness and he partially regained the power in his limbs (3/5 in UL and 3/5 in LL). The delayed presentation to the hospital led to only a partial recovery in the limbs. Methylprednisolone was gradually tapered and replaced with pulse cyclophosphamide therapy and oral prednisolone at 0.5 mg/kg/day. He was provided with assisted physical rehabilitation multiple times in a day, which was continued after that.

**Discussion**

In a study conducted in the early 90s, Nishino et al. discovered that among the 324 patients diagnosed with WG, 33.6% developed neurological complications [5]. Among them, peripheral neuropathy was the most common complication, followed by cranial mononeuropathy and seizures. Almost 11% of the patients had infarction related to vasculitis [5]. Although our patient had high C-ANCA levels in his blood, he did not fit the criteria for either WG or EGPA according to the American College of Rheumatology classification. On initial presentation, he neither had upper respiratory symptoms nor did he have asthma or eosinophilia, as seen in EGPA [6].

Accelerated atherosclerosis has been emerging as an essential aspect of AAV in recent years. Studies have shown that increased cytokines production, especially Th17 and Th1, and lipid accumulation, proceeding to arterial inflammation, is associated with subclinical atherosclerosis [1]. Drachman et al. have described three main pathogenic mechanisms for CANCA-related CNS disease. The first mechanism is contiguous spread from nasal or paranasal cavities to adjacent structures like orbit, optic chiasma, meninges, and pituitary gland. The second is vasculitis affecting both intracerebral or spinal cord vessels, and the least common mechanism is the remote intracerebral granulomatous lesion [7]. The relevance of accelerated atherosclerosis can be seen in the review of case
reports given below, depicting patients of different demographics presenting with ischemic stroke and later developing other features of WG (Table 1)

<table>
<thead>
<tr>
<th>Ref. number</th>
<th>Age and sex</th>
<th>Clinical features</th>
<th>NIHSS score</th>
<th>MRI findings</th>
<th>Serology</th>
<th>Renal and/or pulmonary involvement at the time of presentation</th>
<th>Treatment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>[8]</td>
<td>41/M</td>
<td>Weakness and numbness of right hand and foot, right facial paresis, nausea, vomiting, dysarthria</td>
<td>3</td>
<td>Acute ischemic infarct in the right caudal lateral medulla of the brainstem</td>
<td>Increased C-ANCA/anti-PR3, and positive rheumatoid factor (RF). Elevated ESR, CRP, and platelets; ANA and P-ANCA were negative</td>
<td>Diffuse, necrotizing crescentic glomerulonephritis of pauci-immune type</td>
<td>Methylprednisolone, cyclophosphamide, hemodialysis, aspirin</td>
<td>Two weeks later, no focal neurological deficits and remained in remission</td>
</tr>
<tr>
<td>[9]</td>
<td>48/M</td>
<td>Right hemiparesis, diffuse arthralgias (especially left ankle)</td>
<td></td>
<td>Ischemic stroke in the deep left Sylvian fissure</td>
<td>Elevated C-ANCA/anti-PR3, elevated CRP</td>
<td>No pulmonary or renal involvement on initial presentation</td>
<td>Monthly cyclophosphamide bolus, corticosteroids</td>
<td>After one month, the development of vascular purpura, renal damage, purulent rhinitis, and oral ulcers</td>
</tr>
<tr>
<td>[10]</td>
<td>58/M</td>
<td>Hemiparesis, dysarthria, facial droop, fever, myalgias, dark urine,</td>
<td>4</td>
<td>Left internal capsule infarct and multiple</td>
<td>Elevated C-ANCA, ESR, CRP, and</td>
<td>Renal failure, no pulmonary</td>
<td>Corticosteroid,</td>
<td>Developed multiple intracranial hemorrhages after given IV</td>
</tr>
<tr>
<td>[11]</td>
<td>54/F</td>
<td>Urticarial rash over the trunk and extremities</td>
<td></td>
<td>Punctuate infarcts bilaterally</td>
<td>negative P-ANCA involvement</td>
<td>rituximab</td>
<td>TPA, marked improvement after three months</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Left-arm weakness with flu-like symptoms worsening to weakness in the entire left side of the body with inattention</td>
<td>2</td>
<td>Small infarct in the posterior limb of the internal capsule with hemorrhagic transformation and intraventricular extension</td>
<td>Positive anti-PR3 None involved</td>
<td>IV cyclophosphamide and prednisolone</td>
<td></td>
<td>The patient made considerable progress</td>
</tr>
</tbody>
</table>
TABLE 1: A review of previous case reports published on autoimmune-associated vasculitis presenting as ischemic stroke

<table>
<thead>
<tr>
<th>Case Report</th>
<th>Age</th>
<th>Sex</th>
<th>Presenting Symptoms</th>
<th>Initial Presentation</th>
<th>Follow-up</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>[12]</td>
<td>42/M</td>
<td>Right sensorimotor hemisindrome accompanied by motor aphasia</td>
<td>Hemorrhagic stroke in the left basal ganglia, without underlying ischemia</td>
<td>Elevated C-ANCA/anti-PR3</td>
<td>None involved</td>
<td>developed acute respiratory distress, oral ulcers, epistaxis, and arthralgias</td>
</tr>
<tr>
<td>[13]</td>
<td>52/F</td>
<td>Dizziness, ataxia, left ophthalmoplegia, right facial paresis, left hemi-sensory loss</td>
<td>Ischemic stroke in the right medulla oblongata, with multiple infarcts in white matter</td>
<td>Elevated C-ANCA/anti-PR3, ESR, CRP, and thrombocytosis</td>
<td>None on initial presentation</td>
<td>One month later, fatigue, weight loss, acute kidney failure</td>
</tr>
</tbody>
</table>

NIHSS: National Institutes of Health Stroke Scale; MRI: magnetic resonance imaging; ANCA: anti-neutrophil cytoplasmic antibody; PR3: proteinase 3; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; ANA: anti-neutrophil antibody; IV: intravenous; TPA: tissue-plasminogen activator

CNS vasculitis is a diagnostic challenge as conventional imaging is not suitable for small vessel vasculitis, and taking a biopsy is often not possible [14]. Digital subtraction angiography is one of the gold standard investigations for vasculitis. In the case of large-vessel involvement of the brain, angiography shows alteration consistent with vasculitis in nearly 90% of the affected patients [15]. Nevertheless, in AAV-associated CNS disease, the diameter of small vessels (50-300 micrometers) is below the threshold for routine angiography [5]. CNS vasculitis is managed with high-dose corticosteroids. Cyclophosphamide in combination with steroids has proven beneficial in pachymeningitis and orbital granuloma only [16]. Sometimes, plasmapheresis is added to prevent relapses in maintenance therapy [5]. A decrease in C-ANCA is a valid marker for monitoring the response of the treatment. Early treatment directly correlates with a more significant reduction in neurological complications and prevents 2020 Uppal et al. Cureus 12(9): e10403. DOI 10.7759/cureus.10403 8 of 10long-term sequelae [5].

Conclusions

Small vessel vasculitis can present with ischemic stroke with hemorrhagic transformation in the early stages, and its etiology can often be missed if no other finding of AAV is present. Young patients with stroke have a better chance of recovery than the older population. However, the immense psycho-social, economic, and functional burden on the patients and their family members are evident for years after an episode. The situation becomes even grimmer if they are the sole providers and general income earners of the family, which significantly impedes their quality of life. Hence, identifying the risk factors of the said pathology is of paramount importance for preventing such debilitating complications.

Additional Information

Disclosures

Human subjects: Consent was obtained by all participants in this study. Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: Payment/services info: All authors have declared that no financial support was received from any organization for the submitted work. Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.
References


Restorative/Functional neurosurgery

Dr R Ramnarayan
Consultant functional neurosurgeon
Chennai, India.

This is a subspecialisation of neurosurgery which basically involves surgery for the physiological problems of brain. The brain is different from other organs like heart, Kidney in that the structure and the function do not go together always. The classical examples are patients with severe head injury or patients with epilepsy. Restorative or functional neurosurgery deals with usually normal scans and investigations.

The Procedures in Re Restorative/Functional neurosurgery include

1. Deep brain stimulation (DBS)
2. Intrathecal drug delivery systems especially morphine and baclofen.
3. Spinal cord stimulation
4. Sacral nerve stimulation
5. Epilepsy surgery
6. Vagal nerve stimulation

Deep brain stimulation (DBS) involves stimulating various parts of the brain for various pathologies. The usual indications are

a) Movement disorders Parkinsonism, dystonias, essential tremor.
b) Some psychiatric problems like depression, OCD, Tourette’s syndrome etc.
c) Intractable alcoholism
d) Chronic pain especially the central post stroke pain.
e) Intractable epilepsy
f) Intractable obesity
g) some types of autism (aggressive types with self harm).
h) Cases of schizophrenia.
i) Eating disorders like anorexia nervosa

For each disease, a specific target area/nucleus of the brain is used. For example for Parkinson’s disease, the target is Subthalamic nucleus; for depression it is the subcallosal cingulate area.

The commonest movement disorder is Parkinson’s disease which manifests with tremors, rigidity, slow movement (bradykinesia), poor balance, and difficulty in walking. It affects 1 – 2% of people above 60 yrs but in India it is seen in younger people also (upto 15%). Treatment of movement disorders like Parkinson’s disease is predominantly by drugs and drugs are very effective in most cases. But a good number of patients either come out of good control in the long term or develop side effects of drugs. Such patients are surgical candidates. DBS is offered in patients with Parkinson’s disease when the medical management is becoming ineffective or causing significant side effects. Symptoms which are improved by drug therapy are maximally improved with surgery with remor 80%-100%, Slowness (Bradykinesia) 50%-60%, Stiffness (Rigidity) 50%-70%, Gait, Freezing, and Balance 50%, Dyskinesias &
Dystonia (drug induced) 80%- 90%. Motor fluctuations are virtually eliminated and independence and quality of life substantially improved. Complications include haemorrhage (2-3%), Infection (1 -3%), mechanical hardware breakage (1-5%) and cognitive decline (2%).

DBS of the nucleus accumbens is highly effective in all cases of addiction as also in obesity. PET studies have shown that, when an individual takes a psychoactive substance, dopamine is released in the nucleus accumbens, which causes “the high”. By an increased dopamine release in the nucleus accumbens, the inhibition of the output neurons is decreased, which causes activation of the reward. Case series and reports have shown DBS of nucleus accumbens causes reduction in alcohol, nicotine and heroin intake in human beings. Studies in lab animals have also shown the same results.

Autism spectrum disorder (ASD) is a developmental disability that can cause significant social, communication and behavioral challenges. It is becoming common in India. People with ASD often have problems with social, emotional, and communication skills. They might repeat certain behaviors and might not want change in their daily activities. There is currently no cure for ASD. One in four children with autism shows aggressive behavior, like hitting others, biting self and others, destroying property or throwing temper tantrums. DBS of amygdala is very good in significantly reducing the aggressive behaviour as well as improving communication skills.

Pain is a very common symptom and is of two types: acute and chronic. Acute pain is considered protective and of limited duration, usually seen in an acute setting and associated with external injuries, burns, surgery etc. It is well controlled by pharmacological measures. Chronic pain is of longer duration, persists long after initial injury and requires pharmacological, psychological and even surgical measures. When pain persists or recurs more than six months it is defined as chronic pain.

Chronic pain should be treated by the guidelines given by the WHO. This is called the W H O analgesic ladder (see figure). It was first described in 1986 but has subsequently undergone many modifications. As described by W.H.O. the treatment of chronic pain should be done in a series of steps. Initially oral medications including adjuvants should be tried. Then physiotherapy, rehabilitation and psychological therapy are added. If no relief, oral opioids of various grades are given as the third step. Some cases need therapeutic nerve blocks. If these are not effective the advanced pain surgery and neurosurgery procedures are available. These include:

- intrathecal drug delivery
- neurostimulation,
- neuroablative therapies.
2. Intrathecal drug delivery system involves a pump placed in the lower abdomen subcutaneously and connected to the CSF through a subcutaneous catheter. The pump can be filled with the drug which can be delivered continuously into the CSF. The dose of the drug can be adjusted and refilling is a simple OPD procedure. Usually two drugs are used in this manner.

   A). Intrathecal morphine (ITM) pumps very useful in:
      a) cancer pains
      b) Failed back surgery syndromes.
      c) Other types of noxious pain like osteoporotic pain, osteoarthritic pain, pain of rheumatoid arthritis

   B) Intrathecal baclofen (ITB) pumps are good in
      a) All types of spasticity (including cerebral palsy/ multiple sclerosis/stroke/ traumatic paraplegics/spinal cord injury etc).
      b) Patients in persistent vegetative state.
      c) Cases of spino-cerebellar degeneration
      d) Cerebellar type of MS.

3) The third type of surgery in restorative neurosurgery is the Spinal cord stimulation (SCS) > This involves inserting an electrode into the dorsal extradural space of the spinal cord and connecting it to a battery placed subcutaneously. This procedure is very useful in:

      a) Refractory angina/ Intractable heart Failure
      b) Failed back surgery syndrome
      c) Severe diabetic neuropathy pain.
      d) Brachial plexus injury pain
      e) Severe peripheral vascular disease

   f) Brachial plexus injury pain
   g) Trigeminal neuropathy
   h) Post amputation/phantom limb pains
   i) Post herpetic neuralgia

4) The sacral nerves especially S2, S3, S4 controll the bowel and the bladder sphincters. Sacral nerve stimulation (SNS) is stimulation of the sacral nerves to modulate the reflexes that influence the bladder, sphincter, and pelvic floor. SNS utilizes mild electrical pulses to improve or restore normal voiding function. The common indications for SNS are:

   • Symptoms of urinary urge incontinence
   • Symptoms of urgency-frequency
   • Combination of both
   • Non obstructive Urinary retention/incomplete emptying
   • Chronic Fecal Incontinence.
   • Chronic constipation.
Epilepsy is a condition characterized by the occurrence of seizures with or without alterations in consciousness resulting from abnormal electrical activity in the brain. The main treatment of epilepsy is always medical. In patients who are unresponsive to or intolerant of medical therapy, surgery becomes an option. It is important to determine that all medical options have been exhausted prior to surgery. Usual surgical procedures include:

- Resective (removing portions) surgery like lesionectomy, temporal lobectomy, corpus callosotomy, hemispherectomy.
- Vagal nerve stimulation (VNS).
- DBS of anterior thalamus recently.

Vagus nerve stimulation (VNS) is an adjunctive treatment for certain types of intractable epilepsy and major depression. Vagus nerve stimulation (VNS) is designed to prevent seizures by sending regular, mild pulses of electrical energy to the brain via the vagus nerve. Indications include patients who have failed surgery before, require extratemporal surgery in eloquent area or corpus callosotomy or patients choice. VNS in epilepsy and depression are both FDA approved.
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