62nd All India Congress of Obstetrics & Gynaecology

AICOG 2019

8-12 January 2019

Venue: Gayatri Vihar, Palace Grounds, Bengaluru

SOUVENIR

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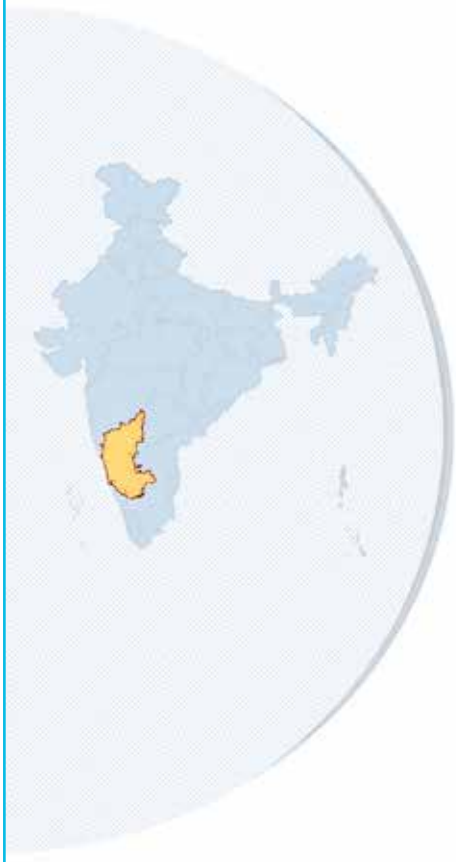
TEAM BENGALURU

WELCOME TO NAMMA BENGALURU



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OUR TEAMS OUR STRENGTH

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Jt. Organising Secretary

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Dr. Nita Thakre
Urogynaecology Committee

From the Editorial desk….

Dear friends, colleagues and fellow delegates,

A hearty welcome to you, to the much awaited AICOG 2019 and to this happening city of Bengaluru! Much effort and thought have gone into the making of this conference. Initially, we were nervous! The adage goes, 'Maduve maadi nodu, mane katti nodu': it means try arranging a marriage ceremony, try getting a house constructed – they are not easy. To this, we may add 'Conference maadi nodu' – try organizing a conference!! We started putting our thoughts and talents together, from the proverbial scratch, over two years ago; and we built it up, brick by brick, to its final shape.

Well, AICOG 2019 promises to be a celebration of sorts! Celebrating our past achievements, and also building upon those achievements to move beyond our comfort zone. Celebrating our fellowship, in an academic milieu. Yes, you are going to be drenched in the cloud burst of knowledge over five full days! Celebrating life, with a lingering taste of the culture and cuisine of Karnataka.

In this special souvenir, we have put together warm greetings and messages from the dignitaries of our Federation, write-ups about the conference from its various committees, and other interesting articles. We hope you will enjoy breezing through it, have a great time in the conference and carry home loads of pleasant memories!

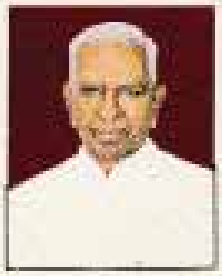
Scholars from India and the rest of the world will be right here, to enlighten you on the recent developments in our field.

With love,

Dr. Arulmozhi Ramarajan
President, BSOG 2007 - 2008

Vidvatvam cha nrupvatvam cha naiva tulyam kadachanam
Svadeshea pujyata Raja vidvan sarvatra pujyata
~ A Sanskrit proverb

(Meaning: there is no comparison between a King and a scholar, as the king is celebrated only in his country whereas a scholar is celebrated everywhere…)



VAJUBHAI VALA
Governor of Karnataka

No. GS 01 MSG 2018

2nd January, 2019

MESSAGE

I am happy to know that **"All India Congress of Obstetrics & Gynaecology"**, is organising its 62nd meet from 8th to 12th January 2019 at Palace Grounds, Bangalore with a theme 'Women's health is nation's wealth' and bringing out a souvenir to commemorate the occasion.

I wish the organisers, editorial team and students a grand success.

(VAJUBHAI VALA)

Raj Bhavan, Bangaluru - 560 001. (Karnataka)

D.K. SHIVAKUMAR
Minister for Water Resources
and Medical Education

No. 336, Vidhana Soudha
Bengaluru - 560 001
Ph.No: 080-22258004
080-22033496

No. WR & ME/ /2018-19

Date: 02/01/2019

GREETING

A very happy New Year to all members of the All India Congress of Obstetrics and Gynecology.

I am happy to know that the annual AICOG 2019 Conference is happening in Bengaluru after almost 15 years. You play a great role in ensuring the health of both the expecting mother and the child.

Your theme "Women's Health Nation's Wealth," is very apt. Like how a literate woman educates a family, a healthy mother can ensure health of her family. Another important issue that needs to be dealt is the infant and child mortality. Despite making progress in reducing the infant and child mortality, we need to go a long way reaching the global standards.

Maternal and Child mortality and morbidity are considered key health Indicators as they reflect the state of female healthcare.

I wish the AICOG 2019 a great success and a memorable stay in Bengaluru for all delegates.

(D.K. SHIVAKUMAR)

Dr. Jaimala M.A. Ph.D.,
Minister for Women & Child Development
Empowerment of Differently Abled & Senior
Citizens, [redacted]
Udupi District Incharge Minister

Office: 22255282
22033469
Room No. 252, 2nd Floor
Vidhana Soudha, Bengaluru-01
Email: ministerforwcd@gmail.com

4/01/2019

Message

The 62nd All India Congress of Obstetrics and Gynaecology has chosen to focus on 'Women's health is nation's wealth'.

It is an important issue that needs attention of the scientific community. I wish this conference a great success. My congratulations to the organisers of this unique and useful conference.

I hope this exchange of ideas by experts will bring changes in health care sector and I am looking forward to innovative ideas and techniques in medical field.

With Warm Regards,

yours faithfully

(Dr. Jaimala)

PROF JAIDEEP MALHOTRA

MD, FICOG, FICS, FMAS, FRCOG, FRCPI
President FOGSI 2019

Dear Fogsians,

Greetings to one and all, Yet another year gone by successfully and we are all waiting to meet again in the beautiful city of Bengaluru at a beautiful Venue and a theme which emphasizes the contributions of women in the development and progress of any nation.. My heartiest congratulations to team Bengaluru for a wonderful choice of venue and great scientific programme with faculty from all over the world.

"We cannot all succeed, if half of us are held back"
~ Malala Yousaf

Today India has placed itself at such a position where the world now looks at us for many initiatives regarding Women's health and we are slowly and steadily catching up with the developed world as far as our numbers are concerning MMR,NMR and also provision of respectful Quality care and this is all thanks to all of you Fogsians for providing dedicated selfless service and support from the Government of India. We all need to work hand in hand to make India's dream of meeting the challenges in reproductive health and also expanding opportunities to reach our horizons of flawless maternal and child health care.

"Find your passion, learn how to add value to it, and commit to a lifetime of learning. (via Gaiam life)"
~ Ray Kurzweil

AICOGs are much sought after for many facets, it is not only constant updating in the field, but also a lot of learning, becoming aware of what's new in our subject ,newer instruments, equipment and drugs. We also get an opportunity to bond with fellow colleagues nationally and internationally, exchange of ideas and techniques.

I wish team Benguluru all the best for a great event and am eagerly look forward to seeing you all.

Welcome to AICOG 2019

DR NANDITA PALSHETKAR

President FOGSI 2019

Dear FOGSIans,

Seasons greetings and a Very Happy New Year to you and your families from the FOGSI President and her team!

It is that time of the year when the entire obstetrician/gynaecologist community of the country converges to meet, celebrate and partake of the academic, cultural and scientific bonanza that is AICOG.

The 62nd All India Congress of Obstetricians and Gynaecologists this year is being held at the Gayatri Vihar, Palace Grounds, Bangalore and for me, it will be an affair to remember with the fulfilment of a long cherished personal dream – taking over as the FOGSI President.

The Bangalore Obstetrics and Gynaecological Society and the organising team of AICOG led by Dr Hema Divakar and Dr Sheela Mane have worked tirelessly over the past several years to bid for, organise and bring together under a single roof a multitude of superstars in the shape of national and international faculty. We expect them to deliver a congress of the highest standards, setting the benchmark for this annual event.

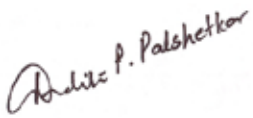
As you are aware, the motto of the Conference is "Women's Health is Nation's Wealth". The scientific programme, involvement of key opinion leaders, FOGSI leadership and most importantly, the 35,000 strong FOGSI fraternity as delegates will help to spread this important message to all corners of the country.

"Develop a passion for learning. If you do, you will never cease to grow"
~ Anthony J D'Angelo

I wish the organising team every success and hope that you receive some precious pearls of wisdom in the shape of current updated evidence, key practice points and new guidelines through the deliberations during the PreCongress Workshops, Dr CG Saraiya CME, orations, keynote addresses, invited talks, panel discussions and debates spread out over five days.

The Presidential theme for my FOGSI year 2019 is "We for Stree – Safer, Stronger, Smarter". During the year, we will attempt to focus on academic, social and community health initiatives aimed at improving the profile of women in our country. I urge every single one of you to unite and stand with us and contribute to a series of initiatives which will refocus our contributions not only toward the health of Indian women, but their social, financial and educational upliftment as well.

Long live FOGSI!



DR JAYDEEP TANK

Secretary General FOGSI
(January 2018 - January 2021)

My dear fellow FOGSIAN's

It is my pleasure and privilege to write this message and welcome you to what promises to be an exciting, stimulating, informative and one of the largest AICOG's of our time.

The AICOG is the showpiece event of the FOGSI calendar and is a window into FOGSI's efforts towards achieving optimum women's health. It is an opportunity for our partners and colleagues from all over the word to come together and share their expertise and forge new paths to newer and healthier destinations.

I am very grateful to all the efforts of the Bengaluru Society of Obstetrics and Gynecology and the entire organising committee for their stellar efforts to put this conference together.

FOGSI has an onerous responsibility and we have never shirked from fulfilling it. This AICOG and the ideas that emerge from it will help us in achieving our goal of a healthy life for the women of our country,

Welcome to Bengaluru and I look forward to seeing all of you there.

DR HEMA DIVAKAR

Dr Hema Divakar

Organising Chairperson AICOG 2019

FOGSI AMBASSADOR TO FIGO 2016-18

PRESIDENT FOGSI 2013
CEO & CHAIRMAN OF ARTIST

My dear fellow FOGSI'ans,

I wish to thank each and every one of you from FOGSI, for the opportunity given to Team Bengaluru for hosting the AICOG 2019. With your support, I feel confident, optimistic, excited and enthusiastic to shoulder my responsibility of carrying forward the work of this prestigious organisation, not only in the capacity of organising chairperson of this congress but also as a responsible member of the FOGSI family for all times before and beyond this congress.

The most pressing need of the hour is to invest in healthcare for girls and women. We strongly believe and voice it through our tagline "WOMEN'S HEALTH IS NATION'S WEALTH ". What has been achieved in India is indeed commendable, but considering the sheer size of our country, what still needs to be done presents a huge challenge. The time has now come for effective implementation of innovative methods suited for our country's needs. We need to walk the talk and march forward from "Innovation to Implementation"

Albert Einstein said 'Learn from yesterday, live for today and hope for tomorrow'.
The AICOG series of programmes will enhance technical skill development and prepare the young doctors for future challenges. Young people need models, not critics. I am grateful to the senior members and reknowned faculty from all over the world, who contribute to the learning process of the youth leaders of tomorrow. You are our strength and will be the catalyst for the change we want to see in Women's Health Care in India.The fields of medicine and science never stop moving forward—and neither should physicians. To keep up with these changes, AICOG 2019 is a wonderful platform for teaching and learning. We have recognised the magnitude of the platform of AICOG , and are determined to use this opportunity for action , so as to impact the change.

On behalf of Team Bengaluru, I invite all of you to be a part of a great learning experience.
I am honoured and humbled by the trust laid upon me. I thank each one of you once again.

Warm regards and a Happy New Year!

Hema Divakar

DR SHEELA MANE

Dr. Sheela V Mane,
Organizing Secretary, AICOG 2019

Dear friends, faculty and delegates,

It gives me immense pleasure to greet you to the AICOG 2019, to be held in Bengaluru from the 8th to the 12th of January 2019. This is the 62nd edition of AICOG, and the third one happening in Bengaluru. Team Bengaluru is leaving no stone unturned to make this event a memorable one.

At the outset, we are overwhelmed by the response to our announcements, as seen by the numbers of registered delegates and free paper abstracts. Thank you for your enthusiasm and expectation, we are challenging our limits!!

In any conference, the scientific content is what attracts delegates. We have crafted a program that includes 12 hands-on workshops that will focus on down to earth practical issues in labor management, PPH, critical care, infertility, imaging, fetal medicine, urogynecology, preventive oncology, endoscopy and medicolegal issues. This will be followed by the ICOG CME the following day, prior to the main conference which rolls out on the 10th of January and spans three days of brainstorming, by experts from India and abroad. Every day, and in each of the ten halls, special sessions for Yuva have been structured, to encourage participation by the 'under 40' members who would be proud to share the stage with stalwarts.

Maternal fetal medicine, reproductive health, infertility and assisted reproduction techniques, gynecological endoscopy and gynecological oncology will be extensively covered in didactic lectures, debates, interesting video sessions and engaging panel discussions. Plenary sessions, orations and key note addresses will add value to the meet. Special sessions with the involvement of other international professional bodies including FIGO, AOFOG, SAFOG, RCOG and WHO will be the highlight of the conference. This is apart from over 1000 paper and poster presentations by the delegates.

AICOG 2019 will include a faculty comprised of renowned professionals and practitioners from all over the country and the world, presentations on the most updated clinical and laboratory revolutions. Deliberations on current research and evidence based practices and protocols will enlighten the delegates. Wisdom from practical experience will also be shared by stalwarts from different countries. Every delegate attending the conference will have loads of take-home messages from the highly informative and interactive sessions in the conference. The updates received, and the experiences shared, will go a long way into improved care for mothers and children in our society.

All work and no play? Certainly not! We have organized a cultural evening for you, that will keep you glued to your seat till the end. And, Bengaluru offers itself to you, with its salubrious climate, beautiful parks, shopping malls, eateries and theatres. Do pinch some time off from the venue, to taste this vibrant city. You can also plan short trips in and around Bengaluru, depending upon your time and taste.

A hearty welcome to every one of you!

MESSAGE FROM JOINT ORGANISING SECRETARIES

NAMASKARA! We, the joint secretaries, extend a very warm welcome to AICOG 2019!

"Coming together is Beginning, Keeping together is Progress and Working together is Success".

Dr. Jyothika Desai - Scientific Programme

"None of us are as smart as all of us". The Scientific Programme, the meter by which any conference is judged, was the collective endeavour of the able Scientific Committee. An interesting array of topics spread out in 10 Halls named after the glorious Heritage sites of our very own Karnataka. Not content with this, we have set up Skill Drill Stations- named after the famous GOKARNA, where Drills on Critical Care led by Dr Ram Nair and his team, the PPH Bundle by a team from Harvard with Dr Thomas Burke and Dr Suellen Miller leading, Gynec Bundle by Dr Vidya Bhat, Urogyn Bundle by Dr Anuradha, Ultrasound by Dr Mala Sibal and many, many, more sessions on the 10th and the 11th of January from morning till evening, except during the Plenary sessions. As if all this was not enough, two more parallel Halls, affectionately named Belur and Nandi, will showcase sessions on Violence against Doctors, Pharma sponsored Talks and many, many more.

Dr. Malini K V - Workshops

"Teamwork divides the Task and multiplies the Success"

It was an effort of almost two years with many sleepless nights & hard work involving all teams. Twelve workshops with participation of many renowned International and National Faculty. Dr. Narayan & Dr. Gomathy Narayan ably shouldered the responsibility of supervising arrangements at the different workshops.

Dr. Jayanthy T - Papers and Posters

"Teamwork makes a Dream work".

It was a long wait with rush of abstracts towards the deadline. Last day almost working till midnight. It was a overwhelming response with 1200 abstracts. We have included video session also. The fruits of our concerted team labour lies before you.

Each & every moment has gone into that treasure box of memories. It has been an invaluable experience under able leadership of Organizing chairperson and Secretary.

DR S. SHANTHA KUMARI

Dr S. SHANTHA KUMARI
MD, DNB, FICOG, FRCPI (Ireland) FRCOG
Chairperson ICOG 2018 - 2019
Professor OBGYN
ICOG Secretary 2015 -2017
Member FIGO Working Group On Violence Against Women
Vice President FOGSI 2013
ICOG Governing Council Member
IAGE Managing Committee Member
National Corresponding Editor For JOGI
Organizing Secretary AICOG 2011
Chairperson MNNRRC 2008
Sr. Consultant Obgyn And Laparoscopic Surgeon, Yashoda Hospitals, Hyderabad, India

Greetings from ICOG FOGSI !!

As Chairperson of ICOG I welcome you all to Bengaluru where we expect another mega academic bonanza - the 62nd AICOG to be held from 8th – 12th Jan 2019. There will be a large conglomeration of excellent speakers and researchers.

As Chairperson ICOG, it has been a busy year and the ICOG -FOGSI has dedicated its efforts to improve "Principles, practices and protocols" in ObGyn in India. Team ICOG completed a significant task of a GCPR on Induction of labour released in the recent ICOG -FOGSI conference at Hyderabad. We have initiated a process of forming practical work protocols in important aspects of our subject including revisiting the basic educational curriculums for trainees in ObGyn to meet the demands of emerging times.

I Sincerely Request all our FOGSIANs to collect data on clinical challenges we face in our day to day practice which will give us our own Indian statistics.

FIGO Congress in Brazil witnessed the contribution of FOGSIANs to women's health, I'm happy to share that we could get the Declaration on No to VAW signed and stage the Dheera march to raise a global voice condemning VAW

The only thing better than offering good clinical service to your patients is constantly updating oneself to know what is the "best" practice to follow. As Maya Angelou said - "I did then what I knew how to do. Now that I know better, I do better."

I wish AICOG 2019 a Grand Success

Best Wishes

DR. TUSHAR KAR

M.D, MICOG, FICOG, FICMCH
Fellowship Laparoscopic Surgery (U.S.A.)
Professor, O&G, S.C.B Medical College, Cuttack
Chairperson, ICOG -2019-20
Vice President, FOGSI-2010
Chairperson, FOGSI (Oncology) 2004-2009
National Corresponding Editor, FOGSI Journal (2014-16)
Peer Reviewer, IJOG, Indian Edition
Executive committee member, ICOG (2015-17)
Executive committee member, IAGE (2015-17)
Organising Secretary, IAGE Annual conference, 2016

Greetings from the land of Lord Jagannath. As the Chairperson, ICOG 2019-20, I am privileged to send a message on occasion of 62nd AICOG to be held at Bangalore from 8th-12th JAN 2019.

ICOG, being the academic wing of FOGSI is to promote the education,training, research and spread the knowledge in the field of Obstetrics and Gynaecology for students and specialists involved with or interested in women's healthcare and to address the academic need of FOGSI members.

The vision during my tenure is to involve individual fellows and all FOGSI members as far as possible with the theme "Fundamentals in Obstetrics and Gynaecological practice". The new introduction would be interactive session between youngsters of PG and young specialists with senior medical teachers and practitioners having vast knowledge and experience. To have more good clinical practice recommendation(GCPR) on left over topics like postpartum haemorrhage and pre-eclampsia and to publish Newsletters named as "IGNITE" on most common day-to-day useful topics like recurrent pregnancy loss, endoscopy and toxaemia of pregnancy.

As the Chairperson ICOG, I extend a hearty invitation to all of you for another memorable and unique event in Bengaluru, where a learned gathering of national and international repute is expected for exchange of their personal expertise.

I know Team Bengaluru is working hard day and night for this AICOG, my best wishes for a grand success of this congress.

"Every new idea is a joke, until one achieves it
&
Every new thought is silly, until one believes it"

DR LAXMI SHRIKHANDE

Vice Chairman
Indian College of Obstetrics & Gynaecology

It is an immense pleasure to note that the 62nd All India Congress of Obstetrics & Gynaecology is being hosted by the Bangalore OB/GY Society from 8th to 12th January 2019.

Organizing such a grand event reinforces the objective of FOGSI in developing a scientific environment for the exchange of ideas regarding our current understanding of human biology as it pertains to women's health. I believe that the conference will be able to deliberate on the prevailing issues of national and international relevance, particularly in the field of reducing maternal mortality.

As it has been rightly said, "The art and science of asking questions is the source of all knowledge". In keeping with this philosophy, there have been an unprecedented number of quality papers that are to be presented at the conference. I am positive that this conference will provide an exciting opportunity for researchers and academicians to put forth new ideas and future directions in elevating women's health care to the highest standards.

I convey my warm greetings to the organizing committee and the participants and extend my best wishes for the success of the conference.

DR SHOBHA N GUDI

Dr Shobha N Gudi
President, BSOG 2018 – 2019

Om Bhuur-Bhuvah Svah Tat-Savitur-Varennyam |
Bhargo Devasya Dhiimahi Dhiyo Yo Nah Pracodayaat ||

The sacred Gayathri mantra is the essence of vedas, a complete prayer, first the Divine is praised, then meditated upon in reverence and finally an appeal is made to the Divine to awaken and strengthen the intellect, the discriminating faculty of man.

Dear FOGSIANS,

The above prayer symbolizes the driving force with which Bangalore society of Obstetrics and Gynecology(BSOG) has set forth to organize AICOG 2019.

BSOG has recently completed 50 glorious years on the 14th of August 2019, and is hosting the prestigious All India Congress of OBGYN in the Golden Jubilee year at Bengaluru. It is my privilege and honor as president of the host society to extend a warm welcome to all members of the fraternity, from across the nation and to those working overseas as well.

FOGSI has a rich history of high academic performance and has inculcated a wonderful spirit of team work and scientific excellence in all its member bodies. As BSOGIANS we are exceedingly fortunate to have a strong leadership in Dr Hema Divakar, Dr Jaideep Malhotra, Dr Nandita Palshetkar, Dr Jaydeep Tank and Dr Sheela Mane to take us through this exciting journey of preparation for this mega event.

We have planned twelve wonderfully crafted pre congress workshops encompassing all challenging fields in the practice of OB GYN, a scintillating C. G. Saraiyya CME, nine free committee workshops showcasing the powerful three year work of FOGSI chairpersons, and above all the brainstorming scientific sessions conforming to our five themes, for two days and a half in ten halls with three plenary orations by stalwarts, keynote addresses, guest and invited lectures by worthy national and international faculty, panel discussions on hot contemporary topics and crisp, short deliberations on highly relevant matters by the tech savvy and smart yuva in FOGSI. There is a special element of Evolving paradigms and changing perspectives as the theme in Hall 10 dealing with complex issues of clinical governance, patient safety, ethical & legal battles, accreditations, training,the statutory acts limiting our practice and much more.

The conference has a magnificent plan of encouraging commerce and promoting industry through premium stalls and industrial hall video presentations and skill drill stations. The cultural and banquet bonanza is gradually taking shape now with many performances in the finalization stage.

We are fully aware that the key to success of this conference is your presence and participation in large numbers, and so we eagerly await your registrations.

We pray for the choicest blessings of the almighty.

Jai Hind

SCIENTIFIC COMMITTEE CHAIRPERSONS




Dr. Kamini Rao, Dr. Susheela Rani B S, Dr. Shobha N Gudi, Dr. Arulmozhi Ramarajan

Dear friends and delegates to the AICOG 2019,

You would all agree, that learning never stops. Academic updating is like breathing, and has to happen all the time. AICOG 2019 aims to share, educate and update its members in Obstetric and Gynecologic practice. With "Women's Health - Nation's Wealth" as the tagline of this year's conference we have crafted a scientific spread that you cannot afford to miss!

During the three days of the main conference from the 10th to the 12th of January, experts from India and abroad will share their knowledge and experience in didactic lectures, debates, interesting video sessions and engaging panel discussions. Plenary sessions, orations and key note addresses will add value to the meet. Special sessions with the involvement of other international professional bodies including FIGO, AOFOG, SAFOG, RCOG and WHO will be the highlight of the conference. Every day, and in each of the ten halls, special sessions for Yuva have been structured, to encourage participation by the 'under 40' members who would be proud to share the stage with stalwarts.

Every delegate attending the conference will have loads of take-home messages from the highly informative and interactive sessions in the conference. The updates received, and the experiences shared, will go a long way into improved care for mothers and children in our society.

Welcome to AICOG 2019!

FREE PAPER COMMITTEE CHAIRPERSONS


Dr. Shubha Rama Rao and Dr. P. Padmaja

Report from paper and poster committee

We, Dr. Shubha Rama Rao and Dr. P. Padmaja are privileged to be chairpersons of paper& poster committee of AICOG 2019.

We had a overwhelming response and received 1,163 abstracts. The abstracts showed a lot of variety and depth. It is both encouraging and enlightening that lot of research work is being carried out across all parts of the country. It reflects a positive attitude towards evidence based practice among the current generation.

Things have fallen into place with the help and advice from Dr. Jayanti. We thank all the reviewers for positively responding to our request and reviewing the abstracts. A lot of team work has gone into assigning time slots for the abstracts and arranging judges from both national and state level.

We request delegates to attend as many sessions as possible. We are confident that these sessions will give us a lot of new ideas and changes in our practice of obgyn.

WORKSHOP CHAIRPERSONS


Prof Gomathy Narayanan **Prof Narayanan R**

Scientific workshops have become an essential and integral part of academic events. Akin to appetizers, they add flavour to any conference. The precongress workshops of the AICOG 2019 have been diligently crafted to give the delegates not only value for money, but also more importantly, an unforgettable experience in terms of witnessing the best in the discipline share their knowledge and execute their skill. The opportunity afforded to interact with them in person is indeed very special.

There is a measured balance of live surgical workshops and didactic workshops dealing with an array of cardinal topics in obstetrics and gynaecology. While renowned surgeons will exhibit their skill, dexterity and innovations, the presentations in the didactic workshops will enthral the delegates with their wisdom, clarity and pointers for best clinical practice. During some workshops, skill-transfer stations are an additional bonus. The complimentary give-aways will include DVDs of management algorithms, practice guidelines and demonstration of certain surgeries by experts.

We, the organisers have gone an extra mile to offer the delegates a unique experience which we hope they will cherish. Their only misgiving might be that they could not attend all the twelve workshops!

FOGSI LIFETIME ACHIEVEMENT AWARDEES - 2019

Dr Kamini A Rao
Medical Director, Milann

We are at the beginning of another new year and at the cusp of the 62nd AICOG. The All India Congress of Obstetrics & Gynecology has been a forerunner for the dissemination of knowledge to the entire gynecological fraternity of India. FOGSI has a lead role to play in taking the skill, expertise and knowledge of its members to the doorsteps of the Indian Community. Our Annual Congress is practically an 'institution' which has been at the forefront of change for decades. It wears the responsibility of educating, advocating, training, and developing national standards and guidelines. It is a matter of pride not only for FOGSI but for all of us, to recognize the significant role the Annual Conference has always played in promoting advances in obstetrics and gynecology.

I am immensely proud but at the same time humbled to be this year's recipient of the Lifetime Achievement Award - FOGSI's highest honour . Receiving it in my hometown, Bangalore, makes it all the more sweeter. As I look back over my career of over thirty years, I realize how little I would have been able to accomplish without the support of the BSOG and all my friends and colleagues here. This would never have been possible without your blessings and support throughout my career in the field of Reproductive medicine. Thank you all!

I take this opportunity to wish the 62nd Annual Congress and all its organizers, the very best.

Dear Madame President & the Secretary General, FOGSI

I am extremely grateful to the FOGSI Managing committee, headed and guided by you two, to recognise my services to the cause of FOGSI and women's health. As a member of this august organisation since 1974, I am overwhelmed with emotions. Thanks a lot my friends.

I will organise to be there in person and accept the rare honour to be bestowed upon me by our Federation

Long Live FOGSI

With Kind Regards,

Dr Alokendu Chatterjee

NAMMA BENGALURU IS JUST AWESOME!

Bengaluru

Bangalore now known as Bengaluru, is the capital of Karnataka. It has a population of over 10 million people. It has a salubrious climate, and is known as the garden city of India, pub capital of India, the silicon valley of India, and pensioners' paradise.

By launching the logo that reflects the soul and a brand, the city has become the first city in India to have a city logo and a brand.

It is part English and part Kannada reflecting the true identity of the city. This mixed typography of two languages shows that the city is global as well as local in its culture and lifestyle. 'Be' and 'U' of the logo has been highlighted by using red color. This is the main theme and thought behind the logo. The creators of the logo say Bengaluru is a city that allows you to be you. This is the true spirit of the city.

There's something for everyone, in this unique and vibrant city!

Nature lovers can spend hours on end in Cubbon Park, Lalbagh botanical garden, Bannerghatta national park, and Ulsoor lake.

Heritage interests can take you to the Bangalore Palace, The Fort and Tipu Sultan's Palace, Bangalore palace, Bull temple, Vidhana Soudha.

Compulsive shopping? Yes, Bengaluru is the place. Malls and shopping streets abound in Bengaluru. You can't afford to miss these: Commercial street, brigade road, MG road, Mantri square mall, Orion mall, Garuda mall, Cauvery handicrafts, Forum mall, Bangalore Central mall, 1 MG Road mall, Gandhi bazaar… the list is endless!

Looking for that elusive "inner peace"? Bull temple in Basavanagudi, ISKCON temple in Rajajinagar and Someshwara temple in Ulsoor and the Art of living international center on Kanakapura road are your hotspots.

Something different? You can spend time with your family, for interesting stuff at the Visvesvaraya Industrial and Technological Museum. Or, take a trip to the famous Wonderla amusement park. Or, just take a city tour for that 'bird's eye view' of everything. And, don't miss out on the world famous masala dosa, chow chow bath and bisi-bela-huli-anna!

Come, enjoy namma Bengaluru!

Dr. Arulmozhi Ramarajan
President, BSOG 2007 - 2008

PROGRAM UNFOLDS - 8.30 am - 5.00 pm

VAGINAL SURGERY
Repair, Re-create & Remove

@Bangalore Medical College and Research Institute

Convenor:
Dr. K Srinivas Jois
Mentor: Dr Srimani Rajagopalan
Co Convenors:
Dr. K M Sunanda
Dr. Savitha C
Coordinators:
Dr. Geetha Shivamurthy
Dr. Gopalakrishna B H

LAPAROSCOPY
Uterus & Beyond

@Hotel Lalit Ashok,
Live relay from Vikram Hospital

Convenor:
Dr. Vidya V Bhat
Mentor: Dr. Jaya Bhat
Co Convenors:
Dr. B Ramesh
Dr. B S Bhat
Coordinators:
Dr. Sudha C P
Dr. Vijaykumar Koravi

HYSTEROSCOPY
The Inside Story

@Hotel Lalit Ashok
Live relay from Vikram Hospital

Convenor:
Dr. Saraswathy Ramesh
Mentor: Dr. Susheelamma B
Co Convenors:
Dr. Gangalakshmi H N
Dr. Vathsala G M
Coordinators:
Dr. Bharathi Rajanna
Dr. Sriprada Vinekar

UROGYNAECOLOGY
Incontinence To Continence With Confidence

@Hotel Lalit Ashok, Live relay from People Tree Hospital, Tumkur Road

Convenor:
Dr. R Nagarathnamma
Mentor: Dr. Shakila Shetty
Co Convenors:
Dr. Chandrika Muralidhar
Dr. Kiran Ashok
Coordinators:
Dr. Jyothi Neeraja
Dr. M P A Sailakshmi

PREVENTIVE ONCOLOGY
Prevent the Preventable

@M S Ramaiah Memorial Hospitals

Convenor:
Dr. Vidyamani L
Mentor: Dr. Pushpa Srinivas
Co Convenors:
Dr. Parimala Devi
Dr. Sundari N
Coordinators:
Dr. Anirudha R Poddar
Dr. Jyothi G S

IMAGING IN OBSTETRICS
Fetus, The Focus

@Renaissance Bengaluru,
Race Course Hotel

Convenor:
Dr. Prathima Radhakrishnan
Mentor: Dr Padmini Isaac
Co Convenors:
Dr. B S Ramamurthy
Dr. Priti Venkatesh
Coordinators:
Dr. Adinarayan Makam
Dr. Chitra Ganesh

Managing Committee Meeting
Journal Committee Meeting,
ICOG Committee Meeting

9.00 am to 5.00 pm
Venue: Hotel Renaissance

*Check App/Website for venue and program details

Faculty Dinner

Fusion music by Mr Giridhar Udupa and Team

Giridhar Udupa: *Indian percussionist who has embarked on the task of blending different forms of classical, folk and world music. Winner of many awards, first Indian percussionist to perform and conduct workshop at the prestigious Krakow International Music festival – 2005. In 2015 he founded and is the director of The Udupa Foundation*

Cultural Evening by FOGSIANS

7 pm onwards Venue: Palace Grounds

LABOUR
Smooth Progress -
Safe Delivery - Sweet Outcomes

Convenor:
Dr. Sheela C N
Mentor: Dr. Sita Bhateja
Co Convenors:
Dr. Arulmozhi Ramarajan
Dr. Susheela Rani
Coordinators:
Dr. P Padmaja
Dr. Shirley George

HIGH RISK PREGNANCY
Conquer Risks Banish Debacles

Convenor:
Dr. K Uma Devi
Mentor: Dr L Krishna
Co Convenors:
Dr. Sujani BK
Dr. Suvarna
Coordinators:
Dr. Shashikala Karanth
Dr. Tara

CRITICAL CARE IN OBSTETRICS
Building Competence & Confidence

Convenor:
Dr. Prakash K Mehta
Mentor: Dr. Kumudini Ganguli
Co Convenors:
Dr. Aruna Muralidhar
Dr. Revathi S Rajan
Coordinators:
Dr. Smitha Avula
Dr. Sunitha Mahesh

POST PARTUM HAEMORRHAGE
Prevent, Predict and Handle

Convenor:
Dr. Jyothika A Desai
Mentor: Dr Prema Kulkarni
Co Convenors:
Dr. Thejavathy
Dr. Rajani Uday
Coordinators:
Dr. Sunanda Kulkarni
Dr. Harsha Biliangady

INFERTILITY
Journey of the routine gynaecologist to ART

Convenor:
Dr. Madhuri Patil
Mentor: Dr. Kamini Rao
Co Convenors:
Dr. Devika Gunasheela
Dr. Reeta Biliangady
Coordinators:
Dr. Mahesh Koregal
Dr. Shilpa G B

MEDICOLEGAL
Legal Eagle

Convenor:
Dr. Latha Venkataram
Mentor: Dr. Jaya Narendra
Co Convenors:
Dr. Nandini Devi
Dr. Shubha Rao
Coordinators:
Dr. Manjula
Dr. Poornima Ramesh

PARTICIPATING INTERNATIONAL FACULTY

Dr Ranee Thakar

Dr Abdul H. Sultan

Dr Suellen Miller

Dr Andre Lalonde

Dr Gupta Janesh

Dr Thomas F Burke

Prof AnujaDokras

Dr Anca Panaitescu

Dr Miss Ellie Tsoi

Dr Usha Menon

Dr. Andrew Brill

Sir Sabaratnam Arulkumaran

Dr Harshad Sanghvi

Professor Isaac Manyonda

Dr. Rengaswamy Sankaranarayanan

Dr Osama Shawki

7.30 AM

FLAG HOISTING

9.00 AM -1.00 PM

Dr CG SARAIYA CME

Theme: Caring HER... caring generations (Healthier Empowered Rejuvenated)

2.00 – 4.00 PM

FOGSI COMMITTEE WORKSHOPS (FREE)

Convenor: Dr Shobha N Gudi

Committee	Chairperson	Theme
Family welfare	Dr Yashodhara Pradeep	**Vision 2020**
Adolescent health	Dr Sampath Kumari	**ACT for Adolescents: Care today, Tomorrow may be too late**
Medical disorders	Dr Gorakh Mandrupkar	**Protocols in HDP, HIP, HYP**
Genetics and fetal medicine	Dr Pragya Mishra	**Say 'No' to Birth Defects: Universal Screening, Best Detection & Optimal Therapy**
Public Awareness	Dr Archana Verma	**Concern to confidence**
Clinical research	Dr A Charmila	**New Horizons**
Medical education	Dr Hemant Deshpande	**Changing perspectives in Obstetrics and Gynae practice: BACK TO THE BASICS**
Study on female breast	Dr Kavita Bapat	**The female breast: Concerns and solutions**
International Exchange Committee	Dr Rajendra Sankpal	**Gynaecological Surgery: Making it safe and economical**

4.00 PM

PRE INAUGURAL CULTURAL

Shivanjali Temple of Fine Arts

A place where the art is nourished and revered as divine, allowing both student and teacher to grow as human beings with inner peace and joy whilst excelling in the arts.

5.00 PM

VISIT TO EXHIBITION

5.30 PM

INAUGURATION INSTALLATION CEREMONY

Special Guests at Inauguration

Sri Sri Ravi Shankar
Founder of Art of Living Foundation, International Association for Human Values, World Forum for Ethics in Business
My Vision is a violence free, stress free world

Urvashi Butalia

Publisher and writer. Co-founder of Kali for Women, India's first feminist publisher, and now director of Zubaan, she is also author of the award-winning oral history of Partition, *The Other Side of Silence: Voices from the Partition of India*. *Women Changing India* offers a window into the lives of women living in India today and brings to public attention their complex realities and their aspirations for a better world. She says *India is changing. At the heart of the change are its women.*

8.00 PM

INAUGURAL DINNER WITH MUSIC

Gagan Gaonkar

A 13-year-old from Udupi, Karnataka, the talented boy, who struck a chord with his melodious voice. Winner of the fifth season of "Sa Re Ga Ma Pa L'il Champs".

*Check App/Website for venue and program details

TIME	HALL 1	HALL 2	Hall 3	HALL 4	Hall 5	HALL 6	HALL 7	Hall 8	Hall 9	Hall 10
	Maternal Fetal Medicine	Infertility	Reproductive Health	Recent advances in Oncology	Mixed	Maternal Fetal Medicine	Reproductive Health	Misc.	Misc.	Evolving Paradigms & changing perspectives
8.00 - 8.30	Yuva Speaks- 3 capsules									
	Prenatal care: Exploring possibilities	Improving ART outcomes	Woes of the pre Pubertal girl	Screening the unscreened	GDM- the tsunami	Preconception care Bundle	Contraception concerns	Bladder Bugs	Mischief of Uterine scar	Pot-pourri
8.30 - 9.45	Opening Session - Guest Lectures									
	Fresh thinking on anaemia	The Basic Essensials	Puberty the reproductive mile stone	Decreasing the burden of cancer in women	Experts at crossroads	Infant premature: The lucky little one!	Vaginal Birth - Revisit & relearn.	Relook on medical practice	Breast matters !	Implimenting Clinical Governance
9.45 - 10.45	Panel Discussion									
	Solutions for Structural anomalies in TIFFA - ethical and medical challenges	Surrogacy - commercial, legal & ethical implications	Managing myomas : conserving the uterus	Tumor markers in Gynec cancers: which one speaks the truth?	Ovarian mass in Adolescent : The best approach	APH : Haemorrhage from the mother and the unborn	MHT - Practice guidelines	Second Trimester abortion - making it safe & simple	Tricky situations in the Endometriosis	Medicolegal landmark judgements - lessons learnt
10.45 - 12.00	Expert Speaks									Invited Talks
	New solutions in the new era	Endometrium in IVF: vital factor	Nurturing Adolescent Health	Management of early cervical cancer: Current thoughts	Presidents Speak	Safe landing in pregnancy	Optimizing Reproductive health	Pelvic organ Prolapse	Ambit of Gynaec endoscopy	Safety First practices
12.00 - 1.00	Plenary-Oration Relay				PLENARY SESSION FOGSI Amadeus Shreyas Oration					
1.00 - 1.50	Lunch									
1.50 - 3.00	FOGSI FIGO Session FIGO VOICE Addressing the triad Of Obesity, Hyperglycemia and Hypertension	FOGSI RCOG	FOGSI SAFOG Session " Dos & Donts in Adherent Placenta"	Video Session on Cancer Surgery	1.50 - 3.30 CL Jhaveri Symposium	2.00 - 2.30 Brig. Major Khanna Lecture 2.30 -3.00 FOGSI: Dr Jagadeeshwari Mishra Lecture	NMOGS: Mandakini Parihaar lecture	Laparoscopic Videos	Critical situations in the peripartum period	Fitness for all

TIME	HALL 1	HALL 2	Hall 3	HALL 4	Hall 5	HALL 6	HALL 7	Hall 8	Hall 9	Hall 10
3.00 - 4.00	Invited Talks				3.30 - 4.00 Point Counterpoint -The Great debate	Invited Talks				
	Optimising outcome in HDP	IUI - revisit and revamp	Endometriosis - current thoughts	Minimizing morbidity in surgeries for Ca Cx	Multi with breech	Imaging - meeting the challenges	Pelvic inflammatory diseases	Multiple Pregnancy	Thrombosis in pregnancy	Safety First practices
4.00 - 4.30	Point Counterpoint -The Great debate				New Managing Committee Meeting	Video Session				
	Second stage arrest - Ceasarean section vs. instrumental delivery	ICSI for all?	Asymptomatic Ovarian Cysts in Post-menopausal Women -To intervene or not?	HPV testing for primary screening in India - is it the way forward?		Longterm effects of vaginal delivery	STI - Syndromic Management is the way forward.	Commercial surrogacy	UAE is better than Myomectomy	Robotics
4.30 - 5.30	Bleeding in the first trimester: implications	Recruiting Patient for ART streams: (1.Patient selection 2.counseling 3.planning)	AUB in adolescents	Evaluation of an adnexal mass in the peri menopausal woman	Panel Discussion	Acute Abdomen in pregnancy- How to handle?	Recent advances in management of Endometrial Ca	Management of Hyperandrogenism	Contraception in special situations	Induction and augmentation of labour in High risk Pregnancy

*Check App/Website for venue and program details

New Managing Committee Meeting

5.00 pm onwards

Venue: Gayithri Vihar, Grand

Gala Evening with Shreya Ghoshal

7 pm onwards

India's singing sensation! A voice so divine!! Singing so versatile!!

Awarded with the highest honour in London by the members of House of Commons of the United Kingdom. The first Indian singer to have a wax figure of her made for the display in Indian wing of Madame Tussauds Museum in Delhi.Honored from the U.S. state of Ohio, where 26th June was declared as "Shreya Ghoshal Day".

TIME	HALL 1	HALL 2	Hall 3	HALL 4	Hall 5	HALL 6	Hall 7	Hall 8	Hall 9	Hall 10
	Infertility	Maternal Fetal Medicine	Reproductive Health	Recent advances in Oncology	Mixed	Infertility	Misc.	Misc.	Misc.	Evolving Paradigms & changing perspectives
8.00-8.30	Yuva Speaks- 3 capsules									
	Optimizing fertility	Legalities in practice	Unravelling PCOS	Management Issues	Preterm labour	Optimizing ART results	FOGSI GCPR Guidelines	Ectopic Pregnancy	Heart Disease in pregnancy	Early pregnancy scan
8.30 - 9.45	Opening Session - Guest Lectures									
	Profertility medication	The HIP conundrum	All about PCOS	Newer thoughts in gynaec cancer	Enhancing reproductive health	More about infertility	Risk predictions on ultrasound	Fertility enhancing hysteroscopic surgery	Collapsed supports	Mixed Basket
9.45 - 10.45	Panel Discussion									
	Induction of Ovulation - Case Scenarios	Obstetric critical care scenarios	Benign disorders of the lower genital tract	Treatment options in borderline ovarian tumors	PPH - case scenarios	Challenges of post ART Pregnancy	Low cost IVF: solutions for the couple less affording	Loopholes in the PC&PNDT Law	The varied presentation of ectopic pregnancy	Strong bones for strong 60's
10.45 - 12.00	Expert Speaks							Invited Talks		
	Finer thoughts and complex therapies	PPH - Simple Solutions	Size does Matter	Prevention and protection in cancer	Global Perspectives on maternal health indicators	Recent Advances and evidence so far	Melange	Finer skills of antepartum care	Medley	Nurturing the fetus
12.00 - 1.00	Plenary-Oration Relay				PLENARY SESSION - FOGSI Oration	Plenary-Oration Relay				
1.00 - 1.50	Lunch									
1.50 - 3.00	FOGSI AOFOG	European Session - EBCOG	FOGSI GOVT OF INDIA	Kamini Rao YUVA orator Session	1.40 - 3.10 FOGSI USHA KRISHNA QUIZ	FOGSI Corion Awards Session	Video Session on ART Techniques	Videos on Ultrasound guided procedures in obstetrics	INVITED LECTURES: Recent guidelines in cancer management	INVITED LECTURES: Second stage of labour

TIME	HALL 1	HALL 2	Hall 3	HALL 4	Hall 5	HALL 6	Hall 7	Hall 8	Hall 9	Hall 10
3.00 - 4.00	Fine tuning Infertility Care	Pregnancy is a risky journey	Peri Menopausal Bleeding	Fetal surveillance	Digital technology in medical practice - boon or bane?	Uterine factors in infertility : Befriending the hostile womb	Ultrosound - the obstetrician's third eye	ACTs & Bills ruling our practice	Difficulties at ceasarean Section	Surgical interventions in PPH
4.00 - 4.30	Fertility in severe endometriosis - IVF is better than Surgery	Progesterone vs. Cerclage for short cervix in pregnancy	Mifepristone vs. Ulipristal in myomas	Pelvic & para-aortic lympha-denectomy for Endometrial cancer	AMH should be done in all infertile women	Surrogacy vs adoption	Sex education - should be done by parents / taught in schools	TVT vs. TOT for Stress incontinence	Estrogen Progesterone therapy in reproductive age: the double edged sword
4.30 - 5.30	Recurrent Implantation Failure: Fruitless efforts	Missed anomalies / aneuploidies	Adenomyosis : Problem from within	Unravelling the truth, finding solutions : Recurrent early pregnancy loss	Incontinence to continence - the emerging solutions	Vaginal Rejuvenation for feminine wellness	Medical Abortions in 1st trimester	The finer aspects of antnatal care		

Invited Talks | Point Counterpoint -The Great Debate | Point Counterpoint - The Great Debate | ICOG Convocation | Panel Discussion | Video Session | Invited talk (12x4+12)

7.00 pm onwards proceed to Hotel Lalit Ashok Banquet

Cocktail Dinner *'Jai Ho'* with Vijay Prakash

One of four artists credited for the song "Jai Ho", which won the 2008 Academy Award for Best Original Song. Popular Singer and Music Composer, has given his voice for Kannada, Hindi, Tamil, Telugu, Malayalam and Marathi movies.

24 ICOG CREDIT POINTS AWARDED
Workshops - 5 points
Dr CG Saraiya CME - 2 points
Committee Workshops - 2 points
Conference - 15 points

KMC AWARDS SIX HOURS OF ACCREDITATION

*Check App/Website for venue and program details

TIME	HALL 1	HALL 2	Hall 3	HALL 4	Hall 5	HALL 6	Hall 7	Hall 8	Hall 9	Hall 10
TIME	HALL 1	HALL 2	Hall 3	HALL 4	Hall 5	HALL 6	Hall 7	Hall 8	Hall 9	Hall 10
	Reproductive Health	Infertility	Reproductive Health	Recent advances in Oncology	Mixed	Maternal Fetal Medicine	Maternal Fetal Medicine	Misc.	Misc.	Evolving Paradigms & changing perspectives
8.00-8.30	Yuva Speaks - 3 capsules									
	Pregnancy in tricky situations	Fine tuning of infertility management	The art of counseling for contraception	More about Cancer - basics & beyond	Secondary Amenorrhea	Upcoming issues	Placental problems	Breastfeeding blues	The dreaded viral infections in pregnancy	The New kids on the block
8.30 - 9.45	Opening Session - Guest Lecture									
	Conglomeration	Basics of ART	Sexual dysfunction	Guest Lecture	Finner aspects of Gynaec endoscopy	USG Shockers in third trimester	Screening for aneuploidy	Infections that matter	The Medicolegal session	Six pillars a must for Clinical Governance
	Expert Speaks	Panel Discussion								Invited Talks
9.45 - 10.45	Preterm Labour	Monitoring follicle growth	Adnexal mass in perimenopausal women	Precision in Oncology	Nutritional supplements in pregnancy. Is there a role?	Liver disease in pregnancy	Intrauterine infections	Primary ovarian insufficiency	Skin disorders in pregnancy	Safety First practices
10.45 - 12.00	Invited Talks									
	Menopause Matters	Hoping against hope in complex infertility cases	Refining care at menopause	Newer perspectives	Subclinical indicators of wellbeing in pregnancy	Critical care medical scenarios ante partum: Management and outcome	The sick neonate	Drugs in pregnancy - use and abuse	Targeted pharmaco therapy	Opportunities on the horizon East meets west (4 topics)
12.00 - 1.00	Plenary-Oration Relay				Plenary Session FOGSI MSD Oration	Plenary-Oration Relay				
1.00 - 4.00	Valedictory Function									

INTERNATIONAL FACULTY

They are flying in to enlighten us!

Afghanistan
Dr Shefaqa Babbar

Australia
Dr Ajay Rane
Dr Christina Sammartino
Dr David McIntyre
Dr Harsha Ananthram
Dr Leslie Braun
Dr Sandhya Gupta
Dr Sandeep Gavankar
Dr Sapna Dilgir
Prof Vinay Rane

Bangladesh
Dr Sayeba Akhtar

Egypt
Dr Osama Shawki
France
Dr Jacky Nizard
Dr Partha Basu
Greece
Alexia Chatziparasidou
Israel
Dr Moshe Hod

Italy
Dr Gian Carlo Di Renzo

Japan
Prof Kazunori Ochiai

Malaysia
Dr Ravichandran J
Dr Ravichandran M
Dr Saleem

Nepal
Dr Ashma Rana
Dr Ganesh Dangal
Dr Gyanendra Karki
Dr Lata Bajracharya
Dr Mohan Chandra Regmi
Netherlands
Professor Gerard H A Visser
New Zealand
Dr Vipul Upadhyay

Portugal
Nuno Nogueira Martin

Slovenia
Dr Dzenko Vizantin
South Korea
Prof YT Kim
Srilanka
Dr Ratnasiri
Dr Rohana Hathtootuva

Tasmania
Dr Sajid Patel

UK
Dr Abdul Sultan
Dr Alison Wright
Dr Archana Dixit
Sir Arulkumaran
Dr Dheeraj Uchil
Dr Diana Mansour
Dr Dib Datta
Dr Elly Tsoi
Dr Hani Fawzi
Dr Isaac Manyonda
Dr Jagdish Gandhi
Dr Janesh Gupta
Dr John Tidy
Dr Jyotsna Acharya
Dr Kamal Ojha
Dr Madhavi Manoharan
Dr Manjiri Khare
Dr Nanak Bhagat
Dr Preeti Priyadarshini
Dr Radhika Gosakan
Dr Ranee Thakar
Dr Rina Agrawal
Dr Sagarika Basu
Dr Sambit Mukhopadhyay
Dr Sameer Umranikar
Dr Sanjay Rao
Dr Santanu Acharya
Dr Sapna Bajaj
Dr Sheela Swamy
Dr Srividya Seshadri
Dr Swati Bhagwat
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A TASTE OF ACADEMIA

(SCIENTIFIC ARTICLES)

CREATING A POSITIVE CHILDBIRTH EXPERIENCE THROUGH EVIDENCE-BASED INTRAPARTUM CARE

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In 1955, Friedman published the labor progression curve that drove obstetric practice for over 40 years. Less widely known is that his conclusions were based on a study involving only 500 patients with an average age of 20 years. Of those 500 patients, 55% had forceps delivery and 9% Cesarean section, 22% were under twilight sleep, 42% were moderately sedated, and 31% were heavily sedated. By no stretch of the imagination can we call that a normal population on which to define normal labor or to create labor cervicographs. However, we have continued to use this as an unquestioned truth well into this century. In 2002, Zhang reassessed the labor curve in nulliparous women, and in 2013 Boyle and Reddy examined 38,484 first time cesarean sections. 30.8% were in primigravida, 31% were due to "failure to progress," and 40% were less than 5cm dilated. He conclude that more than 10% of primis get unplanned and unnecessary C-sections due to the failed progress in early labor. These studies have been confirmed in Asia, Latin America, and most recently in Africa (WHO's BOLD trial, Oladipo et al 2018)

"To my knowledge, this is the first time WHO has combined hard quantitative research evidence with a systematic review of what women want, need, and value in childbirth care, as well as factored in contextual issues."

In response to increasingly over-medicalized labor care and rising cesarean rates—often with little benefit in terms of childbirth outcomes, sometimes with associated harm, and almost always with increased cost—the WHO recently issued its most comprehensive recommendations on Intrapartum care for a positive childbirth experience. This guideline focuses on the care of all healthy pregnant women and their babies during labor and childbirth in any health care setting. "Healthy pregnant women" is used to describe pregnant women and adolescent girls who have no identified risk factors for themselves or their babies, and who otherwise appear healthy. To my knowledge, this is the first time WHO has combined hard quantitative research evidence with a systematic review of what women want, need, and value in childbirth care, as well as factored in contextual issues.

For all women in labor, it is highly recommended that they get respectful maternity care, effective communication, and companion of choice.

By far the most consequential new recommendations relate to definitions of latent phase and progression in first stage of labor.

Latent phase is now defined as the period between onset of painful contractions, the variable change in cervix including effacement, and slow cervical dilation to 5 cm. The duration of latent phase varies widely. Active First stage is now defined as regular painful contractions, substantial effacement, and more rapid dilatation from 5 cm. Active phase usually does not exceed 12 hours in first labors and 10 hours in subsequent labors.

In spontaneous labor, cervical dilatation of 1 cm per hour during active phase as depicted by alert line is inaccurate in identifying women at risk of adverse birth outcomes, and a minimum cervical dilatation of 1 cm per hour is unrealistically fast for some women. A rate slower than 1 cm per hour alone should not be a routine indication of obstetric intervention. Use of medical interventions to accelerate labor before 5 cm

"For women with epidural anesthesia, it is recommended that women delay pushing for 1-2 hours after full dilatation until the woman regains the urge to push in the second stage of labor."

dilatation (oxytocin augmentation, CS) is not recommended as long as fetal and maternal conditions are reassuring.

The consensus process resulted in 4 categories of recommendations: Recommended, Not recommended, Recommended in specific context, and Recommended in rigorous research. Please refer to the actual WHO guidelines for detailed explanation of these recommendations.

http://apps.who.int/iris/bitstream/handle/10665/260178/9789241550215-eng.pdf?sequence=1

Recommended

First stage of labor	***Second stage of Labor***	***Care after birth and of newborn***
5. **Latent phase**: painful contractions, variable change in cervix including effacement, slow dilation to 5cm **Active First stage**: regular painful contractions, substantial effacement, more rapid dilatation from 5 cm 6. **Latent stage**: inform women that standard duration may vary widely **Active phase** usually does not exceed 12 hours in first labors and 10 hours in subsequent labors 13: Routine admission auscultation (Pinnard or Doppler) 16. Digital vaginal exam every 4 hrs. 18. Intermittent auscultation FHR (Pinnard or Doppler) 19. Epidural 20. Parenteral opioids 21. Relaxation techniques: muscle relaxation, music, breathing + 22. Manual techniques: massage, warm packs 24. Oral fluids and feeding 25. Mobility and upright position	33. Duration varies, in first labor usually completed in 3 hours, and in subsequent labors 2 hours 34. Adopt Position of choice if not on Epidural 35. Position: Encourage birth position of choice , including upright even for epidurals 36. Pushing method: Women should follow and be supported to follow their own urge to push in expulsive phase 38. Techniques to prevent perineal trauma: perineal massage, warm compress, hands on guarding, based on women's preference 41. Use of uterotonics to prevent PPH 42. Oxytocin 10IU recommended 43. Ergometrine, oral misoprostol if Oxytocin not available 44. Delayed cord clamping 45 CCT if SBA available	48. Skin to skin contact during 1st hour 49. Breast feed as soon as baby stable and mother ready 50. Vitamin K IM after first hour + BF + skin to skin contact 51. Delay bathing 24 hours 52. Assess abdominally for uterine tonus to detect atony 55. Routine postpartum regular assessment for 24 hours (including bleeding, uterine contraction, FH, temp, pulse, BP) 56. Care in facility for 24 hours

Context specific recommendation (most likely not suited to Indian context as yet)

Midwife led continuity of care models in which a midwife supports a woman throughout antenatal, intrapartum, and postpartum continuum are recommended for pregnant women in settings with well-functioning midwifery programs. Also for women with epidural anesthesia, it is recommended that women delay pushing for 1-2 hours after full dilatation until the woman regains the urge to push in the second stage of labor. Where resources are available for longer, the recommendation is to stay in the second stage, whereby perinatal hypoxia can be adequately assessed and managed.

Research Context recommendation: For healthy pregnant women presenting in spontaneous labor, a policy of delaying labor ward admission until active first stage (after 5 cm dilatation) is recommended only in context of rigorous research.

NOT RECOMMENDED

First stage of labor	*Second stage of Labor*	*Care after birth and of newborn*
7. In spontaneous labor, **cervical dilatation of 1 cm per hour during active phase as depicted by alert line is inaccurate** in identifying women at risk of adverse birth outcomes 8. **A minimum cervix dilatation of 1 cm/hr is unrealistically** fast for some women. A slower **rate than 1cm/hr alone should not be a routine** indication of obstetric intervention 9. **Use of medical interventions to accelerate labor before 5 cm dilatation (oxytocin augmentation, CS) not recommended as long as fetal and maternal conditions are reassuring** 11. Routine Clinical pelvimetry 12. Routine admission CTG 14. Routine pubic shaving 15. Enema to reduce labor augmentation 17. Continuous CTG 23. Pain relief to reduce labor augmentation 26. Routine vaginal cleansing with chlorhexidine 27. Active management of labor for prevention of delay in labor 28. Routine amniotomy alone to prevent delay in labor 29. Routine amniotomy with early oxytocin to prevent delay in labor 30. Use of oxytocin to prevent delay in labor in women with epidurals 31. Use of antispasmodic agents to prevent delay 32. Use of IV fluids to shorten Labor	39. Routine or liberal episiotomy 40. Manual fundal pressure to facilitate delivery 46. Sustained Uterine massage to prevent PPH	47. Oral or nasal suction in spontaneously breathing babies with clear AF 53. Routine antibiotics 54. Routine antibiotics for episiotomy

Implications for FOGSI

These are very significant departures from the way we have managed labor to date. Labor and childbirth should be individualized and woman-centered, and medical interventions should not be done without clear evidence of benefit. Principle among these recommendations is reducing unnecessary augmentation of labor and cesarean section in early labor. The partogram as we know it will change, eliminating the alert and action lines in recognition of the fact that a vast majority of women may labor safely for up to 12 hours after active phase of first stage beginning at 5 cm dilatation. Other measures of fetal and maternal wellbeing during labor are increasingly more important in labor decision making than cervical dilatation and descent alone. Obgyns depend on midwives to do this monitoring, and it is important to fully empower and professionalize midwifery in India. FOGSI should:

1. Convene broad stakeholder consensus meetings to better understand and operationalize these guidelines.

2. Work closely with midwives and women's groups to better understand what women value in care during childbirth.

3. Develop clinical governance and peer-to-peer mentorship methods to ensure that new recommendations are adhered to, especially in eliminating non-recommended practices that are often ineffective, costly, and harmful.

4. Collaborate with groups that are developing digital partographs such as Jhpiego's ePartogram, or others in various stages of development, and strive towards digitizing the full prenatal, labor, and postnatal data for

better real-time decision support as well as to improve supervision.

Over the last decade, India has made a most dramatic transformation in improving access to facility births, and more than 85% of women now seek to deliver in facilities. We have a responsibility to provide the highest level of evidence-based care that respects the wishes of women and to follow practice guidelines, so that mortality and morbidity levels decline and so every woman can have a positive childbirth experience.

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HOW TO IMPROVE RESULTS WITH INTERMITTENT AUSCULTATION AND ELECTRONIC FETAL MONITORING

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Abstract

Every couple and family wishes to have a healthy baby at the end of the pregnancy. The most hazardous period in the journey is the nine or so hours of labour compared with nine months of pregnancy. In 2014, The Royal College of Obstetricians and Gynaecologists (RCOG) launched a National Quality Improvement Programme 'Each Baby Counts'. The aim was to halve the number of babies who die or left severely disabled because of preventable incidents occurring during term labour (after 37 weeks) by the year 2020. The investigation team conducted 2500 expert assessments of local reviews of 1136 babies born in the UK in 2015. Of these babies 126 were still born, 156 died within seven days of birth and 854 had severe brain injury. Reviewers concluded the outcome for 76% of these babies may have been different if they received different care. Findings on 727 babies by local investigation provided enough information to draw conclusions about quality of care. Number of common factors were at play in many of the cases. Problems with accurate assessment of fetal wellbeing during labour; Issues with staff understanding and processing of complex situations, including interpretation of FHR patterns were the main themes. Each baby counts program is to identify and share lessons learned across the UK maternity services. In the UK the fetal wellbeing in labour is assessed by intermittent auscultation (IA) or electronic fetal monitoring (EFM). Despite great efforts in research, teaching and training babies die in labour or soon after wards or are damaged for life with cerebral palsy or neurological deficits. Hence, we need to find ways and means to improve our practise of IA and EFM. The patho-physiological basis to improve practice is described in this chapter.

Key words; Intermittent auscultation, Electronic fetal monitoring, cerebral palsy, neurological deficit

Introduction

Each baby count programme made the following recommendations to reduce the incidents of morbidity and mortality.
Formally assess all low-risk women on admission in labour to determine the most appropriate fetal monitoring method.
Follow NICE guidance on when to switch between intermittent and continuous monitoring during labour i.e. this means regular assessment of risk during labour.
Ensure all staff have documented evidence of appropriate annual training.
Human Factors – Understanding situational awareness to ensure the safe management of complex clinical decisions.
Key management decisions should not be based on CTG interpretation alone.
Healthcare professionals must take into account the mother's history, stage and progress in labour, antenatal risk factors and any other signs that indicates that the baby may not be coping with labour.

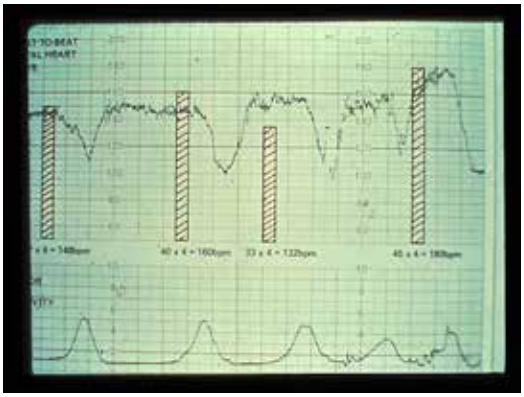
The above general recommendations are of value as auscultation of the FHR or EFM is one of the aspects of the care. Due to restricted space this chapter will deal with patho-physiology of fetal response to hypoxic stress to improve outcome with IA and EFM. Improvement in IA can be by 'Intelligent auscultation' and use of advanced but simple technology. Results of EFM can be improved by; a) Proper interpretation of CTG; b) Incorporation of clinical picture; c) prompt action i.e. without delay; d) good communication and team work

Intelligent auscultation and Scientific basis to move from numeric display to trace view Dopplers.

Globally, millions of women have their unborn baby's heart auscultated in the antenatal and intrapartum period to check for fetal life and health. Auscultating the fetal heart rate (FHR) is like checking the pulse rate of an individual. If the pulse is felt and is regular and of good volume, we could declare that the person is alive and probably well compared with an irregular, weak, rapid or slow pulse. But the pulse rate in the normal range does not certify that the person is healthy especially if a person is not moving and not responding to questions or if one is unconscious. Similarly, we need to assess the fetus more than the rate of the fetal heart. Maternal and observer perception/palpation of fetal movements (FMs) and a coincident FHR acceleration detected on auscultation could declare that the fetus is alive and is probably in good health.

In the antenatal period and during early labour, we should obtain mother's history including presence of FMs, do a clinical examination of the abdomen and then listen to the FHR to get the baseline rate whilst simultaneously checking the maternal pulse rate. Then the health care worker and mother should keep their hands on the maternal abdomen and feel for fetal movements. When FMs are felt, they are recorded stating that the mother and midwife felt the FMs. At that time, the FHR should be auscultated to establish whether there was an acceleration. Then the mother should be instructed to let the caregiver know when there is a contraction. If there is no deceleration on auscultation soon after the contraction then one could establish that there is no stress to the fetus in the form of cord compression or placental insufficiency. Subsequently the FHR can be auscultated during the next visit during the antenatal period or every 15 minutes in the first stage and every five minutes in the second stage of labour.

Technique and technology



The Doptone will identify the FHR with a double click sound if it is over the FH and a shuffle will be heard if it is over a maternal or fetal vessel. On auscultation with a Pinard stethoscope it is essential to auscultate for one full minute – auscultating for 15 seconds and multiplying by 4 leads to errors. An example is given below. (better picture can be provided).

Figure 1. Shows that counting for 15 seconds and multiplying by 4 leads to error in the rate. Also note the increase in depth and duration of decelerations, rise in the baseline rate and reduction in the inter deceleration intervals and base line variability with progress of hypoxia.

Using a Doppler provides the sounds of the FHR that reassures the mother and the partner that the baby is alive. But, it causes difficulty in identifying the FHR over one minute as stipulated by the NICE or FIGO guidelines as the rates keep on changing within a certain range e.g. between 140 to 156 bpm. In addition, when different rates are seen on the digital display one is not too sure whether they represent acceleration, baseline variability or subtle deceleration. If the digital display can be converted to a graphical display like a CTG on the LED screen then one can discern the features as to whether the different numbers represented baseline variability or accelerations or decelerations. (Figure 2 – Doppler with graphic display of the FHR).

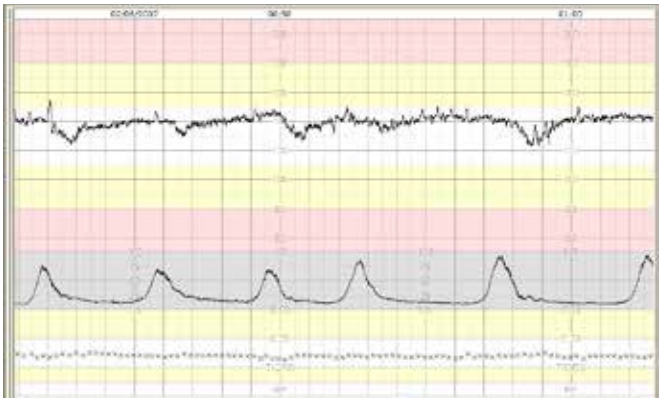


Figure 4. A fetus who is hypoxic with late decelerations

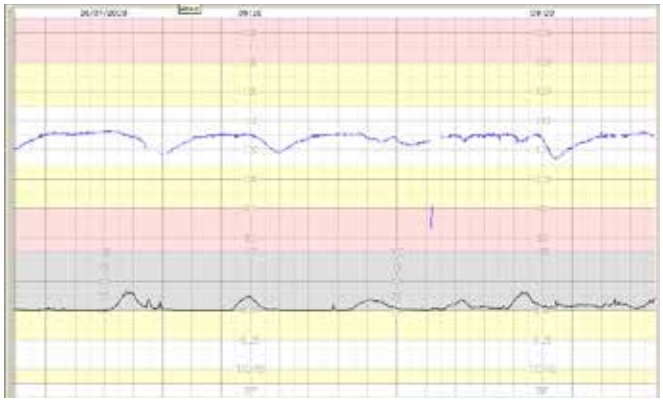


Figure 5. A pre - terminal trace

A fetus who is hypoxic with late decelerations (Figure 4) or a pre - terminal trace (Figure 5) cannot be identified by auscultation or by a digital display Doppler but can be identified by a graphical display Doppler equipment and hence the need to start using graphical display Doppler. With the use of Doppler, the contractions need to be palpated to identify the type of decelerations.

'Intelligent' intermittent auscultation if using a fetal stethoscope and use of Doppler with graphic display of the FHR are the ways to improve results with IA.

Improving results with Electronic Fetal Monitoring
There are four essential features in interpretation of the fetal heart rate trace recorded by electronic fetal monitors that should be understood to improve results with EFM [1,2.]

A reactive CTG is shown below with accelerations and normal baseline variability. It indicates that the fetus is not hypoxic or acidotic [1] and the absence of decelerations with contractions indicates that there is no stress to the fetus. (Figure 6).

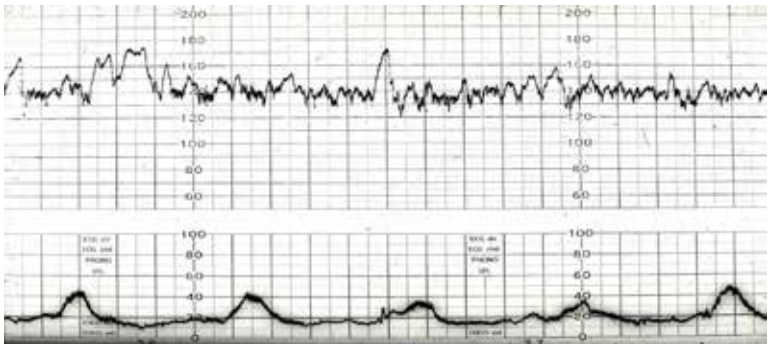


Figure 6. A reactive CTG with accelerations and normal baseline variability.

The fetus with non-reactive CTG for > 90 minutes (and had no previous reactivity) and reduced baseline variability may be hypoxic or infected. If there is no cyclicity it may suggest the possibility of prior neurological injury especially if there is absent baseline variability with no decelerations. If with absent variability it shows shallow decelerations the fetus may be hypoxic and the inability to show good decelerations may be due to a 'blunted CNS response'. Such an ominous CTG trace is shown in Figure 5. There is a greater chance of acidosis in a case with absent baseline variability and decelerations [3]. The trace may suddenly become bradycardic with increasing hypoxia and acidosis with progress of labour contractions that gradually reduce the oxygen to the fetus. In the presence of such pathological CTG how long can one wait before intervention is difficult to predict and delay in delivery worsens the injury leading to sudden cardiovascular collapse.

Most pathological CTG's that are likely to lead to poor outcome can be grouped into four different categories and are described below.

1) Acute hypoxia – CTG shows prolonged deceleration or bradycardia of <80 bpm; 2) Sub-acute hypoxia – CTG shows prolonged decelerations with more time during the decelerations compared with the time at the baseline rate (The acute and sub-acute patterns usually present with acute clinical events or in late first or second stage of labour. At times the pathology that causes these patterns is unknown/ not identified. The lower the FHR deceleration and longer the duration compared with the time at the normal baseline rate, greater would be the rate of decline of pH due to sub-optimal perfusion; 3) Gradually developing hypoxia and 4) Long standing hypoxia – a pattern with reduced baseline variability +/- shallow decelerations.

Acute Hypoxia – presents with profound deceleration with a heart rate < 80 bpm. The pH can drop on an average by 0.01/min [5,6]. An example of prolonged deceleration or bradycardia is given below (Figure 7). If prolonged it can cause fetal death or if born asphyxiated it may lead to acute profound hypoxia and neurological injury around the thalamus and basal ganglia region which, may lead to athetoid or dyskinetic type of cerebral palsy.

The cause for the prolonged bradycardia is not always identifiable. Cord prolapse/compression, scar rupture and

abruption are rare but well known causes and these should be identified and decision for immediate delivery made, ideally by three to six minutes and carried out as early as possible for optimal outcome to the baby. Having said that, delivery within 20 minutes from the onset of bradycardia does not mean that the child will survive without damage. If delivered within that time, the outcome is likely to be better than further delay. The actual heart rate, the FHR pattern prior to the bradycardia, the cause for the bradycardia and the 'physiological reserve' of the fetus is likely to determine the final outcome.

A rational policy of decision making; 3 mins to declare prolonged deceleration and call for help, 6 mins for help to arrive, 9 mins to go to OT, 12 mins to arrive in OT and delivery by 15 mins have been recommended for best outcome. [7]

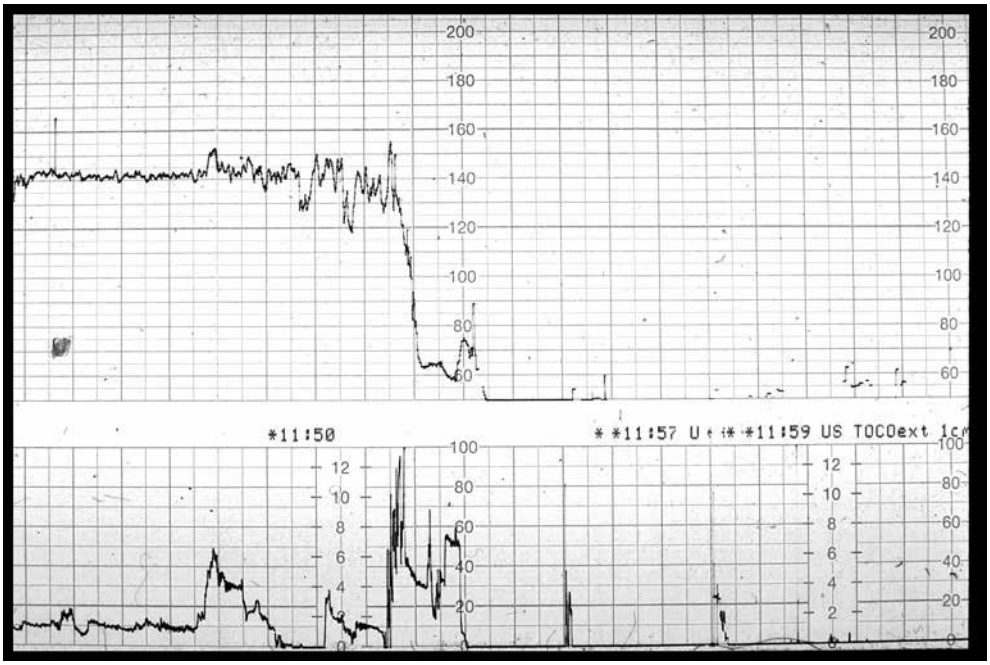


Figure 7. CTG with acute bradycardia

Sub-acute hypoxia presents with prolonged decelerations – The FHR is below the baseline rate for a longer time (e.g.>60 to 90 secs) than at the baseline rate (<30 secs) [8]. With such FHR there is less than optimal circulation through the placenta over a given time especially if the FHR drops to <80 bpm. With such a trace (Figure 8), some of the fetuses would get compromised with progression of acidosis of approximately 0.01 every two to three minutes.

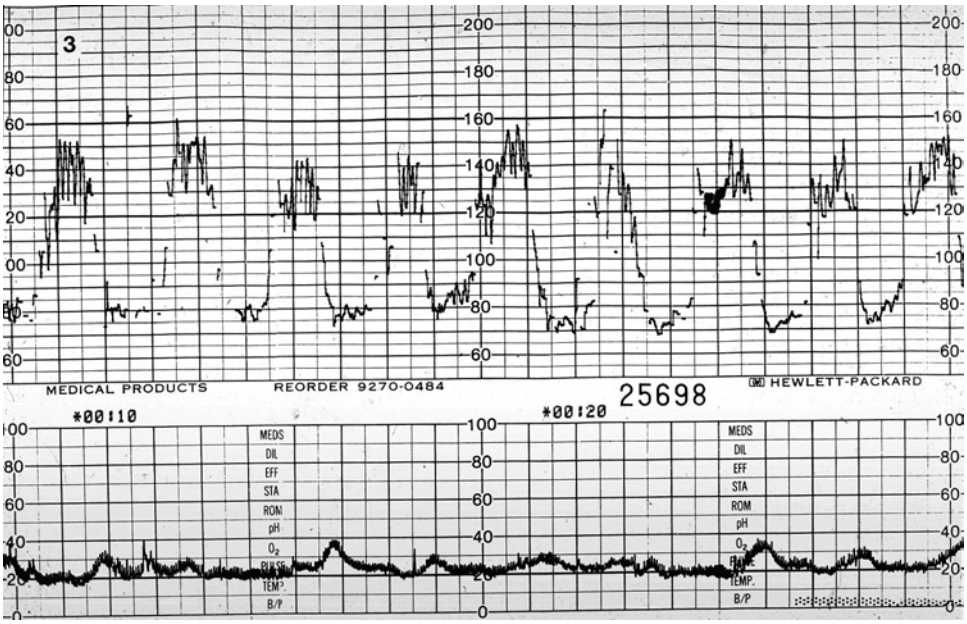


Figure 8. CTG showing sub-acute hypoxic pattern.

Gradually developing hypoxia – The CTG trace usually starts with a normal baseline rate, normal baseline variability, accelerations and no decelerations. Once decelerations start due to cord compression (variable decelerations) or reduced placental reserve (late decelerations), hypoxia can set in leading to catecholamine surge and rise in the base line rate. With increasing hypoxia, the accelerations do not appear and the decelerations get deeper and wider (i.e. longer duration). The FHR reaches a peak rate beyond which it is unable to increase the FHR. Even with this rate if oxygenation to the autonomic system cannot be maintained the baseline variability tends to get gradually reduced to almost flat baseline variability. In the presence of normal baseline variability 97% of the times the pH is likely to be above 7.0 [9]. When acidosis gets worse, within a short period the heart rate comes down and becomes asystolic and may end as a stillbirth. If delivered at the 'peak' heart rate after one to two hours of the FHR baseline variability becoming 'flat' ('distress platform') the baby may be born asphyxiated (hypoxia in the tissues and metabolic acidosis) and may suffer neurological injury of bilateral cortical injury leading to cerebral palsy with spastic quadri-paresis due to prolonged partial hypoxia [10]. The following CTG is an example of gradually developing hypoxia –to the point of tachycardia, reduced baseline variability and repeated decelerations. (Figure 9).

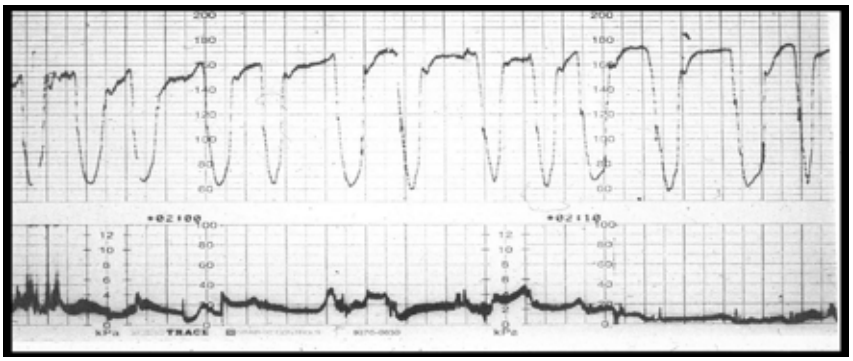


Figure 9. CTG showing gradually developing hypoxic pattern.

Long lasting or chronic hypoxia

The fetus that is already hypoxic or has minimal reserves will show no accelerations, the baseline rate may be in the normal range but the most prominent feature would be minimal or absent variability with shallow late decelerations less than 15 bpm. Usually they would have a 'tell tale' sign of the problem e.g. intra uterine growth restriction, reduced or absent fetal movements, infection, bleeding or prolonged pregnancy. These fetuses have no capacity to increase the baseline FHR with increasing hypoxia brought about by the stress of uterine contractions which reduce the oxygenation to the retro-placental area thus reducing the oxygenation to the fetus with progressive contractions. The FHR does not show much change other than the reduced baseline variability and shallow decelerations and when it does not have sufficient oxygen ('runs out of gas'), it collapses with a bradycardia. This process of gradual decline of oxygenation may go on for few hours. Recognition of such pattern in conjunction with analysis of the back ground clinical features are likely to result in better outcome. Example of a CTG from such a fetus is shown below [11](Figure 10).

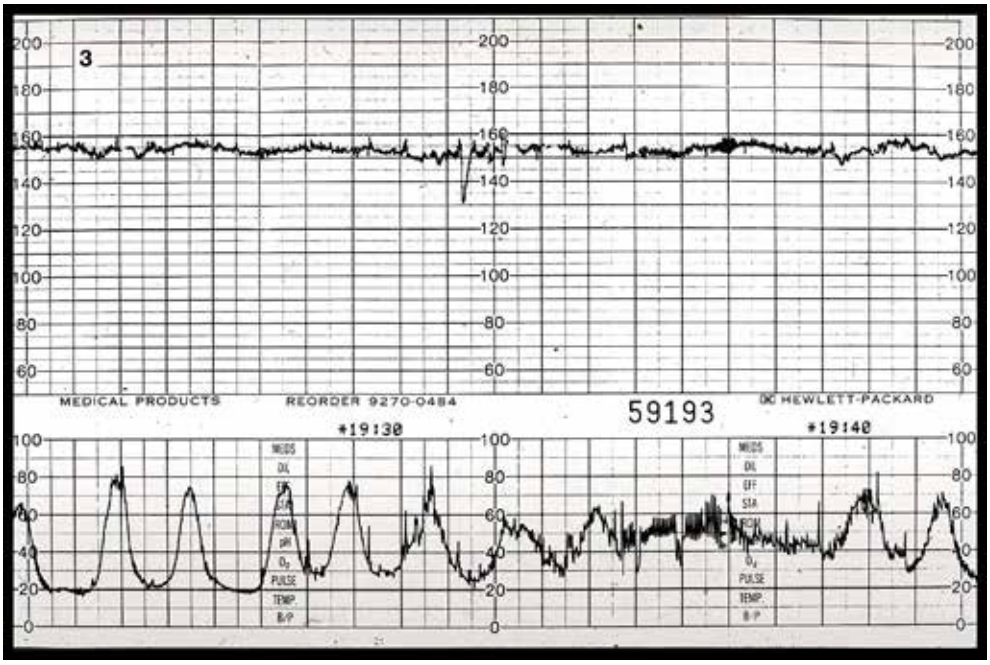


Fig.14. CTG showing long standing/ chronic type of hypoxic pattern.

Conclusion

The above discussion is to help improve results with IA and EFM. CTG is an investigation and is one part of the equation in managing a case. The clinical situations that will make rapid development of acidosis with a given pathological CTG need to be considered and they are; pre-term, post-term, intrauterine growth restriction, thick meconium with scanty fluid, intrauterine infection and intrapartum bleeding. Iatrogenic causes of hypoxia are injudicious use of oxytocin and poorly managed shoulder dystocia, breech delivery and difficult instrumental deliveries. Acute conditions like abruption, cord prolapse and scar rupture need to be diagnosed clinically as CTG changes occur after the event. Clinical management with a pathological CTG would vary based on the above conditions and the maternal characteristics of parity, cervical dilatation and rate of progress of labour.

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ULTRASOUND IN LABOUR – HELPING DECISION MAKING

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Clinical skills vs technology

The introduction of ultrasound in obstetrics has radically changed clinical practice in the past decades.

Its use on the labour ward remains contentious. There are ardent supporters of 'clinical skills' which include palpation and digital examination and equally passionate proponents of the ultrasound to help the decision making process on the labour ward.

After more than a decade of extensive research into the applications of ultrasound in labour the ISUOG has recently published a guideline which advises its use for two specific indications: arrest or slow progress in first or second stage of labour and assessment of fetal head position before instrumental delivery.

Fetal head position

Clinical trials have evaluated the use of ultrasound to accurately assess fetal head position at different stages in labour as well as prior to instrumental delivery and compared it to the findings of digital examination.

The accuracy of digital examination in most trials ranges between 50-75% in the second stage of labour and it is assumed by most authors that this information is crucial for the safety of the mother and baby.

The technique most widely used in trans abdominal and has been shown to be reproducible and easily learnt by operators with very little prior knowledge of ultrasound assessment.

There is however a lack of clinical trials showing how incorporating this knowledge into current clinical practice impacts the decision making process and its consequences.

Assessment of head station and descent

Trans perineal techniques have been investigated to assist in the evaluation of fetal head station and descent. Initially the reproducibility of such techniques was questioned.

The angle of progression was described in 2009 and has been found to be a reproducible technique which can be easily correlated to the traditional clinical assessment of fetal station. It however requires calculations to be done separately as most ultrasound machines available on labour ward have not got this incorporated.

Other measurements such as the head perineum distance, midline angle, head symphisis distance as well as progression distance have been proposed. Their potential for adding further information needs further investigation.

Twin births

The presentation of the second twin after delivery of the first twin is assessed routinely by ultrasound in order to guide the need for additional maneuvers for the safe delivery of the baby.

This information is considered essential by most obstetricians but its value has not been shown in clinical trials.

Presentation and placental localization

In pregnancies where no ultrasound examination has been performed during the antenatal period and women present for the first time to health care professionals in labour, the ultrasound examination can detect malpresentation as well as placenta praevia and help them to give appropriate care.

Fetal growth, amniotic fluid volume and Doppler study

In settings, where routine ultrasound examination in the third trimester is not performed it is often useful to assess the fetal size and amniotic fluid volume in the early stages of labor so that an accurate risk assessment can be undertaken and the appropriate monitoring instituted.

Fetal growth restriction in the third trimester can be difficult to detect and can have significant implications on the ability of the fetus to cope with the stress of labour.

Appropriate monitoring in a setting where the measures needed if fetal compromise is detected can be crucial in these cases.

The value of this information seems evident to obstetricians but has not been evaluated in clinical trials.

Is there a role for ultrasound examination on the labour ward?

My personal experience and the review of the growing body of literature on the subject have convinced me that the ultrasound machine is there to stay.

Obstetricians and midwives will require training in its adequate use.

The value of the information obtained by ultrasound requires further evaluation in clinical trials.

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EARLY DETECTION OF HYPERGLYCAEMIA IN PREGNANCY - BENEFITS AND IMPLICATIONS

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The optimal approach to diagnosis and treatment of hyperglycaemia in early pregnancy remains controversial. Internationally, consensus has been elusive, largely due to varying risk profiles in different countries and regions. In high risk populations, such as found in India, the increasing prevalence of obesity and potentially undiagnosed diabetes in young women strongly suggests the need for routine screening. Even with early testing, pregnancy outcomes in these women are suboptimal and the ideal process would involve pre-conception testing and intervention.

Any approach primarily "designed" to detect undiagnosed diabetes, either pre-conception or in early pregnancy will inevitably also result in detection of a much larger number of women with less severe hyperglycaemia. The various forms of "pre – diabetes" (impaired fasting glucose, impaired glucose tolerance, elevated HbA1c below the threshold for diabetes) may all be detected, depending on the approach used. Definitive evidence regarding the optimal treatment of these disorders is lacking. However, in a high prevalence context such as found in India, early intervention appears essential. When noted in early pregnancy, women with hyperglycaemia should receive treatment along the lines provided to women with "standard" GDM. This substantially increases costs (for example an additional 12 – 14 weeks of home glucose testing and additional clinic visits to a variety of health care professionals) but potentially also increases the therapeutic benefit.

Unfortunately, no clear consensus exists regarding the use of burdensome but informative tests such as the OGTT, as opposed to convenient but less sensitive tests such as HbA1c or other markers of glycosylation. A pragmatic approach is required. The DIPSI guidelines, which recommend simple one step non-fasting testing as the preferred option, are a valuable resource in this context. Variable concordance between pregnancy and non-pregnancy testing indications and diagnostic thresholds also poses practical problems for busy clinicians.

My presentation will focus on these issues, outlining recent developments in the international arena and attempting to relate these to the practical issues facing clinicians "at the coal face" in India. I shall also identify areas requiring further research and promote collaboration from Indian colleagues in addressing these questions.

THE ALARM INTERNATIONAL PROGRAM AND MORE-OB PROGRAM

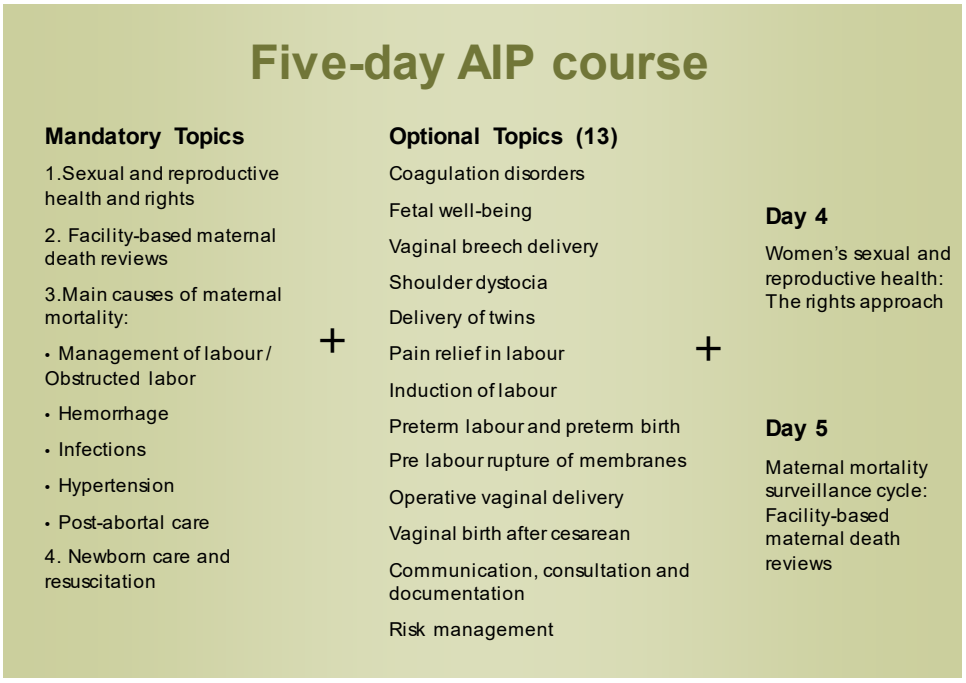
Dr André Lalonde MD FRCSC, Professor Obs/Gyn, Ottawa and McGill University
Jocelynn Cook PHD, MBA, Chief Scientific Officer,
The Society of Obstetricians and Gynaecologists of Canada

The ALARM International Program

The ALARM International Program (AIP) is a mobilizing tool designed to motivate health professionals to improve the delivery of emergency obstetrical care in resource-constraint countries. It was developed by the Society of Obstetricians and Gynaecologists of Canada (SOGC) in 1997 as a program to reduce maternal and neonatal mortality and morbidity. Over the last 20 years, the program has been delivered to over 5,000 health care professionals in over 26 countries. It was first piloted and delivered in 3 partnership countries; Uganda, Guatemala and Haiti. Since that time, the SOGC has partnered with countries around the world toimplement train the trainer programs, with the goal of create a local multidisciplinary team of Obstetrician-Gynecologists, midwives ,nurses and family physicians that will implement the program in their respective country. Teams are regularly consulted in the specific design of the program for their country and manage the local program implementation and delivery.

The AIP is based on the principles of adult education and promotes the collaborative approach of working and learning together. The learning environment is structured with interactive plenary sessions and hands-on skills workshops, allowing all participants the opportunity to meet their learning objectives. The examination process includes pre and post written and practical tests which measure knowledge and practice skills. The AIP is currently available in English, French, and Spanish.

The AIP program consists of two parts: a five-day course upgrading health professional's skills in emergency obstetric care and the implementation of a maternal mortality surveillance cycle. The first three days of the course focuses on the five main causes of maternal mortality (obstructed labour, hemorrhage, sepsis, hypertensive disorders and complications due to unsafe abortion) and newborn care and resuscitation. The fourth day has a series of workshops that introduces a sexual and reproductive rights approach to maternal health by sensitizing participants to the social, economic, cultural and legal factors which impede women's access to reproductive health services and information. The fifth, and final day, involvespractical demonstrations and workshops related to maternal mortality, maternal mortality review, and a surveillance cycle as activities to improve the quality of maternity care in health institutions. The course describes the steps and provides the tools to help participants implement maternal death reviews into their health care facilities.



There is an optional day six to train participants to become AIP instructors who will deliver the AIP program in their own communities, under the rules and criteria of the program's delivery.

The train-the-trainer component sensitizes participants to the AIP course content and the principles of adult education, which is the corner stone of the AIP. The learning process for

this component is composed of role plays, clinical simulations and the application of OSCE stations. The strengths of team work are explored as well as some of the challenges instructors may face with various types of learners.

AIP Content

The information within the AIP is derived from evidence based medicine in the field of obstetrics and recognizes the realities of resource-constraint settings. It also incorporates international guidelines and standards of practice such as ones developed by WHO, UNICEF, UNFPA, FIGO, ICM and many national OB/GYN societies. A multidisciplinary committee in Canada is charged with regularly updating the materials.

The course materials are presented in four parts:

1. **Participant's manual** - contains all chapters of content and is distributed to participants 2-3 weeks prior to the course. The features of the course manual include learning objectives at the beginning of each chapter, examples of how to apply a sexual and reproductive rights approach to each topic, clinical pathways of care and management of clinical situations distinguishing between low and high resource settings. The manual was last updated in 2017 and contains references for further reading.

2. **Participant's workbook** ¬- contains work sheets for the participants during the course. Each participant receives the workbook at the beginning of the course.

3. **Instructor's manual** - provides information to AIP instructors about how to implement the course ensuring quality and standardising the delivery of the course. This manual is given to participants who take the train-the-trainers course to become instructors or opinion leaders. Often all required material is made available to instructors electronically prior to the course so they can familiarize themselves with it.

Evaluating the Impact and Health Outcomes from the AIP

In late 2005, the AIP program was evaluated in nine partner countries by the SOGC national office. Evaluation was difficult due to the absence of explicit criteria at the onset of the program and therefore a qualitative analysis was used to gain insight as to the impact of the program.

The program was examined in 9 countries, who were unanimous in their praise of the program. The program was reported to have been instrumental in reinforcing the capacity of professional organizations to be involved and to make a difference in maternal newborn health. However, there was little information available on the long term impact of the AIP on standards and quality of health care for the mother and the newborn or of corresponding health outcomes.

More specifically, the Implementation of AIP improved maternal-child health outcomes in three African countries, and hospital-based maternal mortality was reduced by 15% in Mali and Senegal over a 2 year period; there was a marked decrease in death related to hemorrhage, preeclampsia/eclampsia and puerperal infection and a decrease in neonatal mortality before 24 hours. An evaluation of the impact of AIP in Western Kenya also illustrated improved maternal outcomes, especially related to the use of oxytocin and postpartum hemorrhage .

Future Development of the AIP

There is interest in expanding the AIP program into a 3 year Program with commitment to change medial practice, new initiatives on sexual reproductive rights and maternal mortality and morbidity audits. The SOGC is committed to working with partner countries to develop a targeted program that will optimize success of each country's goals and objectives by developing additional modules (i.e., antenatal care, nutrition, family planning) and accompanying hands-on workshops and cases.

For further information on the AIP program, please contact intl@SOGC.com.

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LOWER SEGMENT HAEMORRHAGE – SURGICAL MANAGEMENT

Dr V P Paily MD, FRCOG

Introduction:

Conventionally lower segment PPH was not a recognised entity. But of late, lower segment postpartum haemorrhage has become an important contributor to PPH overall. This is because of changes in obstetric practice. The number of lower segment caesarean deliveries has gone up significantly, contributing to haemorrhage from lower segment. The rising induction rate is the other contributor.

LSCS contributing to lower segment PPH

Lower segment caesarean section can lead to PPH in several ways. At the time of caesarean delivery itself, an extension of the incision will contribute to brisk bleeding. Unless steps are taken promptly, in a few minutes exsanguination can occur. Extension of incision most commonly occurs at the two angles, more so at the left angle. Immediate step is to clamp the torn vessel with a Green Armytage forceps. This can be done without concern about clamping the ureter. Both the upper and lower ends of the vessels have to be tackled. Most often it will be the veins that will be torn. Whether it is vein or artery, bleeding from both ends will occur. Exteriorisation of the uterus will help in identifying the torn ends of the vessels, but this can be difficult until the placenta is removed. Ligation of these vessels is better done after the bladder is pushed down thereby taking the ureter out of danger. The upper and lower ends of the vessels have to be tied separately.

Reactionary and secondary haemorrhage from the angles is the other reason for lower segment haemorrhage. Improper suturing of the angles is the reason for the angle bleeders. We recommend that both the angles should be tackled with mattress stitches at the beginning of the closure of uterine incision rather than depending on a running stitch from one angle to the other.

Prostaglandins as induction agents contributing to lower segment PPH

Prostaglandins have become the most commonly used induction agent. Often it is applied vaginally. However, it is also observed that local prostaglandins like misoprostol will make the lower segment and upper vagina very soft and friable, increasing the risk of lacerations. We have stopped using vaginal misoprostol after observing higher rates of lower segment lacerations and haemorrhage.

Placental invasion of lower segment

In placenta previa, the lower segment is invaded by the trophoblast. If it is a case of previous caesarean, the chance of abnormally invading placenta is higher, leading to unmanageable haemorrhage when delivery is attempted during caesarean section.

Bleeding during surgery from abnormally invading placenta in the lower segment is a killer. The bleeding is so severe and fast that patient goes on to hypotension, DIC and cardiac arrest in no time. This can lead to maternal mortality. We have worked out a strategy to tackle this problem which depends primarily on a clamp to occlude the lower end of aorta so that the blood supply to the pelvic organs is temporarily shut off until the placenta is removed and the vessels supplying the lower segment are tied or coagulated. The clamp was originally used to occlude the two common iliac arteries but subsequently we found that occlusion of the lower end of aorta is probably better and easier.

Use of this clamp has revolutionised the management of abnormally invading placenta to the extend that one can often get away with the surgery without even one unit of blood transfused.

In milder cases of placenta previa without abnormal placental invasion, bleeding from the placental bed can

be irritating. Oxytocic agents may not work as the lower segment is relatively less responsive to the oxytocics. If it happens during caesarean delivery, we recommend occluding those sinuses by direct suturing. What is recommended is to pull up that area of uterine wall with an Allis forceps and put a purse string suture around the tissues thus lifted up.

If the lower segment haemorrhage is noted during vaginal delivery, we would recommend to stop the bleeding by occluding the uterine arteries transvaginally. A specially developed clamp can be applied from the vagina with one blade going into the cervical canal and the other to the lateral fornix. (See Fig 1 & 2) Pushing the open blades up deliberately would help to get the tip of the forceps reach the level of the uterine arteries. The clamp is specially designed with gap between the blades so that the cervical tissue caught between the blades will not prevent the tips of the clamp from occluding the arteries. Two clamps will be required in each case, one to be applied at 3'o clock and the other at 9'o clock position.

Conclusions

Bleeding from lower segment has emerged as a new threat in day to day obstetric practice. There are newer and practical steps developed recently so that lower segment haemorrhage need not be a killer. Prompt arrest of the bleeding is essential to save the patient.

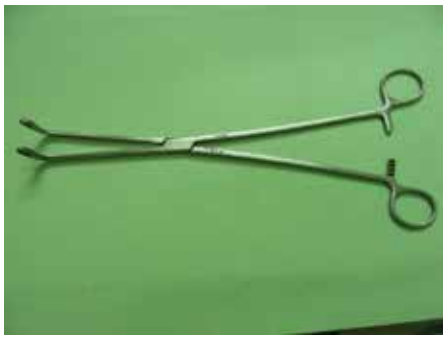

Fig.1. Transvaginal uterine artery clamp

Fig.2. Transvaginal uterine artery clamp

CARBETOCIN IN ATONIC PPH

Dr Uma Pandey

The three uterotonic drugs used most frequently are oxytocin, prostaglandins and ergot alkaloids. The mechanism of action of oxytocin is that it causes increased uterine contractions by acting on myometrial oxytocin receptors. For many years, synthetic oxytocic agents have been successfully used in the third stage both to prevent and to treat PPH. However, there are some limitations of oxytocin - it has a short half-life 3-5 min, it is heat sensitive, hence has to be stored at (2°C to 8°C) to ensure quality, bolus doses are associated with side effects like hypotension, nausea, vomiting, water overload, dysrhythmias and ST-T changes. It is also marginally stable in an aqueous solution. Short half-life and heat sensitivity is the major issue in LMIC's because of poor power supply, lack of refrigeration facilities and under resourced medical shops resulting in failures in the cold chain system, causing more degradation of oxytocin.

Carbetocin must be stored between 2°C - 8°C under refrigeration. It should not be frozen. Since the current Carbetocin formulation requires refrigeration, the new Room Temperature Stable formulation has been manufactured by Ferring Pharmaceuticals. The new Room Temperature Stable formulation differs from the current formulation only in its excipients but it is useful in LMIC where cold chain is not feasible due to power failures.

Carbetocin overcomes some of these problems and is a potent uterotonic that can be used in the prevention and management of PPH. It is a synthetic analogue of oxytocin. It acts by binding to myometrial oxytocin receptors and has a lesser effect on myoepithelial cells. The onset of uterine activity after intravenous carbetocin is rapid, occurring within 0.5 to 1.2 minutes. Total duration of a single injection of intravenous carbetocin on uterine activity is about 1 hour hence only single dose is sufficient. Repeat doses are not given if there is no improvement in uterine tone after a single dose. Carbetocin has potent uterotonic effect on the pregnant and immediate postpartum uterus and no effect on the non-gravid uterus. It is available in ampoules of 1ml containing 100 μg Carbetocin. It can be given intravenously in the dose of 100 μg/mL following delivery. Bioavailability is around 75-80%. Although exact mechanism of elimination is not known, studies have described a biphasic elimination after intravenous administration. Renal clearance of carbetocin is very low (<1%). It shows that carbetocin, like oxytocin, is excreted primarily by non-renal routes. It should be avoided in patients with vascular disease, especially coronary artery disease. Carbetocin may work synergistically with drugs like misoprostol that ripen the cervix and hence concurrent use can be risky. Due to structural similarities, same adverse reaction as oxytocin may be seen with carbetocin. Intravenous carbetocin was frequently (15-30% of patients) associated with nausea, vomiting, abdominal pain, flushing, feeling of warmth, itching, hypotension, headache and tremor. Infrequent adverse events (< 5% of patients) included backache, dizziness, taste disturbances, sweating, chest pain, dyspnea, chills, tachycardia and anxiety.

It is in the market for clinical use since 2000. As of now, it is clinically approved in 23countries for the prevention or treatment of uterine atony.

FLUID RESUSCITATION IN PPH

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Associate Prof. Anaes. MGMH Petlaburj. OMC. Hyderabad

Recognizing PPH and the need for resuscitation

Uterine blood flow can reach 700 – 900 ml/minute, which can lead to massive obstetric haemorrhage (MOH) within minutes of delivery. Correct assessment of blood loss is important. In the event of excessive blood loss, treatment should commence immediately.

Treatment goals are to:

1. Restore or maintain adequate circulatory volume to prevent hypoperfusion of vital organs
2. Restore or maintain adequate tissue oxygenation
3. Reverse or prevent coagulopathy
4. Eliminate the obstetric cause of PPH

Initial Non-Blood product resuscitation. Crystalloid vs Colloid Transfusion

Fluid replacement is the first and important part of resuscitation for PPH. Once the blood loss is noticed, hemodynamic status should be correlated to the blood loss. Isotonic crystalloid or colloid solutions can be used for volume replacement in haemorrhagic shock. RCOG recommends 2 L of crystalloid fluid resuscitation in PPH.

Isotonic crystalloids should be used in preference to colloids for resuscitation of women with PPH especially when there is severe preeclampsia or renal impairment. Excessive use of crystalloid or colloid solutions in massive haemorrhage can cause haemodilution and dilution coagulopathy & add to the consumptive coagulopathy of massive haemorrhage. Early transfusion of blood and component is of vital importance to avoid the lethal triad of hypotension, hypovolemia and acidosis.

Packed red blood cells and FFP are given in a ratio of between 1:1 and 1:2 in an effort to avoid dilution of clotting factors and development of a coagulopathy. In an extreme situation and when the blood group is unknown, group O RhD-negative red cells should be given. FFP at a dose of 12–15 ml/kg should be administered for every 6 units of red cells during major obstetric haemorrhage. Subsequent FFP transfusion should be guided by the results of clotting tests if they are available in a timely manner, aiming to maintain prothrombin time (PT) and activated partial thromboplastin time (APTT) ratios at less than 1.5 x normal.

Cryoprecipitate at a standard dose of two 5-unit pools should be administered early in major obstetric haemorrhage. A platelet transfusion trigger of 75 x 109/l is recommended to provide a margin of safety. The use of rFVIIa may be considered as a treatment for life-threatening postpartum haemorrhage (PPH), but should not delay or be considered a substitute for a live-saving procedure such as embolisation or surgery, or transfer to a referral centre.

Fluid Therapy and Transfusion of Blood Products in Obstetric Haemorrhage	
Crystalloid	Up to 2L RL
Colloid	Up to 1L till blood arrives (If SBP <90 despite crystalloids)
PRBC	Early transfusion of blood is advocated for adequate tissue oxygenation
FFPs	4U for every 6U red cells or PT/aPTT >1.5xnormal: 12-15ml/kg or 1L
Cryo precipitate	If fibrinogen is < 100mg/dl
Platelets	If platelet count is < 50,000/mm^3

(Recommendations for RBC: FFP: Platelet ratios. Green Top Guidelines No.52 Revised April 2011)

PRBC	1 U Increase Hb by 1gm / dl
FFFP's	12-15 ml/ kg Increases fibrinogen by 100 mg / dl
Cryo precipitates:	1 unit / 10 kg body weight; ↑fibrinogen by 50 mg / dl
Platelets:	1U RDP ↑count by 5,000; 1 U SDP ↑count by 30,000

Tranexamic acid in a dose of 1 g over 10 min and if required a second gram can be infused over an hour may prove useful in the treatment of MOH (WOMAN trial). 17 Vasoactive agents should be considered only when volume replacement is complete, haemorrhage is arrested, and hypotension continues.18 Electrolyte imbalance hyperkalaemia (secondary to high concentrations of potassium in transfused blood) and hypocalcaemia (chelated by the citrate found in transfused FFP) should be corrected. Ten millilitres of 10% calcium chloride per 4U PRBCs or 4U FFPs helps prevent hypocalcaemia.

MASSIVE TRANSFUSION - INDICATIONS, ADVANTAGES AND DRAWBACKS

Dr C. Shivaram, Consultant - Transfusion Medicine, Manipal Hospitals Bangalore & Editor-in-chief:Global Journal of Transfusion Medicine

Obstetrical bleeding, in particular Post Partum Hemorrhage (PPH) is a life-threatening emergency and is the leading cause of maternal mortality. World-over, PPH accounts for over 35% of all maternal deaths. Risk of maternal mortality due to hemorrhage is 1 in 1000 deliveries or 100 per 100,000 live births. Of these more than 99% of deaths occur in the low and middle income countries mostly due to delay in recognition, or due to substandard care in the management of hypovolemic shock.

Massive blood loss is arbitrarily defined as the loss of one blood volume within a 24 hour period. Alternative definitions that may be more helpful in the acute situation include a 50% blood volume loss within 3 hours or blood loss at a rate of 150ml/min. The definitions that use the period of 24 h are not useful during active management of blood loss as some patients may not survive for 24 hours.

Management of Massive blood loss

In massive hemorrhage, the patient is to be quickly treated with appropriate blood components. If not, crystalloids and colloids may maintain pressures but hemodilution and hypothermia may set in leading to dilutional thrombocytopenia, dilutional coagulopathy and the patients leads to multiorgan failure and death. Originally it was believed that the use of platelets and/or fresh frozen plasma should depend on clinical judgment as well as the results of coagulation testing and should be used mainly to treat a clinical coagulopathy. Today it is believed that starting transfusions with Red cells early and adding on FFP and platelets early can prevent irreversible complication of traumatic shock.

Activation of Massive Transfusion Protocol

The Australian Red Cross has given the following guidelines with a view to standardize the transfusion trigger for MTP. The criteria are varied and include:

- Actual or anticipated requirement for 4 units of red cells in less than 4 hours
- Actual or anticipated blood loss of 50% of blood volume in 3 hours
- Clinical or laboratory evidence of coagulopathy or a clinical diagnosis associated with coagulopathy, e.g. suspected amniotic fluid embolism.
- The Transfusion service can activate the Massive Transfusion Protocol with a request for 4 or more emergency O negative red cells

The management of acute massive blood loss is only achieved through team work, the team comprising of the obstetric surgeons, anesthetists, hematologists and blood bank staff working together to secure haemostasis, restore circulating volume, and effectively managing blood component replacement.

The British Committee for Standards in Haematology recommends the following protocol:

First all patients with a massive blood loss have diminished circulating volume and therefore it is important to restore circulating volumes using crystalloids and colloids using a 14 gauge peripheral or central cannula. Some prefer two cannulae for faster transfusion of blood or IV fluids. However, it is important to note that no other medication other than normal saline may be transfused with blood. It is equally important to assess the clinical situation, the need for transfusion, the need for activating Massive Transfusion Protocols (MTP) before activating the MTP team.

Lab Tests: Order a battery of pre-determined tests which may include CBC,PT, APTT, Thrombin time, ABG, biochemistry profile and pulse oximetry.

Blood Bank: Send blood samples to blood bank for ABO& Rh grouping, antibody screening and compatibility testing.

Blood Transfusion: Pending the availability of tests it is often wise to transfuse blood components as follows:

Cell Salvage: Employ blood salvage techniques for salvaging autologous blood if cell salvage equipments are available. Such equipments are able to salvage the red cells from shed blood in a closed system, filter the same and re-infuse minimizing the need for homologous blood. Cell salvage can be extremely useful in unanticipated blood loss and in patients with rare blood groups. This strategy is generally reserved for massive blood loss in operation theatres as asepsis can be maintained easily.

Red cell concentrates : Start Red cell transfusions with O negative blood or O Positive blood in the absence of O negative blood if the Hb =<6g/dL and when there is a blood loss of over 30%.Group specific matched blood may be used once the same becomes available. Uncrossmatched blood is acceptable in the setting of massive blood loss.

Fresh Frozen Plasma: If the estimated blood loss is over 1-1.5 times the blood volume anticipate dilutional coagulopathy and treat with FFP @ 12-15 ml/Kg .This means 4 units of FFP are needed for a patient weighing 50Kg, 5 units for a patient with 60 Kg and 6 units for a patient with 70Kg.

Prothrombin Time /Activate Partial Thromboplastin Time (PT/APTT): Increase in PT/APTT above 1.5 is suggestive of micro vascular bleeding and indicates a definite need for FFP transfusions. Infusion of concomitant calcium is necessary to arrest micro vascular bleeding. Aim to keep ionized Ca++ over 1.13 mmol/L.

Cryoprecipitate: Transfusion with Cryoprecipitate is indicated only when the bleeding cannot be controlled by FFP or when the fibrinogen levels are < 1g/L. Two units of pooled cryoprecipitate or 10 units of Cryoprecipitate is the standard adult dose for correction of hypofibrinogenemia. Pooled cryoprecipitate is not a licensed product in India. In cases of critical obstetric hemorrhage leading to extreme hypofibrinogenemia, fibrinogen is the marker that indicates the critical severity, and early fibrinogen supplementation with haemostatic resuscitation can stabilize a catastrophic situation19.

Platelet Transfusions: If the estimated blood loss is over 2 blood volumes the anticipated platelet count is less than 50,000/uL and platelet transfusions are indicated immediately. Target a platelet count of 75000/uL. Transfuse 6 Random Donor Platelets (RDP- whole blood derived) or 1 Single Donor Platelets (aphaeresis-SDP) at once.Both are equally efficacious and one needs to be guided by availability more than anything else in the emergency situation.

With better understanding of the pathophysiology of hemorrhagic shock, resuscitation of patients with massive hemorrhage has advanced from a reactive approach of providing volume replacement and transfusing blood components to a proactive approach of using standardized protocols called MTPs. MTPs are designed to interrupt the lethal triad of acidosis, hypothermia and coagulopathy that develops with massive transfusion thereby improving outcomes.

Rationale for massive transfusion protocol

When whole blood is being lost, transfusing fresh whole blood would seem ideal. However in this era of NAT testing the only way for a blood centre to provide fresh whole blood would be to give blood tested by the least sensitive Rapid immunochromatographic tests which endanger patients' lives. Further use of components helps to adjust dosages better and blood components are hence widely accepted as the only rational way of treating bleeding and conserving the precious resource. Storage of whole blood even for few days is enough to cause significant depletion of coagulation factors and platelets. Hence blood components are the order of the day. Therefore, administering RBCs, coagulation factors and platelets together maintains the physiological constitution of blood and prevents deficits of one or more constituents.

Although it is a good practice to be guided by lab tests in all clinical settings massive blood loss does not always give enough time for accurate laboratory estimations. It is well established that while plasma substitutes –crystalloids and colloids help in the initial restoration of circulating volume, fluids given in excess of 1.5 times the blood volume is very likely to precipitate dilutional anemia, dilutional coagulopathy and dilutional thrombocytopenia. It is also estimated that loss of more than 2 blood volumes will reduce the platelet counts below 50,000/uL.This being the case it is felt by many that starting treatment with massive transfusions using red cells, fresh frozen plasma and platelets right in the beginning could prevent the complications of massive fluid therapy and herald early recovery.

Newer insights into Massive Transfusion:

Advantages of Increased RBC: FFP: Platelet Ratios

Transfusion of packed red cells (RBCs), plasma, and platelets in a similar proportion as whole blood may minimize the effects of dilutional coagulopathy and hypovolemia. MTPs have a predefined ratio of RBCs, FFP/cryoprecipitate and platelets units (random donor platelets) in each pack (e.g. 1:1:1 or 2:1:1 ratio) for transfusion.

Drawbacks of massive transfusion protocols

1. There are no internationally accepted guidelines for initiating the MTP as well as the as the optimum ratio of RBC: FFP: Platelets. Whether to use 1:1:1 or 2:1:1 or not to use any MTP at all is a matter of institutional choice.
2. Triggering MTP for mild moderate blood losses may lead to issue of large quantities of blood leading to wastage.
3. Fresh frozen plasma thawed and kept must be used preferably within 6 hours and maximally within 24 hours otherwise the same is wasted.
4. Easy availability of blood in response to call may lead to unnecessary transfusions leading to late complications.

Blood Groups switch in Massive Transfusion.

It is obvious that large quantities of blood components are needed in handling massive blood loss and the desired group may not be available. Further paucity of time to provide the first few units of blood necessitates abbreviated pre-transfusion testing and hence where ever possible high risk blood transfusion consent must be obtained from the patient. Blood centers that do not have adequate stock of blood necessarily try to store a few units of O negative and O positive red cells units to meet emergency situations like an unexplained PPH.AB group plasma does not have any antibody in plasma and hence may be used as universal plasma. While group specific platelets are desirable the same are not essential. The Rh(D) antigen is not present on platelets. Hence platelets are also commonly used across Rh barriers except when the platelets are contaminated with red cells and appear pink in colour. The goal during management of massive blood losses is to provide blood as quickly as possible, not necessarily the most compatible blood group. It is useful to have a chart showing the various blood group switches possible in apron pockets or the same may be displayed in the wards emergency room, ICUs for ready reference (See Blood Groups Switches Chart).

Termination of MTP

The MTP is called off when the following conditions are satisfied:
1.Anatomic control of bleeding.
2. Normalization of hemodynamic status.
3.Normalization of Haematological parameters.


BLOOD GROUP SWITCHES - ALTERNATIVE ACCEPTABLE GROUPS

	PATIENT A POSITIVE			
DONOR PRBC	A POS	A NEG	O POS	O NEG
DONOR FFP	A POS	A NEG	AB POS	AB NEG
	PATIENT B POSITIVE			
DONOR PRBC	B POS	B NEG	O POS	O NEG
DONOR FFP	B POS	B NEG	AB POS	AB NEG
	PATIENT AB POSITIVE			
DONOR PRBC	AB POS	AB NEG	A POS	A NEG
	B POS	B NEG	O POS	ONEG
DONOR FFP	AB POS	AB NEG		
	PATIENT O POSITIVE			
DONOR PRBC	O POS	O NEG		
DONOR FFP	O POS	O NEG	AB POS	AB NEG

Note:
1. O NEGATIVE PRBC may be used universally for all patients
2. AB POS/NEG FFP may be used universally for all patients
3. Disregard Rh type while transfusing FFP
4. Platelets (RDP/SDP) need not be group/type specific
5. While using Rh positive platelets(RDP/SDP) for Rh Negative women, in obstetrics, check with your doctor

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BLOOD GROUP SWITCHES - ALTERNATIVE ACCEPTABLE GROUPS

	PATIENT A NEGATIVE			
DONOR PRBC	A NEG	O NEG		
DONOR FFP	A NEG	A POS	AB POS	AB NEG
	PATIENT B NEGATIVE			
DONOR PRBC	B NEG	O NEG		
DONOR FFP	B NEG	B POS	AB POS	AB NEG
	PATIENT AB NEGATIVE			
DONOR PRBC	AB NEG	A NEG	B NEG	O NEG
DONOR FFP	AB NEG	AB POS		
	PATIENT O NEGATIVE			
DONOR PRBC	O NEG			
DONOR FFP	O NEG	O POS	AB POS	AB NEG

Note:
1. O NEGATIVE PRBC may be used universally for all patients
2. AB POS/NEG FFP may be used universally for all patients
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THE NONPNEUMATIC ANTISHOCK GARMENT (NASG)

Dr. Suellen Miller

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University of California, San Francisco, USA

The Nonpneumatic AntiShock garment (NASG) is a low technology first-aid device that can buy time for women with hypovolemic shock secondary to obstetric hemorrhage, who face delays in either transport to a higher referral center or delays in obtaining blood transfusion or in getting the necessary personnel and operating theatre for a surgery. The NASG will stabilize women with hypovolemic shock secondary to any etiology of obstetric hemorrhage, whether early-pregnancy (abortion, trophoblastic disease, ectopic), antepartum (problems of placentation), intrapartum (rupture, abruption) or postpartum (atony, lacerations, accreta).

The NASG is a light-weight, re-usable, circumferential lower-body compression garment made of neoprene and Velcro™. The NASG comprises 3 pairs of neoprene segments which close around the ankle, calf, and thighs, a pelvic segment, and a 2-part abdominal section which contains a compression ball.

Figure 1 This ball and the abdominal section provide about 75% of the NASG's effect (See Figure 2). A full explanation of the mechanisms of action and physical properties of the circulatory system in response to NASG placement can be found in Stenson, et. al.

Figure 1: NASG lower body compression device open, stretchy neoprene closes with Velcro™ to compress lower body

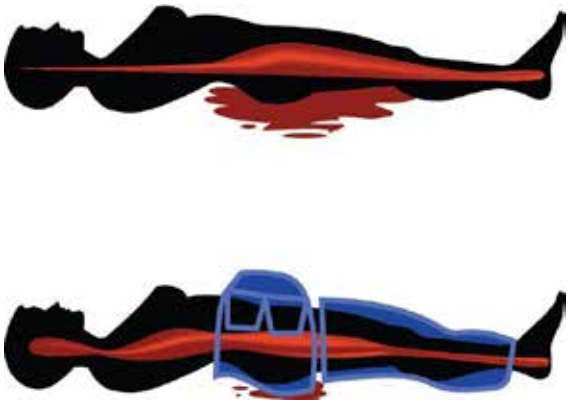

Figure 2: In shock, (top) blood leaves core organs to the uterus and lower limbs. After NASG application, there is decreased blood flow to the compressed area with increased blood flow to the heart, lungs and brain.

The NASG has a unique role in hemorrhage and shock management as it reverses shock and decreases blood flow to the lower body. The NASG increases blood pressure by decreasing the vascular volume and increasing vascular resistance within the compressed parts of the body (abdomen, pelvis, lower extremities), while increasing the circulating volume and oxygen content of blood to the uncompressed parts of the body (heart, brain, lungs, and upper extremities. Thus, the NASG acts as a temporizing measure to attain hemodynamic stability allowing time for transfer to a higher level of health care facility or for receipt of definitive treatment for hypovolemic shock, secondary to obstetric hemorrhage in often over-crowded, under-resourced, tertiary care facilities.

The NASG works rapidly, even on women who appear to have no pulse, no blood pressure (BP), and may be unconscious. Within minutes of application women can regain consciousness; pulse and BP normalize, while bleeding is decreased by at least 50%. In numerous quasi-experimental studies[iv] and one Cluster Randomized Clinical Trial (CRCT),the NASG has proven to reduce mortality and severe morbidity statistically and clinically, by about 50% in most studies, and to significantly reduce time to shock recovery. In a systematic review of six published studies, Pileggi-Castro et. al. found the overall effect of the quasi-experimental studies to be 48% reduction in mortality (95% CI 0.52 [0.36-0.77]) and in the CRCT the reduction was highly significant with 57% reduction (95% CI 0.43 [0.14,1.33]). It is likely that statistical significance was not reached due to a smaller sample size attained vs. that for statistical power (405 vs. 2400). Overall the results of the review were that the NASG prolonged the lives of hemorrhaging mothers until definitive treatment. Other studies have been conducted with NASG on outcomes of other etiologies of obstetric hemorrhage[v]. Qualitative research has also been conducted to learn from providers what challenges and opportunities exist when implementing NASGs. The NASG is extremely cost effective[vi].

In India, the NASG has been used since ~ 2007, when it was introduced by Pathfinder International in Tamil Nadu.[10] Currently the NASG is used throughout TN, including on the EMRI ambulances [10], as well as in Bihar, UP, Karnataka, Maharashtra, etc.[vii] NASGs are recommended in the 2015 edition of AICOG Manual, by the World Health Organization[viii] , FIGO (2015), Global Library of Women's Medicine (2015), etc.

More recently, an implementation project in Tanzania reported rapid and high uptake of NASGs in 263 rural dispensaries and PHCs, with referrals to 17 CEMOC facilities. The NASG was used in 71% of all OH cases, and in 85% of cases referred to higher facilities. In addition, CFRs from OH decreased from 1.70 at baseline to (0.76) CFR at the end of the project; a 67% reduced risk (RR: 0.33, 95% CI = .19, .60).

The NASG application is easy to train and can be applied by anyone who has been trained; no medical experience is necessary for application (Table1). Management of the woman in the NASG and removal of the NASG requires not only training, but medical knowledge of shock, hemorrhage management, and recovery. Complete protocols for use and training materials can be found at www.safemotherhood.ucsf.edu. Training is best if incorporated into ongoing Emergency Obstetric Care trainings or another obstetric/maternity training, but can be done as a stand-alone too. Once NASG use is incorporated into pre-service curricula across medical, nursing, midwifery, and emergency medical/ambulance training, uptake and incorporation into care should be more rapid.

Table 1: NASG APPLICATION

STEPS FOR NASG APPLICATION/Average Height/Conscious
Put on gloves.
1. Place the NASG under the woman with the top edge of the NASG at the level of the woman's lowest rib and the pressure ball over her umbilicus. Do not close segments #5 and #6.
2. Turn to the woman's feet; if the #1 segment extends past her feet, go to the checklist for applying the NASG to a shorter woman.
3. 2 people can apply leg segments. Close segment pair #1 tightly around each ankle. Pull back the fabric and snap it to make a sharp sound. If the sound is dull, tighten the segment.
4. Close segment pair #2 on each calf as tightly as possible. If possible, leave room so that the woman's knee can bend between the two segments placed above and below the knee. (snap)
5. Apply segment pair #3, the thigh segments. (snap)
6. Apply segment #4 around the woman's pelvis; only one person should apply segment #4.
7. Place segment #5 with the pressure ball over her umbilicus; only one person should apply segment #5.
8. Close segment #6; only one person should apply segment #6.
9. Make sure the patient can breathe normally with the NASG in place by asking her to take a deep breath. If she cannot, loosen the NASG

STEPS FOR NASG APPLICATION/Shorter/Conscious
Put on gloves.
1. Place the NASG under the woman with the top edge of the NASG at the level of the woman's lowest rib and the pressure ball over her umbilicus. Do not close segments #5 and #6.
2. Turn to the woman's feet; if the #1 segment extends past her feet, pull the #1 segment to the side.
3. Close the Velcro side of segment #1 onto the inside of the segment.
4. Fold the non--Velcro side of segment #1 over the Velcro side, so the Velcro side will not be visible.
5. Fold the closed segment #1 up into the inside of segment #2, do this on both legs of the NASG.
6. Begin application with segment pair #2 at the ankles.
7. The remaining steps are the same as steps 4--9 on an average height, conscious woman.
STEPS FOR NASG APPLICATION/Unconscious Woman
Put on gloves and call for help. 2 people are needed for unconscious woman
1. Turn woman to her left side.
2. Lay NASG on floor or bed next to woman with segments #4, #5, and #6 open, and with leg segment pairs #1, #2, and #3 closed. The ball in segment #5 should be behind the woman.
3. Fold Velcro strips in segments #4 and #6 once to the inside towards the painted yellow dots.
4. Roll segments #4 and #6 towards the yellow midline dots until the folded edge is lying along the yellow dots.
5. Place rolled NASG so that yellow dots are along the woman's spine, and the top edge of the NASG is at her lowest rib.
6. Push the rolled segments #4 and #6 under the woman's body.
7. Turn the woman over the rolled segments so that she is now lying on her right side.
8. The second person should pull out the rolled Velcro parts of segments #4 and #6.
9. Turn the woman onto her back.
10. Check position of the NASG by placing ball in segment #5 over her umbilicus, but do not close segments #5 or #6.
11. Turn to the woman's feet; if the #1 segment extends past her feet, go to the checklist for applying the NASG to a shorter woman (or begin folding the #1 segment into the # 2 segment).
12. The remaining steps are the same as on an average height, conscious woman. If the woman is shorter add in the adjustment described in the checklist for application on a shorter woman. 4--9

Transporting:

If transferring someone in the NASG move her gently, she can be transported in any position that is comfortable, and it is not necessary that she be lying down, as transport options may be variable (motorcycle, bike, etc.). She does not need to be in Trendelenburg position.

Management with NASG:

An important aspect of using NASGs is that they do not preclude the use of other PPH management. If the source of hemorrhage is uterine atony, use NASG with uterotonic medications and TXA, if hemorrhage persists, use NASG with uterine balloon tamponade (UBT). All normal PPH care, such as massage of uterus, catheterization, exploration for and suturing of lacerations, etc. can be performed with NASG in place. If laparotomy is required, the NASG is left in place until the surgery is imminent, only the 4/5/6/ segments are opened, the anesthetist/anesthesiologist prepared for a decrease in BP and prepared to give bolus IV fluids or pressor medications, and the NASG is replaced after completion of surgery.

Removal of NASG:

After the source of bleeding has been found, corrected and the woman is hemodynamically stable, that is her Pulse < 100 and her SAP > 90 mm HG, the removal can begin (Table 2). Keep IV running, always take vital signs immediately before opening the first segments and always begin removal at the ankles. Wait 15 minutes between opening each segment, if the BP falls by 20 BPM or more, or the Pulse increases by 20 mmHG or more, rapidly close all segments and find the source of bleeding.

Table 2: Removal

ONLY REMOVE AFTER VITAL SIGNS ARE STABLE FOR 2 HOURS AND BLEEDING<25--50 ML/ HOUR
1. Take the pulse and blood pressure immediately before opening the first segment pair.
2. Open segment pair #1 (or segment pair #2 if the woman is short).
3. Wait 15 minutes; take pulse and blood pressure.
4. If pulse and blood pressure remain stable, open segment pair #2.
5. Wait 15 minutes; take pulse and blood pressure.
6. If pulse and blood pressure remain stable, open segment pair #3.
7. Wait 15 minutes; take pulse and blood pressure.
8. if pulse and blood pressure remain stable, open segment #4.
9. Wait 15 minutes; take pulse and blood pressure.
10. If pulse and blood pressure remain stable, open segments #5 and #6.
11. If at any point during removal pulse or blood pressure change by 20, immediately close all NASG segments starting at the ankles.
12. Place the used NASG in a biohazard container.
www.safemotherhood.ucsf.edu © 2014 SUELLEN MILLER

Cleaning:

After removing the NASG it should be cleaned of any tissue/clots with cool water and a brush, then disinfected/decontaminated in a 0.01% bleach solution for 10 minutes, and then laundered as you would bloody linen, either by hand or machine. The NASG is then ready to be air dried, and correctly folded so that it can be used again rapidly. For cleaning and folding instructions see www.safemotherhood.ucsf.edu.

Practice Points:

1. Treatment of obstetric hemorrhage is etiology-specific; prompt identification of cause of bleeding is necessary, as is applying definitive treatment as soon as possible. The NASG can be used with all etiologies of PPH, therefore, it may be used immediately when a woman shows signs of hemodynamic instability while awaiting definitive treatment.

2. The NASG increases blood pressure by decreasing the vascular volume and increasing vascular resistance within the compressed parts of the body (abdomen, pelvis, lower extremities), while increasing the circulating volume and oxygen content of blood to the uncompressed parts of the body (heart, brain, lungs, and upper extremities).

3. Clinical trials have demonstrated that the NASG reduces the time to recovery from shock, decreases blood loss, and improves chances of survival from hypovolemic shock secondary to any etiology of obstetric hemorrhage.

4. Application of the NASG should be part of standardized hemorrhage and shock management. The timing of NASG application depends on patient acuity, level of staffing, level of health care facility, and the capacity for definitive treatment.

5. Application of the NASG is in segmented sections, starting at the ankle. Results can generally be seen within a few minutes of application; pulse decreases, SBP rises, and the woman regains consciousness.

6. NASGs may be applied by anyone, but only removed under medical supervision.

7. Finding the source of bleeding is crucial, the NASG will buy time and stabilize the hemorrhaging woman while the source of bleeding is found and resolved.

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PPH IN INDIA - CURRENT SCENARIO

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Chairperson – Safe Motherhood Committee, FOGSI - 2017-19

The global rate of MMR is 260/100,000 live births and approximately 500,000 mothers die annually due to pregnancy related issues[1] of which PPH affects 1-5% of all deliveries [2-4] . Most of these deaths due to hemorrhage occur where there are no birth attendants or where they lack the necessary skills or infrastructure to manage PPH[5]. Rural India represents the challenge of managing PPH and the Indian government has shouldered Himalayan responsibilities and have managed herculean tasks in this context.

In India, hemorrhage (25.6 percent) ranks first as the cause of maternal death, followed by sepsis (13percent), toxemia of pregnancy (11.9 percent), abortions (8 percent) and obstructed labor (6.2 percent) while other causes together total 35.3 percent[6].

The MMR in India estimated was at 254/100,000 in 2010 and now 174/100,000 in 2015 with PPH being responsible for 30% of these deaths. The data from Kerala provided by Dr Paily etal is a reasonably foolproof one after the stratification of confidential enquiries into maternal deaths in Kerala which is represented in Table 1. This data is appreciable as not many states in India have a united data registry.

Table 1

Analysis of Maternal Deaths in Kerala (source – Dr VP Paily)

CRMD Causes of deaths

Cause of deaths	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Haemorrhage	23 (20.3%	20 23.5%	25 24.7%	17 15.1%	20 17%	10 9.4%	13 16.4%
Hypertensive disorder	16	14	14	8	8	13	9
Sepsis	4	6	8	15	9	2	10
Heart disease	8	6	5	9	7	5	6
Amniotic fluid embolism	7	4	5	4	7	10	4
Pulmonary Embolism	4	6	2	7	11	10	3
Neurological causes	9	8	9	8	9	14	6
Respiratory and viral diseases	20	3	5	11	7	19	5
Liver diseases	1	3	5	4	5	2	2
Suicide	3	2	8	8	12	7	8
Septic abortion	2	2	1	1	2	2	nil
Malignancy				4	3	4	2
Unknown	4	3	5	7	6	3	3
Ectopic	-	1	nil	nil	2	1	3
Anesthetic causes	2		nil	nil	nil		nil
SLE	1	nil	2	3	2		nil
Miscellaneous	9	7	7	6	7	4	5
Total analysed (CRMD)	113	85	101	112	117	106	79
Not analysed (DHS)	73	53	47	62	34	48	52
Total deaths in each year	186	138	148	174	151	154	131

MMR

	2008	2009	2010 -11	2011-12	2012 -13	13- 14	14 -15
births	510151	543190			495535	497252	494479
deaths	173	170	186	138	148	176	151
MMR	33.9	31.29			29.86	35.39	30.53

PPH – Indian scenario can be discussed under the following heads

- To anticipate
- To estimate
- To treat
- To enhance

To anticipate

Of all PPH deaths, 90% occur in women who have none of the so called risk factors, though we call it a preventable cause of death. Few risk factors may warn the attending obstetrician to anticipate PPH.

- Anemia
- Obstetric conditions – Pre Eclampsia
- Multiple Pregnancies, APH, instrumental vaginal deliveries
- High risk Patient in a low resource setting

To Estimate

Whatever risk factors we may keep in mind, estimation of blood loss on the scenario, becomes a bigger mirage, and poses a problem in management. The following table may provide a reasonable estimate of the same.

Table 2 Estimation of blood Loss

Methods/materials used	*Estimated blood loss* (ml)
Small 10 × 10 cm 32-ply swab (max saturated capacity)	60
Medium 30 × 30 cm 12-ply swab (max saturated capacity)	140
Large 45 × 45 cm 12-ply swab (max saturated capacity)	350
1 kg soaked swabs	1000
Kidney dish full of clots	500
50 cm diameter floor spill	500
75 cm diameter floor spill	1000
100 cm diameter floor spill	1500
Vaginal PPH limited to bed only	< 1000
Vaginal PPH spilling over from bed to floor	> 1000

To Treat

Medical Management plays the first role and the cost of each product and its difficulty or ease with which it is obtained is listed below

Table 3 Things used in treatment of PPH

Drugs	*Route of administration*	*Availability of hospital facility/ skilled staff*	*Storage*	*Cost in India*
Oxytocin	IV/IM	Skilled staff needed	Refrigeration preferable	Rs 22/amp
Prostodin	IM	Skilled staff needed	Refrigeration needed	Rs 98.42/amp (250 µg)
Methergin	IM/IV	Skilled staff needed	Refrigeration needed	Rs 30.20/amp (0.2 mg)
Misoprostol	Oral/sublingual/PV/PR	Basic skilled person enough	Refrigeration not needed	Rs 72/800 µg

Surgical options still do play a vital role in select cases and could be lifesaving. In India, the tamponade has been used as a very robust method of treating PPH and it could be of various types.

Table 4 Surgical equipment & Procedures

Method	*Material/facility needed*	*Provider of treatment*	*Cost in India*
Ribbon gauze	Can be done in minor OT	Medical officer	Low cost
Condom catheter	Widely available	Medical officer	Low cost
Foley catheter	Widely available	Medical officer	Rs 95
Bakri balloon	Not widely available	Medical officer	Rs 11,000
Sengstaken–Blakemore tube	Not widely available	Experienced person	Expensive
B-Lynch suture	Major OT set-up	Medical officer	Moderate cost
Uterine artery ligation	Major OT set-up	Medical officer	Moderate cost
Ovarian artery ligation	Major OT set-up	Medical officer	Moderate cost
Internal iliac ligation	Major OT set-up	Experienced person	Expensive
Obstetric hysterectomy	Relatively good hospital set-up	Experienced person	Expensive
Uterine artery embolization	Good hospital set-up with radiology facility in OT	Experienced person	Expensive

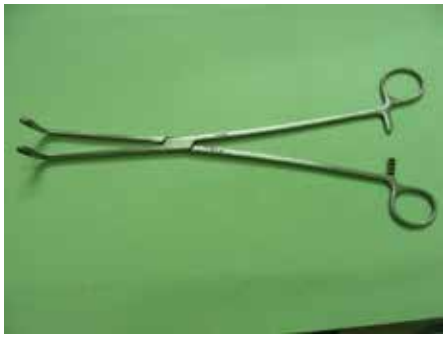
OT, operating theater; Rs, rupees

The high end surgical options such as Internal iliac artery ligation, systemic devascularisation or obstetric hysterectomies are not only based on the expertise available but also pose a threat to the health system by means of prolonged hospital stay and its aftermath.

Newer Innovations from Innovative India

Paily's vaginal – Uterine artery clamp

Dr Paily's vaginal – uterine artery clamps are specially designed to be used in emergent situations, and can be applied easily over both the uterine arteries through the vaginal approach by pulling the lips of the cervix downwards and the same can be applied on either sides at the level of uterine arteries, even without dissecting the bladder up. This gives a temporary stalling of blood bloss and allows time for us to think with more clarity.



To Enhance

After the launch of National Rural Health Mission (NHRM) in 2005, significant improvements have taken place in women's health and Safe Motherhood. Janani Suraksha Yojna (JSY) scheme has brought about an increase in institutional deliveries. Janani Shishu Suraskha Katyaram (JSSK) in 2011 has further enhanced maternal health.

"I Pledge for 9" was announced by Prime Minister Narendra Modi, which invited the private sector to provide free antenatal services on 9th of every month[7]

1. Free and zero expense delivery and caesarean section
2. Free drugs and consumables
3. Free essential diagnosis
4. Free diet during stay in the health institution (3 days for normal delivery & 7 days for caesarean section)
5. Free provision of blood (on replacement basis)

6. Free transport from home to health institutions
7. Free transport between facilities in case of referral
8. Drop back from institution to home after 48 hrs stay
9. Exemption from all kinds of user charges

FOGSI launched the Manyata: for standardizing quality maternal care in India by teaming up with MSD for mothers, Mac Arthur foundation and Jhpiego to improve quality of maternal and neonatal care in the private sector in India, where PPH management is streamlined and the para medical staff are trained too.

Conclusion

PPH in India is still a threat to maternal death in spite of various improvisations and innovations. Early referral to a tertiary care centre, improvement in facilities, proper utilization of available resources, training of staff and preparedness for the "Red Letter Day" to manage the "Bloody Business" will go a long way in making India free of PPH deaths and no more monuments like the Taj Mahal.

I take this opportunity to immensely thank Prof VP Paily and Dr V. Walvekar from whose chapter on "Management of Postpartum Hemorrhage in Low Resource Settings"[8] enormous inputs were adequately chosen.

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OBESITY WITH PREGNANCY

Dr. K Uma Devi

Over the past 10 to 15 years the rates of obesity are rising dramatically.(36%)

Every hospital in the developed countries now has plus sized wheelchairs,extended supports for toilets and operating tables that accommodate patients of 500 pounds or more.Over half of the women presenting for prenatal care are overweight or obese.

Preconception care

Weight loss

Nutrient intake

Folate supplementation

Prior caesarean section—wait atleast 18 months before conception

Medical conditions---cardiovascular disease,diabetes,hypertension,eating disorders,depression

Bariatric surgery for severely obese womenBMI.40 or ClassIIBMI.35 with comorbidities.

Pregnancy should be delayed for one year (6 months medically managed weightloss phase and 6 months postoperative phase.)

Gestational weight gain (GWG) by prepregnancy weight category

Prepregnancy weight category	BMI	Recommended GWG
underweight	<18.5	12.5-18kg
Normal weight	18.5-24.9	11.5-16kg
overweight	25-29.9	7-11.5kg
obese	≥30	5-9kg

Ultrasound limitations

Impaired visualization of the fetus in women with obesity is associated with a 30% lower detection rate of fetal anomalies.

Techniques to improve obstetric ultrasound visualization

Ultrasound settings: reduce frequency, harmonic imaging, speckle reduction filter, compound imaging

TAS:- approach from areas with less adipose tissue,suprapubic ,periumbilical,right or left iliac fossae

Consider early **anatomy ultrasound 13-16 weeks**

Use **color Doppler for cardiac assessment**

Consider **TVS for CNS** assessment if fetus cephalic

Fetal anomalies

Odds ratio of congenital anoamalies in women with obesity

Congenital anomaly	Odds ratio
Neural tube defects	1.87
Cardiovascular defects	1.30
Cleftlip and palate	1.20
Anorectal atresia	1.48
Hydrocephaly	1.68
Limb reduction anomalies	1.34

Cause for the anomalies with obesity

Metabolic abnormalities,elevated levels of insulin,triglycerides,uric acid and estrogen or chronic hypoxia and hypercapnia,may have a teratogenic effect on the fetus.

Nutritional deficiency.prior bariatric surgery or inadequate doses of supplementation .

Pregnancy losses

Obesity has adverse effects on the oocyt.however even with oocyte donation there is higher miscarriage rate in obese women

ODDS ratio of spontaneous miscarriage is 1.2

Recurrent early pregnancy loss is significantly high OR 3.5

Obesity impairs endometrial decidualization and receptivity

Genetic screening and testing

Failure to visualize nasal bone and nuchal translucency

Interpretation of serum screening tests is affected,since application of maternal weight correction standard increases the risk of false positive screening results in women with morbid obesity

Noninvasive prenatal screening(NIPT)---fetal fraction decreases with increasing maternal weight.NIPT failure(fetal fraction<4%) increases with increased maternal weight

Technically challenging invasive fetal procedures

Significant fetal loss when BMI≥ 40kg/m2 (aOR 2.2)

The cause of a high NIPT failure failure may be secondary to a dilutional effect of obesity or increased adipocyte death contributing to higher levels of maternal cell free DNA in the circulation.Given that alow fetal fraction is also associated with fetal aneuploidy,counseling obese women with NIPPT failure is challenging and the limitations of the screening test should be discussed.

Medical complications

Preexisting cardiovascular disease,diabetes,arthritis,sleep disorders,liver andgallbladder disease in obese women should be optimized including discontinuing teratogenic obstructive sleep apnea which is detrimental to the mother and neonate should be addressesmedications through a multidisciplinary approach.

Obstructive sleep apnea which is found in 15% of reproductiveagewomen should be addressed since it has an adverse maternal and fetal outcome.

Screening for pregestational diabetes should be done in the first booking visit in the first trimester of pregnancy.Preeclampsia risk is three fold in obese women.

Low dose aspirin ahould be started when obesity is associated with nulliparity,advanced maternal age ,low socioeconomic status and family orpersonal history.

Stillbirth

Underlying metabolic disorders,lipid metabolism,inflammati0on and vascular dysfunctionare the potential mechanismsfor incr4ased stillbirth in obese women,in addition to the medical comorbidities and fetal anomalies.

Adjusted HR of stillbirth in comparison with normal BMI

Obesity class(BMI)	Adjusted Hazard ratio(HR)
Overweight (25-29.9)	1.36
Class I obesity (30-34.9)	1.71
Class II obesity (35-39.9)	2.04
Class III obesity(40-49.9)	2.50
Superobesity (≥50)	3.11

Fetal growth

Obesity is an independent risk factor for large for gestational age increasing with increasing BMI.Intrauterine growth restrictionalso occurs due to hypertensive disorders and prior bariatric surgery.

Due to limitations of fundal height measurement,fetal growth assessment should be performed by ultrasound.

Prior bariatric surgery

Weight loss after bariatric surgery improves fertility.Weight loss is achieved through caloric restriction,malabsorption and neurohormonal changes that influence metabolism and hunger.after bariatric surgery ,it is advisable to delay pregnancy for 12 to 24 months.

Decresed gestational diabetes mellitus, increased small for gestational age and decreased large for gestational age infants have been observed.More neonatal intensive care admissions and preterm births have also been reported.

Evaluation for malnutrition and micronutrient deficiencies should be performed in the initial visit and subsequently in every trimester.

The Institute of medicine (IOM) guidelines are refdrred for gestational weight gain in these women as well. Additional prenatal vitamins should be prescribed.When they present duringpregnancy with abdominal pain,nausea or vomiting,consider bariatric surgical complications.They have increased risk of abdominal surgery for nonobstetric indications during pregnancy(OR,11.3)

Intrapartum management

EQUIPMENT TO CARE FOR WOMEN WITH OBESITY DURING PREGNANCY

Large blood pressure cuffs or normal size cuff on wrist
Large speculum
Wide examination table or table extenders
Large labour beds that can can accommodate weight
Long instruments
Bariatric operating table(accommodates 600 to 1000pounds) .standard operating table can accommodate upto 500pounds.
Self-retaining retractor
Panniculus retractor
Slide board or air mattress for transfer

Labour abnormalities

Obesity is associated with pregnancy progressing past 40 weeks(Aor1.63,41 weeks(Aor,1.81),42 weeksAor,1.69.They have lower rates of spontaneous labour and higher rates of postterm pregnancies. Obese women have higher concentrations of estrogen in adipose tissue disrupting hormonal balance and mechanisms that regulate labour.More labour inductions and failed inductions(Aor,2.16) occur in obese women.Myometrial contractility is impaired andarrest disorders can occur in these women.

Caesarean delivery

For each 1 kg/m2 increase in BMI the risk of caesarean dlivery increases by 4%

BMI≥ 50---caesarean delivery rate is 50%.One third of these women have wound complications.Vaginal birth after caesarean section was less in these women (68.4% versus 79.6%).

Labour analgesia

Antenatal anesthesiology consultation for women with BMI 50kg/m2

Thesewomen have decreased expiratory reserve volume,residual volume and functional residual capacity in the supine positionleading to higher risk of hypoxemia.

The epidural space volume is decreased due to the body habituswhile increasing the epidural space pressur

Morbidly obese women experience higher rates of hypotension and fetal heart rate decelerations.

The rate of labour epidural failure is 17%compared to 3 % in matched control subjects.Hence early epidural siting is preferred.

General anesthesia also poses risks due to intubation failure due to increased adipose tissue uin the neck and back

Prevention of venous thromboembolism

aOR for venous thromboembolism VTE 5.3

aOR for pulmonary embolism PE 14.9

mechanical prophylaxis during antenatal admissions

Pharmacologic weight based dosing regimens for thromboprophylaxis.

Prevention of wound complications

Surgical site infection after casarean sections OR 2.0

With BMI>35kg/m2 OR 3.7

Antibiotic prophylaxis with 2g cefazolin

Subcutaneous tissue should be approximated if the depth is more than 2 cms.suturing theincision with sutures than staples have halved the wound complications.

Postpartum management

Lower rates of initiation of breast feeding and exclusive breastfeeding have been observed

Physiological delay in lactogenesisII due to abnormal levels of leptin and insulin

Separated from the newborn due to complicated labours and caesarean sections

Latching and positioning could be difficult due to the size of the breasts

Hence prenatal counseling and additional postpartum support to be given

Contraception

Postpartum tubal ligation could be technically challenging

Efficacy of hormonal contraception also should be consideredin obese women

Transdermal contraceptive patch should be limited to those weighing less than or equal to 90 kg

Since they are prone for endometrial cancer levonorgestrel device protecting against the same could be considered

Women should not use oral contraceptives if they have undergone malbsorptive bariatric procedures.

Empathetic and patient centered care can optimize outcomes for women and children

THE IMPORTANCE OF MICRONUTRIENTS IN PREGNANCY – ABSTRACT

Associate Professor (adj) Lesley Braun PhD, Director of Blackmores Institute, Australia

Micronutrients, also known as vitamins and minerals, play an essential role in maintaining the health of pregnant women and the growth and development of the fetus. There are increased metabolic demands and changes in physiology, in addition to fetal requirements which mean nutritional requirements during pregnancy are different to usual. Deficiencies during this period, not only have the potential to negatively impact the mother and increase the risk of complications, but also detrimental, irreversible effects on the fetus which will have lifelong consequences.

Women need to start addressing their nutritional needs before conception and continue throughout pregnancy and lactation to meet the changing nutritional requirements during these periods. In this regard, maternal micronutrient status should be viewed as a continuum, instead of divided into seemingly unrelated stages.

For instance, folic acid supplementation has been shown to significantly reduce the risk of congenital malformations, but increased intake should start prior to conception. Iron is also important because deficiency results in anaemia which can increase the risk of death from hemorrhage during delivery. It may also have a negative impact on fetal development. Some studies have suggested the insufficient zinc can increase the risk of complications of pregnancy and delivery, as well as growth retardation, congenital abnormalities and compromised neurobehavioral and immunological development. Iodine is another critical nutrient as deficiency during pregnancy results in cretinism, preterm delivery and importantly, a significant reduction in IQ which is irreversible. Other nutrients such as magnesium, calcium, vitamin C and vitamin D are also essential.

In addition to vitamins and minerals, there is evidence that essential fatty acids such as omega-3 fatty acids (fish oils) in the maternal diet during pregnancy and lactation are also important.

INVERTING THE PYRAMID OF ANTENATAL CARE

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Key changes in 1st trimester (1T) in the last decade

- Early detection of many chromosomal & structural anomalies
- Cell free DNA testing has led to significant advance in screening for fetal aneuploidies, but with limitations
- Screening for preeclampsia can reduce complications, if treatment is instituted early in pregnancy
- Other pregnancy-related problems – spontaneous preterm delivery, SGA without preeclampsia, macrosomia, GDM

Development of 1T Ultrasound has led to extensive research in

- Standardisation of the NT measurement and risk assessment for Aneuploidies
- Association of increased NT with several other anomalies
- Early detection and screening for fetal structural defects
- Addition of maternal serum screening with free ßhCG, PAPP-A in risk assessment for T21 and other aneuploidies
- Combining biochemical markers in screening for Preeclampsia & severe FGR
- Maternal plasma cell free DNA is a screening and NOT a diagnostic test
- Limitations of cf DNA test to common aneuploidies

Inverting the pyramid of AN care (1)

(Figure 1)

1T screening & diagnosis of fetal aneuploidies

- A screening test is offered to all women and only those women who test "screen positive" or "high risk" are offered invasive testing to confirm the chromosomal anomaly.
- A screening test should have a high detection Rate (DR) and a low False Positive Rate (FPR). In addition, it should be cost effective so vast majority can do it.
- The definitive test for fetal aneuploidies is only by invasive testing. This may be Chorionic villous sampling (CVS) or Amniocentesis depending upon gestational age. However, this carries a procedure related risk of miscarriage of about 1:200.

1T screening - Combined Test at 11+0 – 13+6 weeks

- 1T screening includes maternal age, history of previous aneuploidies, gestational age, Crown Rump Length (CRL), NT measurement, fetal heart rate, free ßhCG and PAPP-A. This gives the DR for Trisomy 21 of about 90% with FPR of 3% (2, 3, 4, 5). Trisomy 18 and Trisomy 13 have associated structural defects and hence, it gives higher DR of about 95% with the same False positive rate of 3 - 5%. (6).
- By adding more ultrasound markers like Nasal bone, Tricuspid valve Doppler and Ductus Venosus Doppler and using contingent screening categorising the mothers into low, intermediate or high-risk group – the DR improves to about 93 – 96% with very low FPR~2.5%, which is the aim of 1st trimester screening. [7]

- By adding further biochemical markers, i.e. placental growth factor (PlGF) and Alpha feto-protein (AFP) in the 1st trimester combined screening which is known as "First trimester Quad Test" along with the NT scan, the DR improves further to about 95%. [8]

1T detection of fetal structural abnormalities

- The baby is fully formed by 11 weeks. Hence, majority of the fetal anatomy can be well visualised to skilled eyes by performing a good anomaly scan at the 11+0 – 13+6 weeks.
- Transabdominal (TAS) and transvaginal (TVS) scans are complimentary to each other. If TAS views are suboptimal, TVS should be performed for better structural study or vice versa to improve the detection rate.
- Early diagnosis of fetal structural anomalies allows a safer termination of pregnancy. A large Indian study of 12,025 pregnancies in the first trimester, showed that about 54.8% fetal structural anomalies can be detected in the first trimester, provided the operators are trained to look at the fetal anatomy in a systematic manner at this period. (9) A follow up study of 5592 pregnancies in the first trimester which focused on the detection of "always detectable/ Target 9" anomalies showed that the detection can be improved further to 98% for these specific anomalies. In addition, operators can save time on the scan by specifically looking at these anomalies. (10) These 9 anomalies are Acrania, Encephalocele, Alobar Holoprosencephaly, Exomphalos, Gastroschisis, Iniencephaly, Megacystis, Missing limbs/ part of limbs and Body stalk anomaly. (Figure 2)
- In fetuses with increased NT and a normal karyotype, the risk of structural abnormalities is increased and hence they should be monitored closely with an early anomaly and fetal echocardiography scans.

Increased NT & Cardiac defects

- The prevalence of cardiac defects is increased in fetuses with increased NT and hence, these pregnancies should be further evaluated by a specialist in fetal imaging with an early anomaly scan and fetal echocardiography.
- Inclusion of Tricuspid Valve and Ductus Venosus Doppler improves the DR for cardiac defects as these are important markers in the 1T for screening for cardiac defects in addition to aneuploidies. (11, 12, 13, 14)

1T diagnosis of fetal defects – the way forward

Intracranial Translucency: Open neural Tube Defects (ONTDs) is one of the most common CNS anomalies in the fetus. Usually it is a second trimester diagnosis. In an ONTD, the brainstem is herniated and hence there is obliteration of the cisterna magna and scalloping of the frontal bones, giving the typical "banana sign" and "lemon sign" in the second trimester. However, these usually develop after 16 weeks. Direct visualisation of the spine in 1T can yield higher detection for ONTDs. However, this may be difficult in many situations, given the skills and technical limitations. Hence, 'indirect signs" in the 1T has drawn the attention of researchers to suspect the possibility of an ONTD. Though ONTD is not usually a 1T diagnosis, it can be suspected by looking at intracranial structures particularly posterior fossa structures i.e., 4th ventricle which is also known as intracranial translucency (IT) and brainstem. This is assessed in the NT image itself. (15, 16) (Figure 3)

Maxillary Gap: Cleft lip and palate (CLAP) is a congenital anomaly that is usually detected in the second trimester of the pregnancy and can be associated with chromosomal or genetic anomalies. It may even be an isolated anomaly. In the absence of associated structural anomalies, some cases of CLAP may go undetected. In more recent years several researchers have examined the usefulness of direct visualisation of the fetal face and retronasal triangle at the 11+0 – 13+6 weeks' scan. However, such an examination can be limited due to technical difficulties and need for additional views. Hence, the evaluation of the mid-sagittal face, i.e. the same views as the NT image has been suggested to examine for the presence of maxillary gap which is likely to improve the early detection of CLAP. (17) (Figure 4)

1T assessment of multiple gestations

- Chorionicity is best determined before 16 weeks. Hence, it is important to assign chorionicity and amnionicity in the 1T.
- Presence of the "lambda" sign confirms dichorionicity and presence of the "T-sign" confirms monochorionicity. (18, 19, 20) (Figure 5)
- Any discordancy i.e., the difference between the two fetuses increases the risk for complications later on in the pregnancy. Therefore, it is important to monitor these pregnancies to ensure better perinatal outcomes. (22, 23) (Figure 6)

1T prediction of maternal-fetal complications

Maternal-fetal complications are primarily because of placental insufficiency. It is known that most of the placentation is completed by 15 – 16 weeks of pregnancy. Therefore, any intervention, which is likely to change the course in a "high risk" pregnancy, mainly for preeclampsia or fetal growth restriction (FGR), has to be introduced before the completion of placentation to prevent the development of complications later in the pregnancy. There is a role for low dose Aspirin, provided, it is started before 16 weeks. 2 major meta-analyses have shown that the use of Aspirin 75mg has some benefit in certain "high risk" mothers. [6][7] In these studies, "high risk" mothers are categorised based on age, BMI, parity & family history. However, such a screening method has low DR and a high FPR, because of which lesser number of mothers will be "treated" correctly and the greater number of mothers will be treated unnecessarily with Aspirin. Hence, the main aim of early screening should be to improve the DR. The DR can be improved by combining uterine artery Doppler assessment, mean arterial pressure (MAP) and biochemical markers particularly, PAPP-A & PlGF in the first trimester and in addition, reducing the FPR to about 10%. (24)

It's imperative that for 1T screening for PE & prophylactic treatment of hence suggested "high risk" mother, correct USS technique, appropriate biochemistry and appropriate algorithmic approach as suggested by FMF, UK is used. Large double blind randomised placebo controlled multicentric study, the ASPRE study, showed that when the calculated risk of PE >1:100, treating the mothers with Aspirin 150mg in the night after food started from 12th week up to 36 weeks of pregnancy improves the outcome of the pregnancy, both maternal and fetal outcomes. (25) Such high-risk group also requires frequent maternal and fetal surveillance, which must be provided in a Specialist clinic.

Similarly, screening for SGA (without PE) can also be accomplished by appropriate use USS technique, appropriate biochemistry and algorithmic approach by FMF. The mothers having risk for FGR >1:100 require frequent maternal and fetal surveillance in the Specialist Clinic. (26)

Summary

The First trimester scan has changed the way antenatal care is or can be delivered significantly in the last 2 decades. In addition to screening for chromosomal anomalies with measurement of the NT, assessment of the nasal bone, TV and DV Doppler, this has become one of the most important scans for

- Detection of fetal structural anomalies
- Screening for fetal anomalies that can be detected later in pregnancy eg Genetic syndromes, congenital diaphragmatic hernia etc
- Screening for cardiac defects with NT, TV and DV Doppler
- Detection of major cardiac defects
- Diagnosis and screening for open NTDs and cleft palate
- Confirmation of chorionicity and amnionicity in multiple pregnancies
- Confirmation of gestational age by CRL
- Screening for preeclampsia and FGR
- Prophylactic treatment for prevention of complications of PE

1. Early diagnosis of fetal defects leads to early and safer termination of pregnancy.
2. There is a major cost difference between first trimester Combined test and cf DNA testing, but there are additional benefits of combined test as it has better DR for gestational HT & SGA.
3. Prophylactic treatment with Aspirin 150mgs can be started accordingly in this "high risk" group.
4. In cases of multiple pregnancy, chorionicity has to be confirmed in the first trimester.
5. The first trimester is also the best time for accurate estimation of gestational age. (27)

Further research in the areas of screening for SGA without PE, spontaneous preterm delivery, GDM, and fetal macrosomia appears to be promising too.

What if NT scan is missed?

- If the mother has missed the NT scan at 11+0 – 13+6 weeks, then
- Scan to assess fetal anatomy should be offered to look for any major structural anomalies
- Second trimester serum screening with a Quadruple test can be offered to assess the risk for aneuploidies.
- In combination with a "normal anomaly scan" at 18 – 20 weeks, this mode of screening has an 85% DR. (28)
- Screening for preeclampsia and SGA can be done by maternal history, BMI, measurement of the mean arterial pressure and uterine artery Doppler.
- There is little role for Aspirin beyond 20 weeks of pregnancy. However, close fetal and maternal surveillance can be offered if there is increased risk for maternal PE and FGR, if there is significant positive history, increased mean arterial pressure and/ or abnormal uterine artery Doppler.

To summarize, majority of major maternal and fetal complications can be screened for in the first and early second trimester of the pregnancy. Hence, the aim of antenatal care should be to screen all women in the first half of the pregnancy so that early interventions can be instituted to change the course of the disease and improve pregnancy outcomes. Those women found to be at "high risk" can be monitored more closely by Specialists and those who are at "low risk" can be managed in routine less specialised set ups. In this way, experts' time can be better utilised for those women who are in need of maximum care and this will also eventually lead to better utilisation of resources, especially in set ups where these are limited. However, such a screening at the 11+0 – 13+6 weeks requires more awareness and training to effectively combine maternal biophysical and biochemical parameters with fetal ultrasound to get the best results and henceforth invert the pyramid of antenatal care.

Appendix

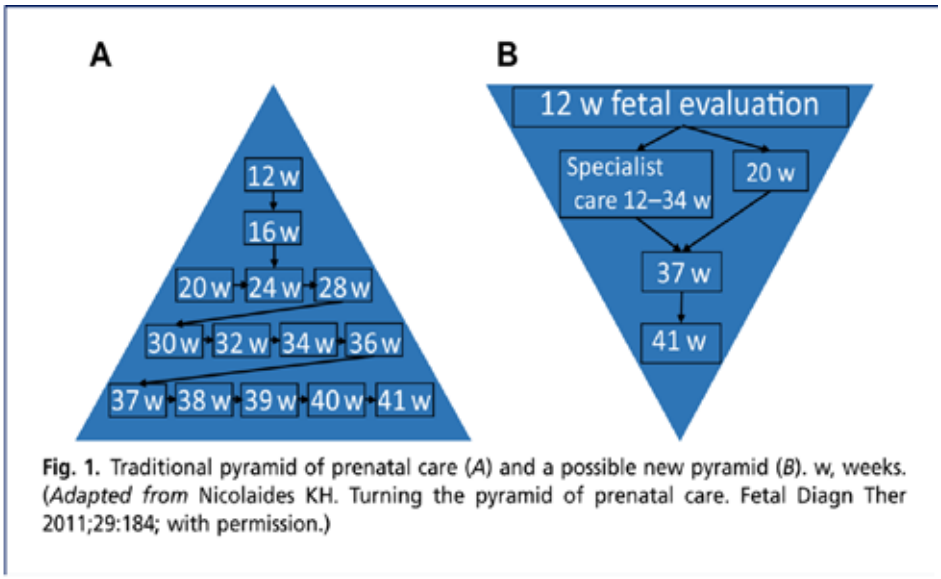

Fig. 1. Traditional pyramid of prenatal care (*A*) and a possible new pyramid (*B*). w, weeks. (*Adapted from* Nicolaides KH. Turning the pyramid of prenatal care. Fetal Diagn Ther 2011;29:184; with permission.)

Figure 1: Inversion of the pyramid of Antenatal Care (FMF, UK model)

Figure 2: Always detectable/ Target 9 in 1T

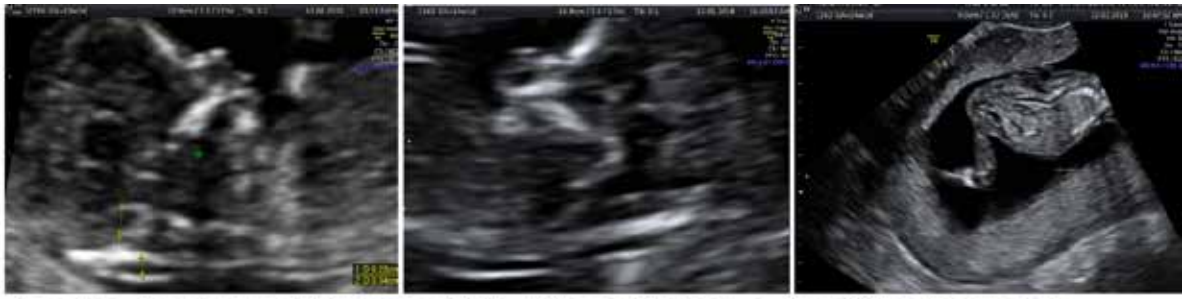

Figure 3: a – Normal Intracranial Translucency (IT); b – Obliterated IT @ 14w; c – Spina Bifida in the same baby

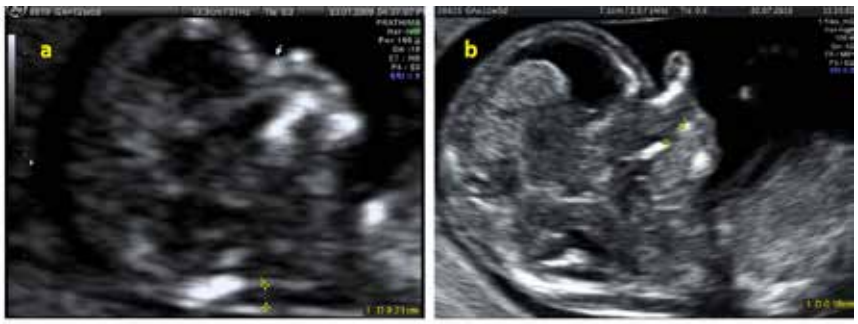

Figure 4: a – Normal maxilla; b – maxillary gap

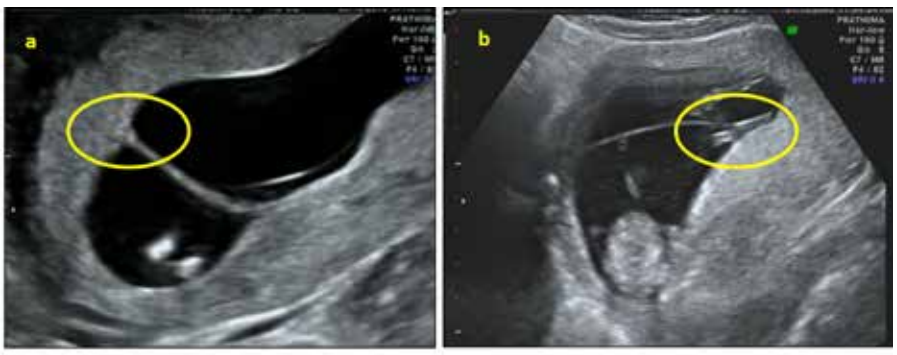

Figure 5: a – Lambda sign of Dichorionicity ; b – T-sign of Monochorionicity

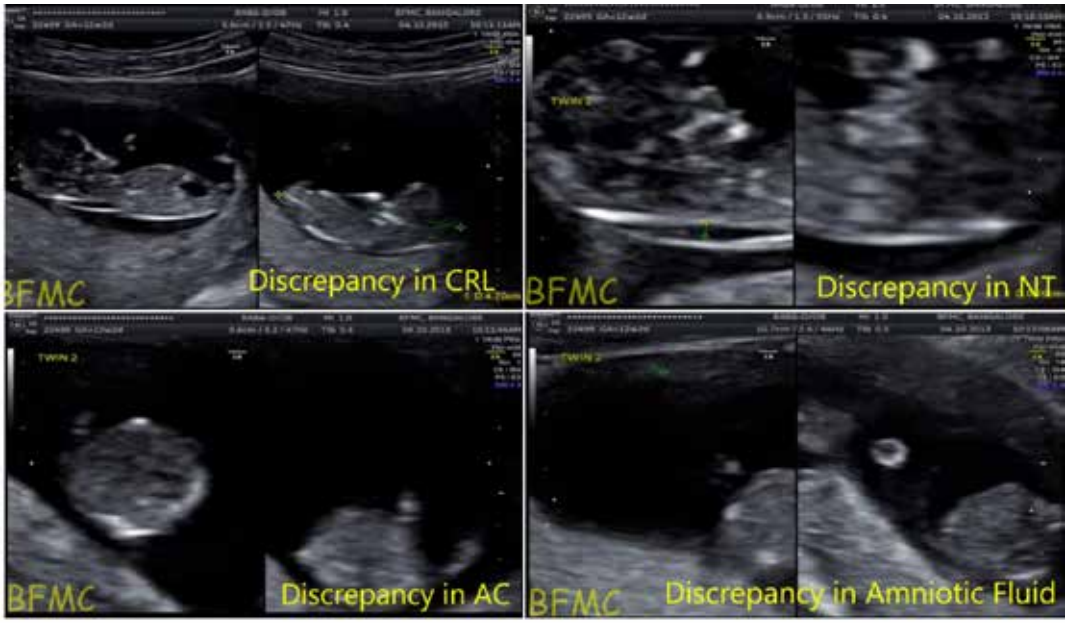

Figure 6: Discordancy in twins

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MANAGEMENT OF EPILEPSY IN PREGNANCY

Dr. Malathi.T
Associate professor, KIMSH &RC
BANGLORE

Pregnancy in women with epilepsy(WWE) can have a varied outcome based on the type of seizures, the type and no of anti epileptic drugs(AED). Risk of maternal death is increased tenfold. Management of epilepsy is a team work with neurologist.

Preconceptional counselling

- Competent clinician to be available.
- WWE should be re assured that most mothers have normal healthy babies and risk of congenital malformations is low. If they are not exposed to AEDs in the periconceptional period.
- Risk of congenital abnormalities in the foetus is dependent on the type, number and dose of AEDs.
- Risk of major foetal malformations is 5% in WWE exposed to AEDs Compared to 2 to 3 % in unexposed(IEA).
- Risk is further reduced with mono therapy.
- Exposure to sodium valproate to be minimised
- Lamotrigine and carbamazepine monotherapy have least risk.
- Folic acid 5mg/day prior to conception until ending of first trimester, dosage recommended by ACOG is 4mg/day(AAN says 0.4mg).
- All WWE reproductive age group should be started with Folic Acid(FA) at the time of starting AED(IEA).
- Seizures may remain unchanged (50%) or improve (25%) or worsen (25%) during pregnancy(IEA).
- Information given to WWE should be in the verbal and written form

AED-antiepileptic drugs---WWE women with epilepsy

Pregnancy

Antenatal care should be with an epilepsy care team (obstetrician and physician attending to epilepsy)

- AED should be continued in pregnancy. Risk of break through seizures due to discontinuation of AED to be emphasised
- Folic Acid to be started if not started earlier and continued till delivery(IEA)
- Seizure frequency monitored and dose of AEDs adjusted
- Screening for foetal malformations
    - o Serum AFP at 16 weeks
    - o USG at 18- 20 +6 Weeks
- Worsening of seizures in pregnancy due to
    - o Sleep deprivation, stress, adherence to AEDs and seizure type and frequency.
    - o Levels of AEDs are known to fall in pregnancy because of changes in pharmacokinetics.

Adjust the dose based on clinical features.

- All women should be given Vit K 10mg i.m at 34 wks and 36wks of gestation (IEA), not recommended by NICE guidelines
- Prenatal Vit K not recommended routinely(GTP no.68,6.8)

Preterm Labour

- WWE on enzyme inducing AEDS --48mg of Betamethasone i.m over 24hrs(IEA).
- Doubling the dose not recommended (GTP no.68)

Non Epileptic attack disorder

- Psychiatric etiology (Dissosciation).
- No EEG discharge.
- Need psychiatric and psychological management.
- Avoid emergent delivery, medications or diazepam.

Labour

- Delivery at hospitals under supervision of gynaecologist and access to specialists.
- WWE should be reassured that most will have an uncomplicated labour and delivery.
- There is no evidence of optimal time and mode of delivery.
- Elective CS in women with
    - o Significant deterioration of seizures
    - o High risk for status epilepticus

Induction of labour

- o No contraindication of any inducing agents
- Oral AEDs to be continued, if not tolerated then parenteral
- Long acting benzodiazepine, clobazam to be given if high risk of seizure in peripartum period
- Adequate labour analgesia
    - o Epidural, combine spinal epidural (CSE), TENS, Entonox.
    - o Avoid pethidine, diamorphine is preferred.
- GA if required, avoid pethidine, ketamine, sevoflurane
- Water birth - WWE who are not taking AEDs and have been seizure free after consultation with epilepsy specialist
- Management of seizure in labour
    - o Written guidelines
    - o Terminate seizures as early as possible –inj. Lorazepam 4mg I.V
    - o Continuous foetal monitoring
- Status epilepticus – lorazepam 0.1 mg/kg (usually 4mg bolus) and repeat after 10-20 minutes or diazapem 5-10 mg orally. If no I.V Access Diazepam 10- 20 mg PR repeated after 15 min if there is continued risks or midazolam 10 mg –buccal preparation
    - o If seizure are controlled
        - Phenytoin 10-15 mg/kg I.V in fusion loading doze (1000mg)
        - If uterus is hypertonic tocolytics to be given after mother is stabilised electronic foetal monitoring If FMR not recovering within 5 min or if seizures are recurrent expedite delivery, Caesarean delivery if Vaginal delivery not imminent
- Neonatologist to be informed about neonatal withdrawal syndrome with maternal use of benzodiazepines and AEDs
- Inj Vit k 1mg i.m at birth to the new born

Post-partum period

- Increase risk of seizures (sleep deprivation, stress, missed medication and anxiety)
- Continue AEDs postnatally
- Dose adjusted, if dose was increased in pregnancy, after review within 10 days following delivery

- New borns to be monitored for Adverse Effects associated with exposure to AED in utero
- Breast feeding no adverse effect of the cognitive outcome of children
- Safety measures to be taken to avoid dropping the baby during seizure,
    - o Nursing baby on the floor
    - o Use shallow baby baths
    - o Laying down the baby if there is a warning aura
    - o Avoid sleep deprivation and alcohol
- Family and friends should have the knowledge of first aid and emergency contact procedures
- Screen for depressive disorders in post-partum period
- **Contraception**
- Copper IUCDs, LNG IUCDS, inj MDPA are not affected by enzyme inducing AEDs
- Enzyme inducing AEDs (carbamazapine, topiramate, eslicarbazepine) can lead to failure of hormonal contraceptives
- Women taking non enzyme inducing AEDs can use any method of contraception
- Emergency contraception is affected by enzymes inducing AEDs, only copper IUCDS are recommended.
    - o Double dose LNG (3mg as a single dose within 120 hrs of unprotected intercourse may be used.
    - o Ulipristol acetate should not be used
- Women taking lamotrigine monotherapy and oestrogen containing contraceptive should be informed of high risk of seizures, because of fall in lamotrigine levels

Driving privileges

- Stoppage or decreasing dose of AED in pregnancy may result in seizure deterioration which can impact driving.

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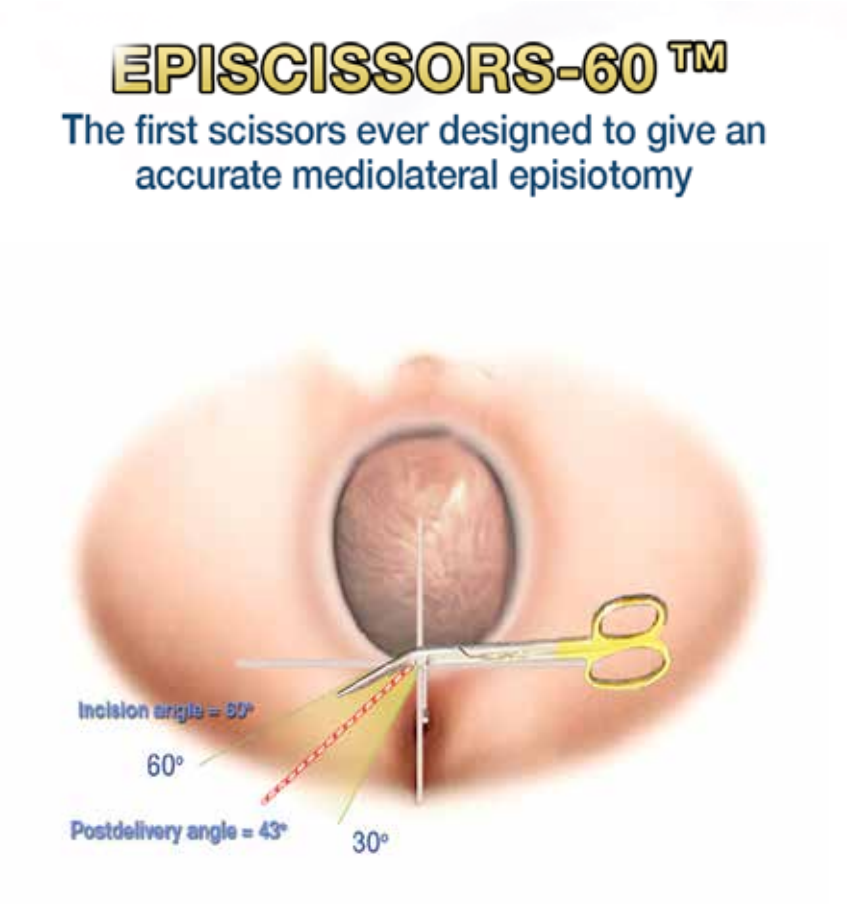
Management of epilepsy in pregnancy

Pre conceptional care
Monotherapy
FA 5mg /Day
Alleviate fear& doubts

Pregnancy
FA 5mg /Day
AED and dose adjusted
Vit K
Avoid risk factors
Serum AFP +USG

EPISCISSORS-60 BEING INTRODUCED IN INDIA AT THE AICOG 2019!

Dr. Dharmesh Kapur



- Episiotomy is one of the commonest interventions performed in obstetrics to aid delivery of the baby. The type and angle of the episiotomy have been shown to be crucial in the causation of Obstetric anal sphincter injuries-OASIS (3rd/4th degree perineal tears).
- Mediolateral episiotomy performed at 60 degrees to the midline at the time of crowning has been shown to be the safest for reduction in OASIS. Midline episiotomies have 5 times higher risk of OASIS, and episiotomies done at 90 degrees to the midline have 9 times higher risk as they fail to unload the pressure on the posterior perineum.
- The 60 degree angled episiotomy is recommended by the Royal College of Obstetricians and Gynaecologists (RCOG), the French National Committee (CNOGF), the Society of Obstetricians and Gynaecologists of Canada (SOGC), the Saudi O&G Society, Women's Health Collaborative Australia and the American College of Obstetricians and Gynecologists (ACOG).
- Research studies show that doctors and midwives are unable to correctly estimate the 60 degree angle by eyeballing.
- EPISCISSORS-60 are patented mediolateral episiotomy scissors that have the blades aligned to cut at 60 degrees when the guide-limb is aligned to the anus. The guide-limb is flexible, to move with the distending perineum. EPISCISSORS-60 are used in 70% of hospitals in England, and widely used in Europe and Australia.
- They have been shown to reduce OASIS by 18-50% in prospective studies, and by 63% in a systematic review from England, compared to eyeballed episiotomies.

THE AGE OF PAPERLESS PARTOGRAM

Dr A K Debdas

Generally speaking, obstetricians of all over the world have been using the paperless system for management for every labor case of theirs since long. Obstetricians manage their professional life and also their social life through the use of paperless partogram through determination of the **expected 'TIME' of delivery** (mentally) so as to plan to be available around that time for conducting the delivery of (specially) their private cases. It may be noted that ETD (Expected TIME of Delivery) constitutes the sole software of the 'Paperless Partogram' as explained below.

What is paperless partogram?

It is a method of fixing the Expected 'TIME' of delivery called **ETD** which is a split-second mental job. This is to be done at the very first PV in the 'Active phase' of labor when the cervix is at least **4 cm dilated** and 50%% effaced. Example: Say, at 2 PM PV the cervical dilatation was found to be 4 cm, then the ETD in this case would work out as 2 PM + 6 hours = 8 PM assuming that, at Philpott's/WHO's **1cm/ hour rate** of cervical dilatation, she would take 6 hours to dilate the remaining 6 cm to become 10 cm or fully dilated. For the labor management purpose this calculated time point is to be taken as the **ALERT ETD** because, according to literature, **75% of patients** are expected to '**deliver vaginally**' by then. It may be noted that in this predicted expected 'time duration' as derived from 1cm/hour formula for the ETD prediction, the duration of second stage of labor is included and this need not be added.

So, in any labor unit, after this time point one would be left with only the slower 25% of the original number of cases in labor 6 hours ago - to manage.

What to do with these SLOW lot ? Inform the Specialist forthwith to come and assess the cause of the delay and institute necessary treatment for it or if it is a resource poor area, **arrange to transfer** her to higher centre having facility for Caesarean etc. There will still be 4 hours in hand for the journey and more progress to occur. This 4 hours time point is called **Action ETD** which signifies that if any patient has failed to deliver even by this extra 4 hours – critical assessment and situational Action is to be planned to deliver her soon.

As is apparent, in paperless system, the duration of journey is for a **maximum** period of **6 hours** (for the remaining 6 cm of the active phase) which has to be covered by the following usual Nursing observations and Management:

2a – Asepsis & Analgesic

2b – Bladder & Bowel care

3c - Care of **Mother** (BP & TP),

Care of **Fetus** (FHR & Meconium)

Care of **Contraction**-Number /10 minutes-all these to be checked **hourly**.

NOTE.

I - Provided the nursing observations are OK there is usually, hardly ever any need to do PV during these (maximum) six hours period because, as is known, the rate of dilatation is physiologically slow during the first 3 hours (of the total 6 hours) which automatically speeds up after that in 75% of cases who deliver vaginally by their Alert ETD time.

II - Frequent PV during this period causes worry about the slowness of dilatation and leads to **unnecessary augmentation** and call for CTG monitoring to cover the augmentation which is not available in most resource poor units; besides CTG has its inherent problem of interpretation leading to panic caesarean. Waiting under nursing observations as mentioned above up to the Alert ETD time-point automatically screens out the 25% slow cases who should be critically obstetrically assessed and managed at that point so as to deliver them by their Action ETD time i e by next 4 hours.

III - This approach of refraining from doing frequent PV is **unsuitable** for High risk cases and also Where the duration of latent phase is more than eight **(8) hours**.

Procedure of "Paperless documentation"

It has two aspects - namely documentation for management of 'individual patient' and documentation for conveniencing the management 'of all patients' in the LR.

I – Documentation for "individual patient"

This entails simply **typing the 2 ETDs** on the NOTE page of an 'ear marked Cell phone' for the labor room (only) called the "**FEEDER MOBILE**". This data along with whatsap copy of patient's Aadher card is to be **shared** to two locations namely-

A) **Patient's own cell phone** for her own knowledge and also that of her husband who are to be simultaneously counseled. (Nowadays most patients have their personal cell phone, if not they may be allotted one temporarily for the period of labor). Patient is also advised to 'set an alarm' for her Alert ETD time point. In very busy LR she may inform the Nurse once she has reached that time point and she is not being attended.

B) To a 'special e mail ID for the labor room only'.

Creating e-case sheet

In the labor room-Laptop one 'Folder' is to be created for each patient. Any data received on this patient in the LR e mail ID is to be copied on this folder including her Whatsapped T/P/R, face of Digital Doptone reading, CTG tracing, PV findings, input/output details etc. The counseling occasions may also be videographed and copied here through through whatsapp. In this system, one need not bother about writing the time for each thing because in all machine time gets recorded by default.

After delivery - time of delivery, weight, sex, Apgar and blood loss are to be typed in here.

A very simple e parto chart is attached which may be made on the e case sheet and data fed directly on it (Attachment -2)

Reasons for non-acceptability of the conventional partogram

1. It is Complex, time consuming and hence **very user un-friendly**. Post graduates do it in retrospect out of fear of bosses and coercion.

2. It is an "**inappropriate technology**" according to 3 out of 4 scores of **WHO's definition** of appropriate technology (Cartmill & Thornton, 1992).

3. It is a **superfluous technique** -When you know she has not dilated 3 cm In 3 hours instead dilated only 1cm – why one would need to plot the figures on a graph paper, join the dots to make a graph to understand that the labor is slow by 2 hours.

ALERT ETD: ACTION ETD:

PV Time (3 hourly)	Expected Dilatation	Actual Dilatation	LAG in Dilatation
2 PM			
5 PM			
8 PM			
11PM			

Name : Age : Para : Reg No.

ALERT ETD : 4 hour ACTION ETD :

LABOR 'LAG' LOG

Time of PV (3 hourly)	Expected Dilatation In next PV (cm)	Actual Dilatation In next PV (cm)	LAG If any (in cm & hr) Circle the Fig In RED	FHR (BPM)	Mec	T/P	B/P	Contraction/10 min/Duration In Secs	Mana gement -Drip -Drug
2 PM									
3 PM									
8 PM									
11 PM									
Or as required									

RECURRENT URINARY TRACT INFECTIONS - TIPS

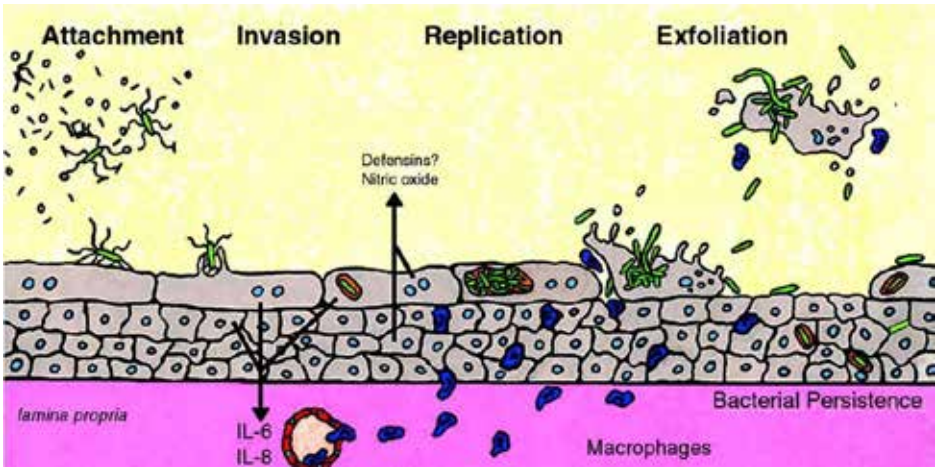
Prof. Mumtaz P, MES Medical College, Perintalmanna, Kerala

Urinary tract infections are more common in women than in men. 1 in 5 women will have at least one episode of urinary infection in her lifetime. Most women will have at least one of the following symptoms: an urgent need to urinate, burning feeling when urinating , pressure or pain in lower abdomen , cloudy or blood-tinged urine .If the infection spreads to the kidneys there will be pain in lower back , fever and chills , nausea and vomiting. Thus urinary tract infections cause considerable morbidity and distress in a woman's life, more so when the infections are recurrent.

Infection is said to be recurrent if there are two episodes in a period of 6 months or 3 episodes in one year. Recurrence could be due to either reinfection or relapse. As the name suggests reinfection is when a new infection arises and relapse is caused by a persistent focus of infection — the importance in differentiating the two lies in the fact that relapse needs more extensive urologic evaluation, more prolonged therapy, and in some cases, surgery. Clinical differentiation is based on the time interval and isolation of the organism in the urine culture. If the infection occurs within two weeks of completion of treatment and if the strain is the same it is considered as relapse. If the duration is more than two weeks, it is considered as reinfection even if the causative organism is the same.

Pathogenesis

Whether it is a primary infection or recurrent infection, the source is mostly the pathogens in the rectal flora. These uropathogens colonise in the vaginal introitus, periurethral area and then ascend into urethra and bladder. This colonization is favoured by an alteration in the normal vaginal flora. The lactobacilli in the normal vaginal flora produce hydrogen peroxide which is bactericidal to uropathogens.[1] Reinfection could arise from uropathogens harbouring in the rectum or vaginal introitus. Another source of reinfection is the bladder epithelium itself which acts as a reservoir for the uropathogens which they invade and replicate. [Figure 1] This is evidenced by the presence of intracellular bacteria in the exfoliated cells from bladder mucosa.[2]



[Figure 1 – Bladder epithelium as reservoir for uropathogens]

Risk factors for recurrence

The reason for repeated infection is multifactorial. In addition to factors like improper choice of antibiotics without doing a culture and sensitivity, inadequate treatment like stopping the antibiotic with symptomatic relief, other factors are also found to be the basis for recurrent infections. These are genetic, biological and behavioural peculiarities of the women.

Type of pathogen also affects the incidence of recurrence. When the first infection is caused by Escherichia

coli, - they are more likely to develop a second UTI within six months than those with a first UTI due to another organism.[3] Escherichia coli remains the predominant uropathogen isolated in acute community-acquired uncomplicated infections, followed by Enterococci, Pseudomonas, . Klebsiella, and Streptococcus [4] [Figure 2]

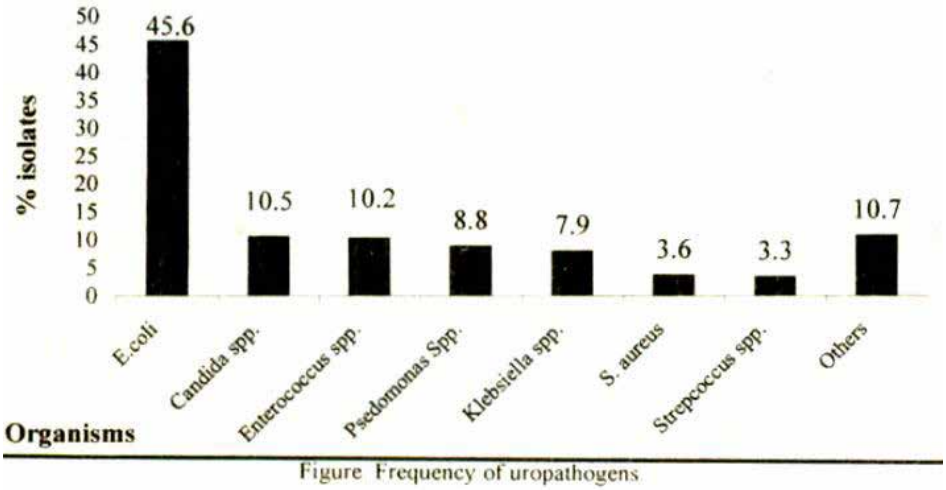
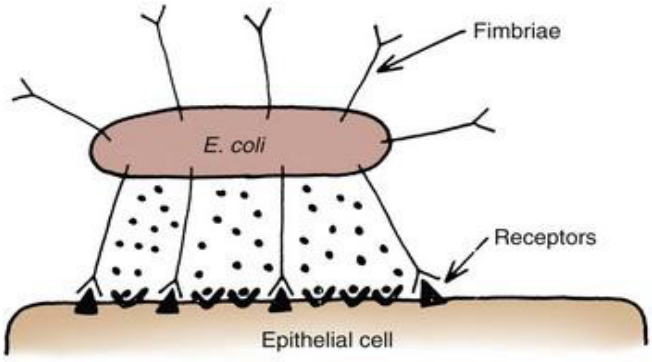


Figure Frequency of uropathogens

[Figure 2 – frequency of uropathogens]

Some women have increased susceptibility to vaginal colonization with uropathogens. Genetic determinants are supposed to be the reason for this increased susceptibility. The Uropathogens also have a higher propensity to adhere to the epithelium [Figure 3] which is already infected previously. Another favouring factor is non-secretor status of ABH blood group antigens. ABH blood group antigens are secreted in all body fluids as water-soluble glycoproteins. It has been found that uroepithelial cells from non-secretors showed enhanced adherence to uropathogenic E.coli.[5]



[Figure 3 – adherence of E.coli to uroepithelium]

Behavioural factors like sexual intercourse, multiple sexual partners and use of spermicidal jelly and diaphragm for contraception are also risk factors for recurrent infections.

Peculiarities of pelvic anatomy also contribute to the recurrence. In a study, women with recurrent infections were found to have a shorter distance from the urethra to the anus than controls. [6]. In postmenopausal women mechanical and physiological factors like presence of cystocele and urinary incontinence contributes to recurrence of infection. Another issue in postmenopausal women is the hypoestrogenic state leading to vaginal atrophy and loss of normal vaginal lactobacillus.

How to prevent recurrent infections?

Different methods have been tried in preventing recurrence which includes modification of behavioural factors, antibiotic prophylaxis and other strategies.

1. **Modification of behavioural factors**

This included advice regarding the change in method of contraception, avoiding diaphragm and spermicidal

jelly and also alterations in sexual practices. Promoting early postcoital voiding and proper washing techniques from front to back.

Liberal fluid intake is also found to decrease the incidence of recurrent cystitis.

Increasing the fluid intake to 2 to 3 litres per day decreased the incidence of cystitis by 50%. [7]

2. Antimicrobial prophylaxis

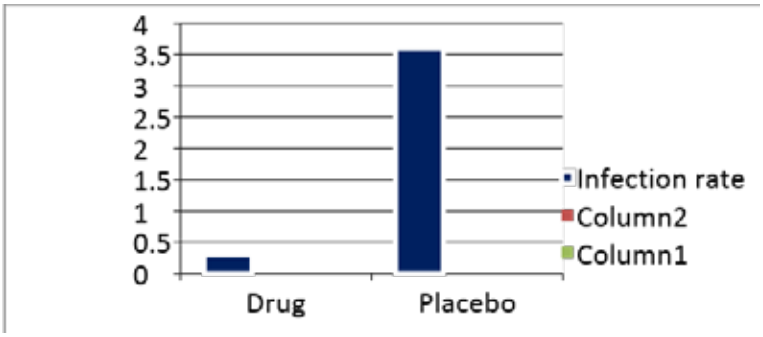
Antimicrobial therapy is found to be highly effective in preventing recurrent episodes of urinary tract infections.[8] There are mainly two types of antimicrobial prophylaxis, Continuous therapy and post-coital treatment. The choice of approach depends upon the frequency and pattern of recurrences and patient preference.

In **continuous prophylaxis**, the drug is initially given for a period of 3 months to assess the response and tolerability. In the case of positive response, the drug is continued to 12 months. The observations made in the Cochrane Database Syst Rev 2004; are the following [9]

Continuous prophylaxis leads to a significant reduction in the incidence of microbiologic recurrence and clinical recurrence per patient per year. But side effects, like vaginal and oral candidiasis and gastrointestinal symptoms, were more common with antibiotic therapy. There was no significant difference in efficacy between continuous daily and postcoital ciprofloxacin.

The choice of antibiotic regimens is made based upon the triggering factor for recurrence, susceptibility patterns of the strains and history of drug allergies.

In **post-coital prophylaxis** single post-coital dose is to be taken within 2 hours of coitus. It is more effective when the UTI s appear to be related with sexual intercourse. Studies have shown that post-coital prophylaxis decreases recurrences considerably compared to the placebo[Figure 4] The drug used in the study was Trimethoprim-sulfamethoxazole in the dose 40mg /200mg. [10]



[Figure 4 - The effect of Postcoital antimicrobial prophylaxis]

The usual regimens used for antimicrobial prophylaxis is given in the table below

Continuous therapy	Postcoital therapy
Trimethoprim/sulfamethoxazole (TMP/SMX) (40 mg/200 mg daily or thrice weekly)	TMP/SMX (40 mg/200 mg to 80 mg/400 mg)
Trimethoprim (100 mg daily)	
Ciprofloxacin (125 mg daily)	Ciprofloxacin (125 mg)

Cephalexin (125 mg to 250 mg daily) Cefaclor (250 mg daily)	Cephalexin (250 mg)
Nitrofurantoin (50 mg to 100 mg daily)	Nitrofurantoin (50 mg–100 mg)
Norfloxacin (200 mg daily)	Norfloxacin (200 mg)
Fosfomycin (3 g every ten days)	
	Ofloxacin (100 mg)

The consequences of long-term antimicrobial therapy would be antimicrobial resistance and side effects. The emergence of resistant strains can lead to breakthrough infections.

The commonly used drug Nitrofurantoin has side effects on long-term exposure, such as Pulmonary reactions, Chronic hepatitis, Neuropathy though rare. Nitrofurantoin use should be avoided in patients with creatinine clearance <30 mL/minute [11]

Likewise, Fluoroquinolones are also associated with side effects like QT interval prolongation & arrhythmia, Retinal detachment, Hypoglycemia and hyperglycemia, Liver failure and Leukopenia on chronic usage and ideally these drugs should be reserved for more serious infections. [12]

Fosfomycin Tromethamine is a new entrant to the treatment of urinary tract infections. It is a bactericidal agent; it works only in the bladder. It acts by inhibiting bacterial cell wall biogenesis by inactivating the enzyme UDP-N-acetylglucosamine-3-enolpyruvyltransferase also known as MurA. It is available in powder form in a sachet which needs to be dissolved in cold water and taken in empty stomach. A single dose is advocated for UTI and recurrent episodes one sachet every ten days for a period of 3 to 6 months. It was found as effective as antibiotics and has a comparable safety profile.[13] Fosfomycin resistance was documented in only 1 % of E. coli vs 19 % of Klebsiella spp. ($p < 0.0001$). Bacterial resistance among uropathogens has led to a decreased effectiveness of routine antibiotics. Hence Fosfomycin which displays in vitro activity against multidrug-resistant (MDR) isolates is a promising choice.[14]

3. Other strategies

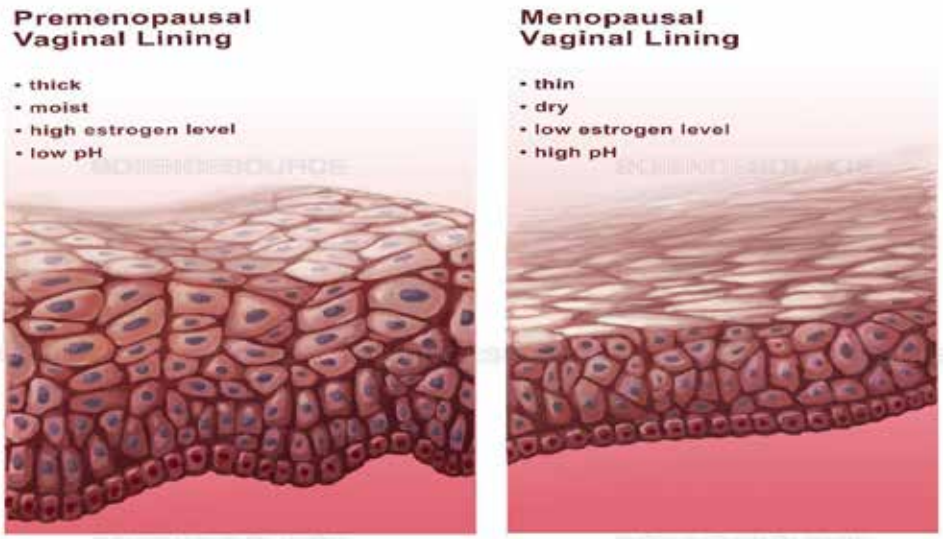
Other strategies tried are Surgical correction of mechanical problems, Intravaginal oestrogen, Cranberry extract, Probiotics, Antiseptics, Immunostimulating drugs and Vaccines.

A. Surgical correction of mechanical problems

Correction of cystocele especially when there is significant post voidal residual urine volume helps in reducing the incidence of recurrent infections.

B. Intravaginal oestrogen

The postmenopausal state makes the vaginal epithelium thin and susceptible to colonization [Figure 5] Intravaginal oestrogen is especially useful in Postmenopausal women with recurrent UTI, when antimicrobial resistance is also a concern. Studies have shown that replacement of topical oestrogen normalizes the vaginal flora and greatly reduces the risk of UTI in postmenopausal women [15] Dosage: 0.5 mg of oestriol cream vaginally every night for two weeks, then twice a week for eight months.



[Figure 5 - changes in the vaginal mucosa after menopause]

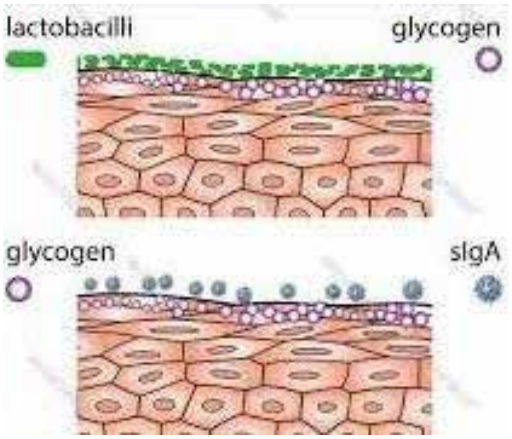
C. Cranberry products

Laboratory studies have demonstrated that cranberry juice inhibits adherence of uropathogens to uroepithelial cells. But clinical studies have not demonstrated efficacy in prevention of UTI neither as juice nor as capsules containing 72 mg of active ingredient. In addition to the

Ineffectiveness, gastritis and increased calorie consumption are concerns with cranberry juice. [16,17]

D. *Probiotics*

Lactobacilli Protect the vagina from colonisation of uropathogens as shown in the Figure -6 by preventing attachment of pathogens to the vaginal epithelium



[Figure -6 – protective effect of vaginal lactobacillus]

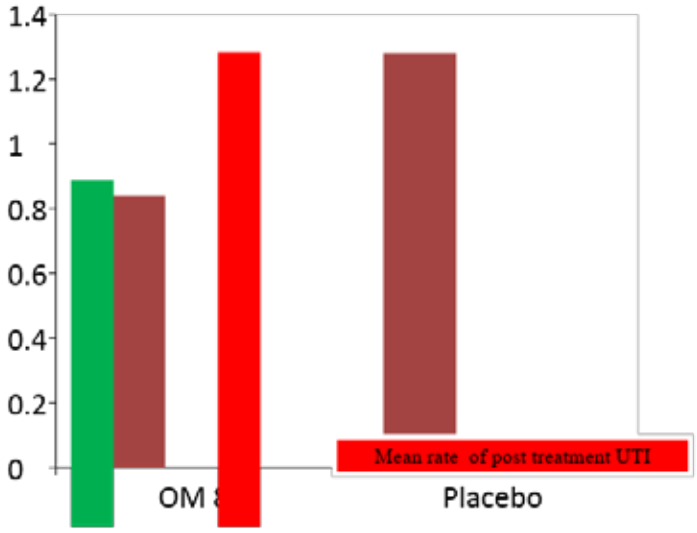
Probiotics act by Maintenance of a low pH, Blocking potential sites of attachment, Induction of anti-inflammatory cytokine responses in epithelial cells and production of H2O2. Oral probiotics and vaginal probiotics may be used. Vaginal Lactobacillus treatment was found to be well tolerated, and more effective. Vaginal probiotics were found to achieve high levels of vaginal colonization and was associated with decreased rates of recurrent UTI (15 % versus 27 % of women in the placebo group). [18] Probiotic capsules contain colonies of L. rhamnosus, and L. Fermented Duration of treatment varies from 5 days to 12 months. Doses vary between 10^8 CFU and 10^{10} CFU.[colony forming units]

E. Antiseptics

Methenamine salts are converted to formaldehyde in acidified urine and thus have general antibacterial activity. In Multidrug-resistant uropathogens in whom other preventive strategies have not worked methenamine is occasionally tried in a dose of 0.5 to 1 gm per day.[19]

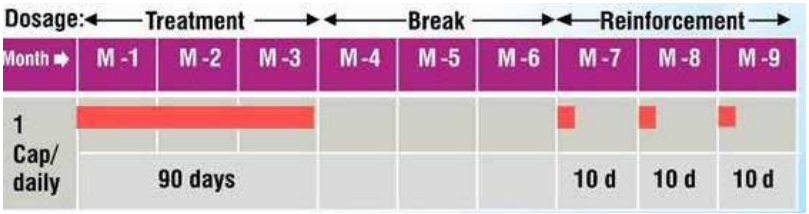
F. Immunostimulating drugs

The bacterial extract OM-89 (OM Laboratories, Geneve, Switzerland) has been used in clinical practice. It contains extracted immunostimulating fractions derived from18 strains of E. coli that are most frequently responsible for community-acquired UTIs. It stimulates many host defence mechanisms. They were found to significantly reduce the incidence of recurrent UTI and the need for antimicrobial therapy. [20] [Figure 7]



[Figure 7 – Efficacy of OM 89]

Dosage: it is given as 1 capsule per day for a period of 3 months, then after a period of treatment free 3 months it is restarted as 1 capsule per day for 10 days each month for another 3onths [Figure 8]



[Figure - 8 – Dosage schedule of immunostimulating drugs]

Preventive effectiveness of OM-89 lasts for at least three months after cessation of treatment. It can be used over a longer period without concern for the development of bacterial antimicrobial resistance. No side effect were found accompany long-term therapy.

G. Vaccines

Whole cell vaccines made from combinations of heat-killed uropathogenic strains given as Injection or a vaginal suppository had only partial success, and the protective effect wanes over several weeks.

Vaccine based upon the E. coli type 1 fimbrial adhesion protein, FimH is awaited. It is expected to be effective as virtually all uropathogenic strains of E. coli contain the FimH adhesion protein.

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NATURAL CYCLE OR STIMULATED CYCLE IUI: RELEVANCE IN TODAY'S PRACTICE

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Intrauterine insemination (IUI) is one of the first lines of infertility treatments in subfertile women. . Contrary to in vitro- fertilization (IVF) and intra-cytoplasmic sperm injection (ICSI), it is relatively simple, effective, non-invasive, and a less expensive procedure. It can be provided without expensive infrastructure with a reasonably successful outcome. Common indications for IUI are unexplained and male factor infertility, cervical hostility, mild endometriosis, immunological causes and male/female sexual dysfunctions. Overall success rate of IUI varies from as low as 5% to as high as 22% depending on patient selection criteria, characteristics of different semen parameters, ovarian stimulation protocols, cycle monitoring and timing of insemination.

IUI can be performed in the natural cycle but most often in stimulated cycle to grow multiple follicle. Multifollicular growth improves IUI outcome but at the same time associated with the risk of multiple pregnancy leading to higher risk of obstetric complications like preeclampsia, obstetric hemorrhage, and spontaneous preterm birth. There is also risk for complications related to birth of multiple children. So there is always controversy of using ovarian stimulation in IUI in ovulating women like unexplained or male-factor infertility Some clinician are in favor of ovarian stimulation, whereas others disagree that IUI should be done in natural cycle without ovarian stimulation in these patients undergoing IUI. Optimal protocol for ovarian stimulation in IUI cycle is also not clearly recommended in literature.

Stimulation protocols commonly used are:

a) Clomiphene citrate (CC)

b) Letrozole

c) CC/ Letrozole/ Tamoxifen along with gonadotropins

d) Gonadotropins alone

e) GnRh agonist or antagonist along with Gonadotropin

CC is the first line of choice for ovulation induction and also for super-ovulation. Per cycle pregnancy rate ranges from 3%–12%.). All published randomized controlled trials (RCTs) comparing different stimulation protocols in IUI programme reported that although less effective than gonadotropins, antiestrogens were more cost effective in IUI therapy. Gonadotropins along with GnRH agonist or antagonist was not cost effective option in IUI as these protocols were associated with increased costs and risks of multiple gestations and of OHSS. Low dose gonadotropins (50–75 IU), were the most effective agents reported when ovarian stimulation was combined with IUI

Natural cycle IUI:

An IUI done after ovulation spontaneously in a natural menstrual cycle is a natural cycle IUI. It include monitoring in natural cycle , correct identification of the LH surge , performing IUI 24-36 hours. Since IUI in natural cycle is based on the spontaneous LH surge and needs monitoring of urinary LH kits or measurements of serum LH and estradiol and many clinician perform modified natural cycle IUI by giving injection HCG when follicle size reaches 17-20mm. IUI is done 24- 36 hours after HCG injection. This method allows precise timing of IUI and can improve success rate of IUI. Regular ovulating women are the candidate for a natural cycle IUI. Many centres practice a modified natural cycle IUI.

Literature review on IUI for unexplained infertility observed lower live birth rates with the use of natural-cycle IUI compared with IUI in stimulated cycles. But at the same time multiple pregnancy rate was lower after natural-cycle IUI.

It cannot be used in anovulatory women with irregular cycles.

Indications Of natural cycle IUI

1. women suffering from DVT, endometrial hyperplasia, major depression, psychosis or migraine where high estradiol level aggravates these conditions.

2. Sexual dysfunction

3. Cervical hostility

4. Severe male factor where donor insemination is suggested

IUI Success:

Ovarian stimulation and IUI is more likely to result in a live birth than IUI in natural cycles. Live birth in stimulated cycle is 25% while 9-21% in natural cycle. NICE Guidelines state that for male subfertility, ovarian stimulation should not be offered because it does not improve treatment outcome while increasing the risk of multiple pregnancy.

Conclusion:

Ovarian stimulation improves pregnancy by increasing the number of oocytes, but simultaneously increases risk of OHSS and multiple pregnancy. IUI in the natural cycle has been proposed especially in severe male factor infertility and unexplained infertility. Timing Natural cycle IUI either with urinary LH surge testing or using HCG injections give similar pregnancy and live birth rates. Large RCT's are needed to ascertain the rightful place of natural cycle IUI in IUI programme

THE DEVELOPMENT OF IN-VITRO FERTILIZATION IN INDIA

Dr Rina Agrawal and Dr Elizabeth Burt

Introduction

Subfertility is not a condition unique to the developed world, and difficulties in conceiving affect couples worldwide. Treatment options for subfertility tend to lend themselves to controversy and ethical debate; however, this is with good reason, given the sensitive nature of the work and responsibilities that clinicians hold. This is true even in highly regulated countries where public consultation, government legalisation, and regular audit of clinical work occur. The licensing and legislation infrastructure is only beginning to catch up with the advance of fertility treatment in several countries.

India is a prime example where a developing country has a rapid pace of expansion, globalization, and opportunity. It has achieved one of the fastest market growths within this sector. If regulations significantly lag behind clinical practice, then we can expect some degree of professional misconduct and commercial exploitation. This is having a significant impact on the framework of fertility practice in India.

In this chapter, we examine the incidence of subfertility in India, the origins of fertility treatment, and the legalisation and current regulatory landscape in this rapidly developing and populous country, which is tipped to complete 260,000 ART cycles per year by 2020.

Subfertility in India

It is estimated that subfertility of various etiologies affects 27.5 million couples in India. The nation faces comparable environmental and lifestyle challenges to other countries and an increasing prevalence of both female and male subfertility across a diverse population (Kumar et al., 2014). This includes factors such as delayed marriages, delayed childbearing, an increasing female work force, a higher prevalence of the use of contraception, and lifestyle factors such as obesity, smoking, and alcohol use. Furthermore, there is now an increased incidence of sexually transmitted infections (Bhilhar et al., 2015) and Polycystic Ovarian Syndrome (Balaji et al., 2015) affecting female fecundity. Many couples therefore require fertility treatment (15%), although only approximately 1% of them currently seek help. The barriers to treatment are multifactorial, including the balance between social tradition driving the wish for treatment and parenthood and the stigma of infertility exposed by those seeking treatment. This is compounded further by the prohibitive costs for treatment and the disruption to daily living the treatment necessitates. Gender inequality is more pronounced in India and subfertility increases the social pressures on women, especially in the most rural areas. Not being able to conceive generates relationship and extended family tensions, and subfertility increases the incidence of violence against women and divorce rates.

Reproductive Medicine in India

India quickly followed the United Kingdom with the second baby born via IVF in 1978, but the news was shrouded in contention and debate. After the birth of Louise Brown in the UK on July 25, 1978, baby Durga was born a few months later in India on October 3 of the same year. The parents of the Indian baby forbade publication of their clinical care and the birth of their daughter, which led to the integrity of the work being challenged. This had substantial repercussions for Dr. Subhas Mukerji who led the pioneering work and established a scientific landmark in Indian reproductive medicine. The news of the baby was told in the media, but not documented in medical journals or shared with the scientific community in the conventional manner, which denied Dr. Subhas Mukerji the credit for his successful endeavour. Following news of the baby and the claims that she was born via IVF technology, the Indian government set up an enquiry to investigate, but concluded that the claims were fabricated and false.

The Indian government then prevented Dr. Mukerji from further publication or attending scientific conferences to present and defend his work. He was barred from reproductive medicine and transferred to an insignificant role in ophthalmology in a smaller subdistrict of India. Surrounded by dishonour, disbelief and

humiliation, sadly, Dr. Subhas Mukerji committed suicide on June 19, 1981.

Dr. Anand Kumar played two pivotal roles in the history of IVF in India. Firstly, his scientific team in Mumbai, along with the clinical lead, Dr. Indira Hinduja, took the credit for the first Indian baby born with IVF on August 6, 1986. Secondly, and somewhat ironically, years later, Dr. Kumar also led a noble campaign supporting Dr. Mukerji's claim for precedence. Dr. Kumar reviewed the steps and process of Dr. Mukerji's work through detailed analysis and revision of his presentations and publications, and published a paper documenting Dr. Mukerji's work chronologically. His aim was to provide the evidence for restoring Dr. Mukerji's professional reputation and substantiating his rightful place as the creator of the second baby born through IVF technology in the world. The Indian Council of Medical Research (ICMR) added its poignant acknowledgement in 2002, 21 years after Dr. Mukerji's death.

India is a heterogeneous country with old traditions and social constructs nestling alongside "new" western ideology and technology. This has inevitably led to conflict in acceptability and apparent contradictions in moral conduct. On the one hand, there is a conservative and private approach to reproductive medicine and, on the other, there is the overt fertility "tourism" trade that is occurring in India. Owing to the concentration of fertility clinics in major Indian cities (55%), coupled with the high price of treatment, many Indian couples are unable to access services; this exemplifies the inequalities in awareness and provision of treatment. However, the comparatively lower price of treatment than in many other parts of the world makes India a very attractive destination for many foreign patients. Thus, finding the balance between medicine and commercialism is a challenge for the Indian government and the regulatory bodies of the fertility practices in India.

India has hit the headlines over several issues related to IVF treatment, some welcome and some less so. Compared with other countries, India has a greater degree of moral autonomy, which has led to some practices and outcomes drawing criticism from around the world. There have been cases which have emphasised the distinction between what is "possible" and what is "right." With new regulations being put in place, standardized procedures will start to harmonize concepts for professional practice, but currently there is no official code of practice.

In some clinics, the opportunity to be a mother is offered to older post-menopausal women, and in other clinics multiple embryos are placed in the uterus. This raises serious ethical dilemmas. India was the focus of attention in May 2016 with news of the birth of baby to a 72-year-old woman. This may be a record, but it was not an isolated event, as pregnancies in women long past menopausal age are reported to be relatively common in some clinics. This case, however, provoked worldwide attention, and caused questions about the appropriate use of reproductive technology and potentially exposed Indian clinics to public criticism. The motives of such parents varied, but the stigma of being "barren" was often cited as a justification for treatment, thus completely overruling responsible medical care and the interests of any children. A new Bill (see below) intends to ban the use of treatment for females over the age of 50, in line with policy in many other countries.

India is keeping pace with other countries in all aspects of reproductive medicine. In 2002, it was the second country to perform a complete orthotopic ovarian transplant for a female with Turner Syndrome (Mhatri et al., 2005). On May 18, 2017, it completed its first uterine transplant at the Pune Galaxy Care Laparoscopy Institute. India has also been at the forefront of surrogacy practice, which is discussed further below.

National Registry

IVF and reproductive treatment is commercially very appealing. This has led to a massive expansion within the women's health care sector, but the organization of clinics and their regulation is on an ad hoc basis. By 2020 it is predicted that India's clinics will be performing 260,000 cycles per year. Worryingly, clinics can be opened with minimal scrutiny of the treatments on offer or the qualifications and skill of those providing care. The ICMR and Indian Society of Assisted Reproduction (ISAR) have appreciated that this may compromise patient safety; success rates and procedures are therefore being put in place to rectify this weakness. They have advocated the adoption of an accreditation and licensing system similar to that of the UK.

Previously there has been no official central data collection for assisted reproductive treatments and, as a

consequence, keeping track of the number of cycles, success rates, and treatments offered by the clinics in India is suboptimal. This lack of surveillance motivated the implementation of a national registry to aid data sharing and clinical transparency, not only nationally but also internationally (e.g. International Federation of Fertility Societies – IFFS). Recognition of variations in practice globally, appreciating the diversity in pathologies affecting effectiveness, analysing the incidence of complications, and gaining exact figures on pregnancy outcomes will benefit both the reproductive medicine community and especially the patients. There have been concerns regarding issues such as the number of embryos transferred, inappropriate handling of gametes and misuse of technology for sex selection. With registration, practices can be held accountable, treatment can be monitored to ensure that only ethically sound treatment is carried out and that there is adequate safety with treatment carried out to the highest quality.

With the aim of formal information sharing, the National ART Registry of India (NARI) was founded in 2001 by the ISAR. This in turn supplies information to the global registries such as International Committee for Monitoring Assisted Reproductive Technologies (ICMART) (Malhotra et al., 2013). Engagement with the registry is advantageous for both the clinic and the patients. There is an ongoing concern though that not all fertility centers are registered, with only about 30% in compliance, as there is no enforcement, and participation is voluntary. The awaited Assisted Reproductive Technology (Regulation) Bill will, however, make it compulsory for ART clinics to register.

Following the creation of the registry, there has also been the publication of several important documents, including the National Guidelines for Accreditation, Supervision and Regulation of ART Clinics in India and Ethical Guidelines for Biomedical Research on Human Subjects published in 2005 and 2006 respectively by ICMR.

Current Legalisation

In-vitro fertilization and fertility treatment present many ethical and legal challenges. Respect for the law is paramount, but also to the sensitivities of native culture and society in reproductive medicine. Although the fundamentals are universal, the permutations and interpretations vary in different countries. Understanding how fertility treatment may affect issues such as legitimacy, parentage, and inheritance is of great cultural significance. When donor eggs or sperm are used as part of treatment it is vital that the prospective parents and the donor understand the legal situation in order to give informed consent. Donors have no parental rights over the child and their information is kept confidential. Under Indian law, insemination using donor sperm does not constitute adultery because sexual intercourse does not occur, and if an Indian married couple have artificial insemination and conceive a child she or he is considered legitimate. The act of insemination itself though, is not considered sufficient to consummate the marriage and therefore there is still the possibility of the marriage being subject to annulment. If this were to occur after successful treatment resulting in pregnancy, the child would be considered illegitimate with the associated adverse societal consequences.

Reproductive Medicine Bills

There are two parliamentary Bills within India concerning reproductive medicine. The Assisted Reproductive Technology (Regulation) Bill has had various editions from 2009 until 2015 and the current draft is awaiting government approval, as in 2017. The vision of the Bill is to transform the current fragmented provision into cohesive care, with sustainable practice and standardized organization, protocols, and pricing. Care should be provided by competent practitioners, following evidence based medicine. There is a clear exclusion of preimplantation genetic diagnosis for non-medical sex selection, which is currently reported to be carried out, and provides clear guidance for the use of embryos for research purposes. Ultimately, the aims of the Bill are to provide comprehensive monitoring and supervision for all aspects of reproductive medicine.

Initially incorporated into the Assisted Reproductive Technology (Regulation) Bill, but subsequently separated, was the Surrogacy Bill, which was expedited and released in November 2016. Since surrogacy was first legalized in India in 2002, there was increasing awareness and anxiety over the development of the surrogacy "industry." This has accelerated the need for strict rules and expectations for this niche of reproductive medicine. Amid significant international press coverage, non-altruistic surrogacy has been banned, and now only family members can act as surrogates for relatives. Surrogacy will be available only for

Indian couples who are childless, have proven subfertility, and have been married for more than five years. They must have certificates both of essentiality and eligibility issued to prove this. There is no provision for couples in same-sex relationships or for single individuals. Surrogates must be married, already have their own children and can be reimbursed only for medical costs and insurance. They can act as a surrogate only once and they must have a medical certificate ensuring physical and psychological wellbeing. The clinics need to be fully registered and clinical details must be archived for at least 25 years. Failure to comply with this jurisdiction will incur a custodial sentence and a significant fine.

This is welcome news for many, and sets to eliminate the corporate edge from this very beneficial medical intervention. The objectives of the Bill are to remove the financial incentive and replace it with responsible medical care. Not all, however, view the policy favourably.

The original surrogacy arrangement had benefits for both the surrogate and the intended parents, and although not perhaps viewed as an ideal situation, it provided advantages for many families. This is a situation where it should be questioned if it is appropriate to impose Western idealistic ideas in a heterogeneous culture and on potentially vulnerable patients. It has been voiced that the intention of doing good and preventing perceived harm may, in fact, cause harm.

For many Indian women, paid surrogacy has provided an avenue and opportunity to provide a better life for their own family. Equally, for many visiting couples the option of surrogacy in India has given them hope of having a child, which is denied in their own country. Any practice of surrogacy that may adversely affect the health of women or the welfare of children should not, of course, be condoned, but it has been suggested that banning "commercial" surrogacy may, in fact, open up more illicit activity and its well-known risks.

Conclusion

India has maintained a fast tempo of growth and technological advancement in IVF, comparable to its peers in other countries. It is apparent that the current state of practice has not been achieved without significant dedication, turmoil, and collaboration. The moral compass of IVF can, at times, be hard to navigate but India has strived to provide reputable, world-class fertility treatment.

Acknowledgments

I am grateful to Professor Roger Gosden (Virginia, USA) and Professor Duru Shah (President of Indian Society of Assisted Reproduction) for their valuable help during the preparation of this manuscript.

I would also like to thank my colleagues in India, Professor C. N. Purandhare, Dr. Hrishikesh Pai, Dr. Nandita Palshetkar, Dr. Narendra and Dr. Jaideep Malhotra, Dr. Rishma Pai, and Dr. Shanta Kumari for their helpful advice.

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HIGH INTENSITY FOCUSED ULTRASOUND IN GYNAECOLOGY

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Ultrasound has diagnostic as well as therapeutic uses. High intensity focused ultrasound (HIFU) is a novel noninvasive modality used for treatment of various solid tumours. Extra-corpeal HIFU was clinically introduced in late 1990s as a treatment modality for solid tumours. HIFU is proved to be as an effective low risk treatment option particularly, for uterine fibroids and adenomyosis. It is a nonsurgical therapeutic treatment for solid tumours by focussing high intensity ultrasound on target tissues. Ultrasound HIFU has a real time anatomical background, economical, less sensitive to movement, has broad spectrum of application for solid tumours and the grey scale changes observed are used as a monitoring tool for treatment response.

Principle: HIFU uses ultrasound waves which are focused in a target, resulting in tissue ablation, which is different from diagnostic ultrasound in its frequency of 0.8-3.5MHz. It has two mechanism of action, thermal and nonthermal with basic principle of conversion of mechanical energy into heat and cavitation. HIFU causes focal temperature to rise rapidly above 80 degree causing coagulation necrosis of the targeted tissue. The most important nonthermal mechanism for tissue disruption using HIFU is acoustic cavitation causing local destruction of the targeted tissue. With acoustic power of 350–400 W, the volume of ablation, after a single HIFU exposure is typically a small cigar shaped lesion with dimension of 1-3mm in width and 8-15mm in length with a need for a number of sequential single lesion to be induced within the tumour to achieve clinically significant ablation of tissue. When a significant greyscale change or sufficient thermal dosage is reached, the focal point is moved to the next location. A 5mm margin from the fibroid surface is kept in order to prevent thermal damage to the adjacent endometrium or myometrium.

Objective: To reduce the bulk of fibroid by thermal ablation and to induce large nonperfused volume, which can cause lesion shrinkage over time.

Pre-requisites: Pretreatment stimulation is necessary for candidates selected for HIFU treatment in order to assess feasibility for treatment. Specific bowel and bladder preparation is essential especially for the treatment of lesions adjacent to the gastrointsetinal tract in the form of liquid diet free of any gas producing food to be taken one or two days prior procedure. Specific skin preparation is crucial for success of the procedure in the form of shaving of anterior abdominal wall to avoid deflection of ultrasound beam which may result in accidental skin burns. For pelvic procedures, indwelling catheter is passed in to the urinary bladder to regulate the bladder volume by infusing degassed normal saline. Prone position is used for uteine and breast lesions. Procedure is done under conscious sedation with fentanyl and midazolam which allows for continuous feedback communication between the patient and doctor.

Indications:

HIFU is used for uterine fibroids, adenomyosis and breast adenomas. It is also used for malignant tumours for kidneys, liver, pancreas, bone and soft tissues.

Eligibility criteria:

Patients who have uterine fibroid related symptoms, those not willing for surgical treatment, fibroids with uterine size > 10weeks and largest fibroid diameter measuring <15cm.

Ineligibility criteria:

a) Women with serious systemic illness, pedunculated myoma, pelvic inflammation, foreign body or extensive abdominal scars in the proposed path of ultrasound beam and gynaecological malignancies including leiomyosarcoma. b) Those patients who cannot communicate sensations during the procedure and are unable to lie prone upto one hour, c) All pregnant & lactating women, d) obesity (abdominal wall thickness greater than 50-60 mm).

Advantages:

Noninvasive, repeatable, short duration of hospital stay, organ saving surgery with excellent protection of healthy tissue, no risk of ionising radiation, no specific tumour resistance, no scarring, no risk of tumour dissemination and cost effective with shorter recovery times and the option of childbearing.1

Disadvantages:

General or conscious sensation is required. There is no histological specimen for confirmation of diagnosis, needs specific bowel preparation.

Side effects:

The most frequent side effect is vaginal discharge. Others very uncommon side effects are lower abdominal pain, skin burns of lower abdominal skin, leg pain secondary to thermal injury to sciatic nerve, intestinal perforation in case of poor bowel preparation, voiding difficulty, dysuria etc.2,3

The location of the disease is considered a determinant for the frequency of adverse events. Vaginal expulsion of necrotic fibroid tissue is a common finding following HIFU ablation and is often associated with minor accompanying symptoms.4

Currently, this technique has been clinically considered as an alternative treatment for patients with uterine fibroids in China. In 2012, a retrospective analysis of 282 patients with symptomatic uterine fibroids undergoing USgHIFU showed best response of heterogeneous and markedly homogenous hyperintense fibroids on T2-weighted MR imaging.5 An average nonperfused volume ratio of 76.8 ± 19.0 % was observed in all patients.

In a study by Wang et al, USgHIFU and laparoscopic myomectomy for the treatment of symptomatic uterine fibroids were compared in a nonrandomized prospective clinical trial.6 A patient cohort of 139 premenopausal women with symptomatic uterine fibroids underwent USgHIFU (n = 89) or laparoscopic myomectomy (n = 41). In the HIFU group, hospital stay was shorter (mean 2.9 days vs. 6.2 days after myomectomy) and patients resumed normal activities sooner (mean 4.5 days vs. 10.9 days after myomectomy).6

In another study by Shui et al, 350 patients with adenomyosis were treated with USgHIFU.7 Among the 350 patients, 224 of them completed the two years follow-up.All patients completed HIFU ablation without severe postoperative complications. 203 of the 224 patients who showed varying degrees of dysmenorrhea before treatment had the symptom scores decreased significantly after treatment ($P < 0.001$). The relief rate was 84.7%, 84.7%, and 82.3%, respectively at 3 months, 1 year, and 2 years after treatment. The menstrual volume in 109 patients with menorrhagia was significantly improved after treatment ($P < 0.001$) with a relief rate of 79.8%, 80.7%, and 78.9%, respectively at 3 months, 1 year, and 2 years after HIFU treatment.7

In a study of 56 patients of adenomyosis, 54 patients got pregnancy at the median of 10 months(range:1 to 31 months) after HIFU ablation, and 21 of them had delivered healthy babies. No uterine rupture occurred during gestation or delivery, and the newborn babies were healthy. Dysmenorrhea and menorrhagia in the patients who had pregnancies after HIFU ablation treatment were significantly relieved.8

A retrospective analysis of 189 nulliparous cases with the median follow-up time of three years, showed pregnancy rate of 69.3% (131/189) and the spontaneous conception rate of 95.4% (125/131). Of 131 pregnant women, 19 were on-going pregnancy, terminated pregnancy 114 times, which include 93 times successfully delivery with a 76.3% (87/114) full-term birth rate and the cesarean section rate was 72.0% (67/93). Of 94 newborns, the average birth weight was (3.3 ± 0.4)kg (range:1.5-4.8 kg), and a pair of them were identical twins. The incidence of complications during pregnancy and delivery were 10.8% (10/93) and 7.5% (7/93) respectively, except one woman failed on-going pregnancy and one woman suffered hysterectomy due to the complications, others all successful pregnant and delivered.9

In conclusion, HIFU is a nonsurgical, innovative treatment approach for a variety of gynaecological conditions, mainly fibroid and adenomyosis. HIFU has fewer side effects with good treatment efficacy emerging as a novel, safe treatment modality with advantages of noninvasiveness and short recovery time.

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I pledge for her better tomorrow!


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Women's Health Nation's Wealth
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HEALTH CARE IS A HUMAN RIGHT


DONT forget MOMS

GENERAL ARTICLES

A TRIBUTE TO MADAM SITA BHATEJA

Noted doctor Sita Bhateja passed away on 18th December 2019, at the age of 92. Admitted at the Sita Bhateja super speciality hospital in the city – of which she was the founder and managing trustee – Dr. Sita Bhateja was undergoing treatment for leukaemia. She is survived by three sons, including Dr. Arvind Bhateja, a leading spinal and neurosurgeon. BSOG pays tribute to the renowned gynaecologist and founder member of BSOG.

"I was lucky to be closely associated with Dr. Sita Bhateja during my growing years. During those wonderful years, she listened, encouraged, and most of all guided a lot of youngsters in her career. I will eternally be grateful for our friendship and her guidance.

The untimely death of her daughter Vaijayanthi was a terrible blow to her but she picked herself up. She looked on me almost as the daughter she lost and took pride in every little achievement of mine. Her's was always the first call or message of congratulations that I received at any momentous occasion. And what was most surprising was that this would come via telephone, mobile, whatsapp, instagram, Facebook or any other social media. Not only was she truly tech savvy, she was a generation ahead of her time.

She was a woman of varied interests. She loved horse riding, she was a philatelist and she was extremely fashionable. But she always remained committed to social service. This was the reason behind her starting an adoption agency. What really stood out about her was her ultimate interest and zest for life.

She was one of the founder members of the Bangalore Society of Obstetrics and Gynaecology and her commitment was a benchmark in the history of the society. Her intelligence, vision, organisation and leadership qualities were exemplary. Not only was she an extremely active member in her younger days, until her last days and twilight years she made it a point to attend all meetings and programmes organised by the BSOG. She will always be an icon for future generations.

A friend, mentor and role model to us all, she was truly the grand old Iron Lady of Karnataka, who will be missed."
- Dr. Kamini Rao, Past President, FOGSI

In spite of hardships, she always had a broad smile and a big shoulder for everybody. Her mantra of life was, "No tears for the past, no fears of the future. Let us take life as it comes, let us live in the present." What a profound, spiritual message she has given us!
- Dr. Lata Venkataram, Past president BSOG

Dr. Sita Bhateja was an icon, whom we all looked upto, she was such a sport full of zest for life and fun. She always participated in every cultural programme organised by BSOG . Her impeccable style of dressing, her priceless collection of antique jewellery, her pleasant and sweet as sugar talk, endeared her to all in BSOG. She would have loved to be in AICOG 2019! We in BSOG will always remember her with love and collection.
- Dr. Jyothika A Desai, Past President, BSOG.

"Both Dr. Sita Bhateja and myself are from the same medical college in Mumbai and both started practice in Bengaluru….. ONE GENERATION APART. Being nearly 40 years younger to her….. there was NO GENERATION GAP! Energy, Enthusiasm, Eagerness to learn, and Empathy symbolise her evergreen character, and she will remain in our minds forever."
- Dr. Hema Divakar, Organizing Chairperson, AICOG 2019; Past President, FOGSI; FOGSI Ambassador to FIGO.

"I got acquainted with Dr. Sita Bhateja after I joined BSOG. Those days - we used to conduct CMEs and cultural events in her hospital. She was a very lively person and she used to always encourage beginners. Being in a new place I always looked to her for support and encouragement. Her memories will always remain with us."
- Dr. Sheela Mane, Organizing Secretary, AICOG 2019, Past President, BSOG, Past Vice President, FOGSI.

Sita, Nirbheetha, Sarva Jana Preetha
Your Memories Are Shashwatha

Age is just a number and Dr. Sita Bhateja showed us how. At 92 she was vivacious, full of energy and positivity that was infectious. The one thing that could vie with her energy was her full throaty laugh, open and uninhibited.

Life has not always been easy or simple for her, but she believed in finding happiness in little things around her. Be it a flower tucked in her hair or just the beauty of her surroundings, or a smile that brightens someone's day.

Growing up in bostrals

Born in Multan, she grew up in borstal compounds. Correctional prisons were called borstals in those days and Sita's father happened to be a jailer as was her grandfather.

As her father's job was transferable, the family moved to different borstals and Sita went to study in different schools. "In those it was mostly government schools, so those were the ones I attended," she says.

Transition

The always-carefree Sita underwent a transition after class eight. She grew more reflective and quiet. She would say, "I saw that girls were married off after matriculation where they would run a household and bear children." It was not a life she wanted for herself. So she decided to study medicine.

"I knew the study of medicine would keep me busy and away from marriage," she said with a smile reminiscing about the past.

The partition

Sita and her grandparents had to move out of Sialkot and make their way towards what was to be India. She left Sialkot for Jammu with her grandparents. After many days of stressful journey they reached Amritsar and to the safety of a relative's house.

Chasing her dream

Sita was to resume her studies, and she was sent to study at KEM Hospital, Mumbai. These were tough times, for she had no money to even buy three meals a day. Through all the tough times, she continued to work hard and in June 1949 she became a doctor.

As a young girl,Marie Curie inspired Sita. When asked why, she was quick to revert, "If she could survive poverty, a tough life and challenges and do such great things, I told myself I could handle all the challenges in my way too."

Dr. Sita Bhateja & her husband soon after they moved to Bangalore

Bangalore bound

Around this time she found her match in Major Amrit Bhateja and the couple got married in July of the same year in a simple ceremony. As an army officer the Major moved to Kirkee and then MHOW. Sita travelled with him and then they moved to Bangalore in 1957.

1965 she started her clinic in Bangalore. Over the years the clinic has grown into a hospital named after her. The journey has not been easy or simple but Sita has nurtured it with passion, love and commitment. Her work in the field of Obstetrics and Gynecology has been widely recognized and she has been the recipient of awards like the Rashtriya Rattan Awards, which was conferred upon her in recognition of her work for child welfare.

Stamp collection

Other than her love for medicines, Sita loved collecting flowers and coins but these were hobbies that could not win over her love of stamps. She started early. As a young girl, she would buy stamps with her pocket money. Widely considered as one of the finest collections of stamps of pre-independent India in the world, two Presidents have personally asked to view her collection.

While she recommended better eating habits and a healthy lifestyle, what she highly prescribed, was happiness. According to her, it is important to find happiness in small things and live each moment. She not only espoused this but practiced it herself too.

At 92 she was a grandmother and loved spending time with her family but she was happiest when she was working. “What is fatigue and tiredness? I do not know either. How can you be tired or bored when you are doing something you love?” she would ask with surprise.

She would be on her feet morning to night, and she was not looking to retire any time. "Retirement is not in my dictionary" she would say and laugh. Her laughter was like that of a young girl, full of energy and embracing what life has to offer.

ಬನ್ನಿ ಗರ್ಭ ರಕ್ಷಕರೇ!

ಬನ್ನಿ ಗರ್ಭ ರಕ್ಷಕರೇ ,
ಬೆಂಗಳೂರು೨೦೧೯ ಸಮ್ಮೇಳನದಲ್ಲಿ ಸೇರೋಣ
ಹಿರಿಯರಲ್ಲಿ ಕಲಿಯೋಣ
ಕಿರಿಯರಿಗೆ ಕಲಿಸೋಣ
ಸಮಾನರು ಹಂಚಿ ಕೊಳ್ಳೋಣ
ಜ್ಞಾನಾರ್ಜಿಸೋಣ ,ಜ್ಞಾನ ವರ್ಶಿಸೋಣ

ಉಂಡು ನಾಲಿಗೆ ಚಪ್ಪರಿಸೋಣ
ಕಲೆತು ,ಹಾಡೀ, ನಲಿಯೋಣ
ಕರ್ನಾಟಕ ದರ್ಶನ ಮಾಡೋಣ

ಸ್ತ್ರೀ ಸ್ವಾಸ್ಥ್ಯಕ್ಕೆ ಈ ಸಮ್ಮೇಳನ ಮುಡುಪಿಡೋಣ
ದೇಶ ಸ್ವಾಸ್ತ್ಯ ರಕ್ಶಿಸೋಣ

Swagatham!

Come, dear FOGSIans,
Let's congregate in Bengaluru, AICOG 2019!
Let's learn from stalwarts, mold the freshers,
Share experiences with colleagues;
Let's acquire, share and shower knowledge!

And,
Relish mouth-watering dishes,
Celebrate, sing and dance, and
Have a soulful darshan of Karnataka!

Let's pledge this conference for Women's Health, and
Protect Nation's health and wellbeing!!

Poem by Dr. Srimani Rajagopalan

DENIS MUKWEGE, RENOWNED CONGOLESE DOCTOR, FIRST AND ONLY GYNAECOLOGIST TO WIN A NOBEL PRIZE IN THE HISTORY

Dr Nirmal Kumar Nayak
Dist Head Quarter Hospital Malkangiri, Orissa

The Norwegian Nobel Committee Friday awarded the Nobel peace prize 2018 to a Congolese doctor Denis Mukwege, for his contribution to "end the use of sexual violence as a weapon of war and armed conflict." Known as "Doctor Miracle", Mukwege was born on March 1, 1955, in Bukavu. He was inspired to become a doctor by his father, a pastor who used to visit the sick. After studying medicine in neighbouring Burundi, he returned to work in Lemera hospital before pursuing specialist training in gynaecology in Angers, France.

In 2008, Mukwega became the Director of Panzi Hospital in the Democratic Republic of Congo. He and his staff have treated thousands of patients who have fallen victim to sexual assaults. He is an outspoken critic of the abuse of women during war who has described rape as "a weapon of mass destruction." His work has also been of an acclaimed 2015 film titled: "The Man Who Mends Women." Mukwege is the foremost, most unifying symbol, both nationally and internationally, of the struggle to end sexual violence in war and armed conflicts. His basic principle is that "justice is everyone's business", AP reported.

He has repeatedly condemned impunity for mass rape and criticised the Congolese government and other countries for not doing enough to stop the use of sexual violence against women as a strategy and weapon of war.

The Congolese gynecological surgeon has previously called gender inequality a disgrace to society. Speaking at an international assembly of the Lutheran church in Namibia, he said churches must speak out against sexual abuse, and he condemned what he called the "inhumanity" that some men show toward women.

He has been honoured previously by the United Nations and has received many other international awards, including the Olof Palme Prize in January 2009 and the Sakharov Prize in 2014. In September 2016, he also won the Seoul Peace Prize. He was appointed a professor at the Universite Libre de Bruxelles in Belgium in 2015.

"...he said churches must speak out against sexual abuse, and he condemned what he called the 'inhumanity' that some men show toward women."

BENGALURU – A UNIQUE CITY

Compiled by: **Dr. Nirmal Kumar Nayak,**
District Headquarters Hospital,
Malkangiri, Odisha.

- *Bengaluru is the first city in India to get its own Logo.*
- *Bengaluru is known as the Silicon Valley of India, and is home to several MNCs and start-up companies.*
- *Bangalore gets "Bangalored" as this word enters the English Dictionary.*
- *Bengaluru is the first Indian city to have free WIFI hotspots.*
- *It is the first city in India to get Heli-taxi service.*
- *Bengaluru has the highest number of mosques, churches and temples in India.*
- *It is the only city that has a commercial and defense airport functioning from the same airstrip.*
- *Bengaluru is home to the oldest Army Regiment, Combat Engineering, Madras Engineering Group 1770, Madras Sappers, ASC College and Corps.*
- *It is India's first city to introduce a Bitcoin ATM.*
- *Bengaluru hosts the biggest airshow in Asia, the "Aero show" once in two years.*
- *Maximum number of Nobel Prize nominees in India hail from Bengaluru.*
- *Bangalore University has 52 Engineering colleges affiliated to – highest in the world.*
- *Bengaluru is home to some of the most prestigious Governmental and Non-Governmental Organizations like IIM, IISc, NIMHANS, IAF, BSF, CPRF, HAL, NAL, BEL, ISRO, DRDO, NIFT, WIPRO, INFOSYS, BIOCON, etc.*
- *The first electric street light in Asia was lit on 5th August 1905 in Bangalore.*
- *The KR Market houses the biggest flower market in Asia.*
- *Bengaluru also has the maximum number of breweries in the world.*

AICOG SONG-2019

लललला लललला लललला लालाला
हम है Gynaec हम है Fogsian, Fogsi है हमारी जान
Healthy women, wealthy nation यही है हमारी पेहचान
आप है आये है Bengaluru, AICOG's creation
ये है Fogsi Conference , ये है Fogsi Celebration

Childbirth हो, या Ca Cervix
Screen करते है, चुनते है High risk
चाहे हो IVF, या हो PPH
Mat mort को करते है Near Miss
हर प्रोब्लेम solve करना, यही है हमारा मिशन
आये है आये है Bengaluru, AICOG's creation
ये है Fogsi conference , ये है Fogsi Celebration
लललला लललला लललला लालाला

करते है conference, Research भी करते है,
रहते है up to date, यारों से मिलते है
Academic के भी साथ, धूम मस्ती करते है

"बेटी बचावो, "बेटी बचावो पर जान छिड़कते है
माता को स्वस्थ रखकर, बनाये Healthy Generation
आये है आये है Bengaluru, AICOG's creation
ये है Fogsi conference , ये है Fogsi Celebration
लललला लललला लललला लालाला
हम है Gynaec हम है Fogsian, Fogsi है हमारी जान
लललला लललला लललला लालाला

~ Dr Pragati Khalatkar

COMMITTEE PHOTOS

Critical care workshop

Workshop on Imaging in Obstetrics

PPH workshop

Laparoscopy workshop

Infertility workshop

Preventive Oncology workshop

COMMITTEE PHOTOS

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Labour workshop

Vaginal surgery workshop

Urogynaecology workshop

High Risk Pregnancy workshop

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- Page Moderation
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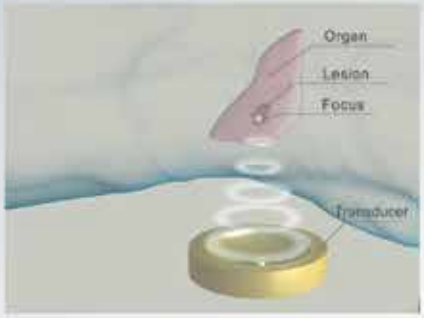
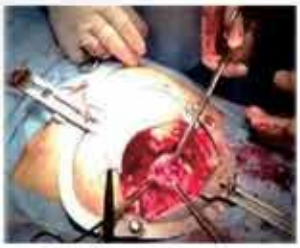
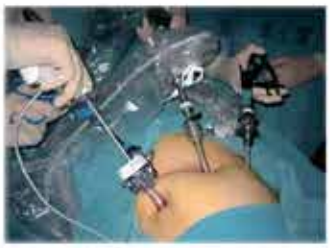


As sunbeams can be focused by convex lens, ultrasound beams can be focused by a transducers. The ultrasound beam can propagate through living tissue harmlessly and be focused at a tiny focal region. The energy in the focal region is high enough to induce an instant thermal toxicity (temperature above 60°C) which will cause irreversible coagultive necrosis.

Development of modern medicine



Great trauma,bloody



Minimally-invasive outside, great trauma inside

Non-invasive both outside and inside

Indications

- Uterine Fibroids
- Adenomyosis
- Pancreas Tumor
- Liver Tumor
- Bone Tumor
- Soft Tissue Carcinoma

Clinical Advantages

- No Hospital Stay
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- Keep Fertility
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