



*...The Newsletter of The PCOS Society of India*

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# Welcoming Our New Members....

## Patron Members



**Dr. Aishwarya Nupur**  
Gynaecologist



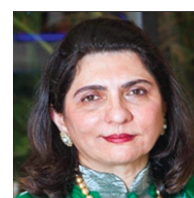
**Dr. Amrita Kaur Talwar**  
Dermatologist



**Dr. Ashutosh Halder**  
Gynaecologist



**Dr. Fessy Louis**  
Gynaecologist



**Dr. Firuza Parikh**  
Gynaecologist



**Dr. Kavya Venkatappa**  
Gynaecologist



**Dr. Mugdha Jungari**  
Gynaecologist



**Dr. Nupur Kushal Mital**  
Gynaecologist



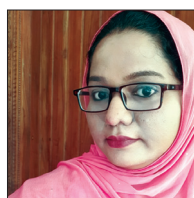
**Dr. Pallavi Sharma**  
Gynaecologist



**Dr. Rooma Sinha**  
Gynaecologist



**Dr. Shalini Agrawal**  
Gynaecologist



**Dr. Shameena AV**  
Gynaecologist



**Dr. Shradha Goel**  
Gynaecologist



**Dr. Sunita Tagra**  
Dermatologist

## Life Members

Dr. A Anandhi	Gynaecologist	Dr. Kulbhushan Singh Jamwal	Gynaecologist	Dr. S. Manjuparkavi	Gynaecologist
Dr. Abhilasha Thakyal	Gynaecologist	Dr. Mamta Mehrotra	Gynaecologist	Dr. Sambli Garg	Gynaecologist
Dr. Ambuja Chorantor	Gynaecologist	Dr. Meeta Gupta	Gynaecologist	Dr. Sarada Mallemala	Gynaecologist
Dr. Annil Mahajan	Physician	Dr. Neha Mahajan	Gynaecologist	Dr. Saveta Saini	Dermatologist
Dr. Asmat Runyal	Gynaecologist	Dr. Nidhi Shah	Gynaecologist	Dr. Shalini Agrawal	Gynaecologist
Dr. Banshi Saboo	Diabetologist	Dr. Nikita Gandotra	Gynaecologist	Dr. Shilpa Girish Sonnekar	Gynaecologist
Dr. Bharathi Sudha Allikayala	Gynaecologist	Dr. Nilesh Bhalerao	Gynaecologist	Dr. Shivani Sharma	Gynaecologist
Dr. Bimal John	Gynaecologist	Dr. Nishu Bhushan	Gynaecologist	Dr. Shreeja Karan	Gynaecologist
Dr. Dinesh Kumar	Gynaecologist	Dr. Nivedita Prashar	Gynaecologist	Dr. Shyamala Madheswaran	Gynaecologist
Dr. Divya Dwivedi	Gynaecologist	Dr. Payal Gupta	Gynaecologist	Dr. Simantini Bose	Gynaecologist
Dr. Esha Sharma	Gynaecologist	Dr. Prasenjit Roy	Gynaecologist	Dr. Sonika Gupta	Gynaecologist
Dr. Fouzia Wangde	Gynaecologist	Dr. Priya Selvaraj	Gynaecologist	Dr. Suksham Sharma	Gynaecologist
Dr. G. N. Mansukhani	Gynaecologist	Dr. Priyanka Parihar	Gynaecologist	Dr. Suman Jain Agarwal	Gynaecologist
Dr. Harleen	Gynaecologist	Dr. Rajesh Sharma	Gynaecologist	Dr. Sunitha B C	Gynaecologist
Dr. Hetal Sanjay Patoliya	Gynaecologist	Dr. Robina Mirza	Gynaecologist	Dr. Urvashi Shrivastava	Gynaecologist
Dr. Jugal Gada	Endocrinologist	Dr. Rohini Jaggi	Gynaecologist	Dr. Usha Varadharajan	Gynaecologist
Dr. Jyotsana Lamba	Gynaecologist	Dr. Ruchica Goel	Gynaecologist	Dr. Vandana Sharma	Gynaecologist
Dr. Karri Surya Prabha	Gynaecologist	Dr. Rupali Bakshi	Dermatologist	Dr. Vishal Tandon	Physician

## Associate Members

Dr. Nitika Garg	Scientist	Dr. Srabani Mukherjee	Reproductive Biologist
Dr. Ravali Vemula	General Physician	Dr. Tanu Tiwari	Dentist
Dr. Reema Mathur	Dietician	Ms. Zuhi Sabura	Nutritionist
Dr. Shraddha S	Nutritionist		

## Editorial

### Executive Committee

**Dr. Duru Shah**  
Founder President

**Dr. Shashank Joshi**  
**Dr. Madhuri Patil**  
Vice Presidents

**Dr. Piya Thakkar**  
Honorary Secretary

**Dr. Sangeeta Agrawal**  
Joint Honorary Secretary

**Dr. Uday Thanawala**  
Honorary Treasurer

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Dr. Kanthi Bansal  
Dr. Lipika Moharana  
Dr. Mirudhubashini Govindarajan  
Dr. Nirja Chawla  
Dr. Padma Rekha Jirge  
Dr. Payal Bhargava  
Dr. Ratnabali Chakravorty  
Dr. Rita Bakshi  
Ms. Ruby Sound  
Dr. Sabahat Rasool  
Dr. Sandhya Saharan  
Dr. Sarita Bhalerao  
Dr. Shobhana Patted  
Dr. Sudhaa Sharma  
Dr. Sujata Kar



**Dr. Duru Shah**  
MD, FRCOG, FCPS, FICS, FICOG, FICMCH, DGO, DFP  
Director, Gynaecworld  
The Center for Women's Fertility & Health, Mumbai  
President, The PCOS Society, India  
Chief Editor, Pandora

Dear friends,

It's been raining webinars for the past 4 months; we were in a corona frozen state for a couple of months and all activities came to a standstill! Until we realized that our holiday was getting too long and we needed to get out of this mood and get accustomed to this new normal. Slowly we limped back to our jobs, a little more at a time, and then came the turn of our academics! Our generation has started getting familiar with the new-age digital platform with the help of our younger colleagues, our children, grandchildren and our enthusiasm to get on with our lives! Many embarrassing moments followed, but we survived!

All the academics which had been scheduled during those immobilized months were now rescheduled leading to the downpour which we have faced over the last few months!

We have become busier with work, but yet are attending more lectures and conferences, sitting in front of our laptops, than in lounges at airports and conferences all over the world! Today we are imbibing more knowledge just sitting at a desk. Through the PCOS Society of India, we have been into an overdrive! We had been extremely comfortable conducting webinars in the pre-covid days, i.e. in the year 2018-2019 when we did 18 international webinars in the process of disseminating the latest International guidelines on PCOS!

We published our Second newsletter of the year in August 2020, which carried all what we did from May 2020 till August 2020. I do hope you have been receiving "**PANDORA**" the monthly newsletter of our Society. If not, please write to us at [thepcossociety@gmail.com](mailto:thepcossociety@gmail.com) and forward your email id and contact details, and we will get back to you!

This current issue of "**Pandora**" is fully dedicated to our activities through August and December 2020. It carries the "**Abstracts of our Conference lectures**", our various initiatives like "**PCOS Science Live**", "**PCOS Quizzes**" programs for patient awareness like "**Instalive**" on Instagram and "**Educational Videos**" from "**Club PCOS**". It also carries reports of all our programs held. Please do visit our Website, [www.pcosindia.org](http://www.pcosindia.org) and I am sure you will want to join in and become our member, and avail of all its benefits!

But are we truly enjoying this phase? Yes we are learning more, but at what cost? I am missing the joy of meeting and hugging my friends, interacting with them, travelling to new regions of the world, experiencing new cultures, enjoying a relaxed evening of music and fun, together and exchanging ideas!

In short, I am missing the experiences I have been enjoying for the past 25 years!

Dear friends those memories are imprinted within me and I look forward to meeting you all somewhere in the world, sometime soon!

Wishing you all a very happy new year 2021!

With warm regards,

**Duru Shah**  
Founder President,  
The PCOS Society of India



Email: [thepcossociety@gmail.com](mailto:thepcossociety@gmail.com)  
[www.pcosindia.org](http://www.pcosindia.org)

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# PCOS Science Live

EPISODE ONE – 27 Sept. 2020

## 'Novel Technique of Developing a Normal Vagina'

Emeritus **Prof. Pravin M. Mhatre** in conversation with **Prof. Duru Shah** describing how he performed the first ovarian transplant in the world! He then went on to describe his latest research on the development of a normal vagina using peritoneum, laparoscopically.

His detailed research can be accessed on  
<https://pubmed.ncbi.nlm.nih.gov/25395743/>

Live Video Link Episode 1  
<https://youtu.be/vWInKZZXcC8>



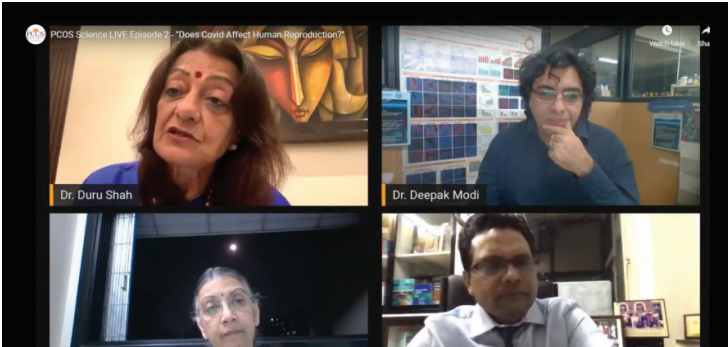
EPISODE TWO – 31 Oct. 2020

## 'Does COVID affect Human Reproduction?'

**Dr. Smita Mahale**, Director & Scientist 'G' at NIRRH - ICMR, **Dr. Deepak Modi**, Scientist 'F' & **Dr. Rahul Gajbhiye**, Scientist 'D' in conversation with **Prof. Duru Shah**. The discussion was related to how COVID-19 affects pregnancy, the development of the "Preg COVID Registry" and their research and services surrounding COVID-19.

Their detailed research can be accessed on  
<https://doi.org/10.1101/2020.08.18.20177121>  
<https://pubmed.ncbi.nlm.nih.gov/33090458/>

Live Video Link Episode 2  
<https://youtu.be/fJ4Hlp4969A>



THE PCOS SOCIETY INDIA

## PCOS SCIENCE LIVE

A WEBINAR SERIES

EPISODE THREE

19 DECEMBER 2020, SAT,  
7.00 TO 8.30 PM (Indian Standard Time)

'Solving the puzzle of anxiety, depression and mood: looking into the brain'



**Prof. Duru Shah, MD**  
Founder President,  
The PCOS Society of India  
Director Gynaecworld: The Center for  
Women's Health & Fertility, Mumbai

In conversation with...  
.... discussing their research



**Dr. Vidita Vaidya, PhD**  
Indian Neuroscientist and Professor at  
Tata Institute of Fundamental Research



**Dr. Anuja Dokras, MD, PhD**  
Director Penn PCOS Center, Associate  
Executive Director, AE-PCOS Society

"PCOS Science Live" is a series of interactive discussions every month with Researchers who have had impactful publications in indexed journals. Our agenda is to reach out to young minds and get them inclined towards research.

PCOS Science Live 3<sup>rd</sup> Episode Register on <https://pcosindia.org/webinars.php>

## PCOS QUIZZES

The PCOS Society of India had initiated an exciting and extremely informative weekly Quiz Series, "PCOS Quizzes" from 15<sup>th</sup> August 2020. This Series is targeted towards post graduates and clinicians, to update their knowledge on PCOS. Every Monday morning a quiz is uploaded on the PCOS Society website. Each Quiz consists of 5 Questions in a multiple choice format with a maximum score of 50. The results are displayed immediately on the screen along with the scientific explanation for the correct answer with the appropriate reference article for further reading on that subject.

The marks of the weekly quiz are added up for each participants and the top scorer of the month gets a gift coupon of Rs. 1000 from Amazon. The top 50 scorers of these quizzes will get an opportunity to participate in the Final Live Quiz which will be held in March 2021. The 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> prize winners will be entitled to a cash prize worth Rs. 1 lakh, 75 thousand and 50 thousand.

Check out the past Quiz Modules on the PCOS Society Website, which are archived. [https://www.pcosindia.org/become\\_a\\_quiz\\_member.php](https://www.pcosindia.org/become_a_quiz_member.php)

## Congratulations!

Monthly Quiz Winners



**Dr. Garima Gupta**  
15<sup>th</sup> Aug.-14<sup>th</sup> Sept.



**Dr. Mangala Gowri**  
15<sup>th</sup> Sept.-14<sup>th</sup> Oct.

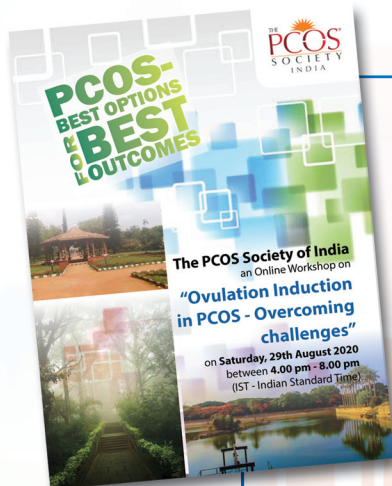


**Dr. Pavika Lal**  
15<sup>th</sup> Oct.-14<sup>th</sup> Nov.



**Dr. Jaya Choudhary**  
15<sup>th</sup> Nov.-14<sup>th</sup> Dec.

# V I R T U A L W O R K S H O P S



Workshop on "Ovulation Induction in PCOS – Overcoming challenges" was held on **Saturday 29<sup>th</sup> August 2020**. Convenors: **Dr. Duru Shah | Dr. Madhuri Patil**

The aim of any treatment in fertility especially ART is to achieve pregnancy with maximum efficiency and patient comfort and with minimal complications. Ovarian stimulation remains an essential part of ART. Undoubtedly, there is a need to reliably predict ovarian response to stimulation, to tailor stimulation protocols, optimise the periovulatory hormonal environment, and thereby increase the probability of pregnancy while keeping the risks of complications and costs at a minimum. Moreover, PCOS women due to their endocrine abnormalities and more number of antral follicles are more susceptible to complications like OHSS, premature rise in progesterone levels which can affect the endometrial receptivity. Optimization of the environment conducive for a good outcome with minimal complications is essential and this workshop looked at all these aspects. We had 890 delegates for the workshop.

The speakers for this workshop were **Dr. Ricardo Azziz**, USA, and renowned IVF specialists from India – **Drs. Sadhana Desai, Sonia Malik, Kanthi Bansal, Jatin Shah and Madhuri Patil**.

Workshop on "Improving Pregnancy Success in PCOS" and was held on **Saturday 19<sup>th</sup> September 2020**. Convenors: **Dr. Duru Shah | Dr. Madhuri Patil**

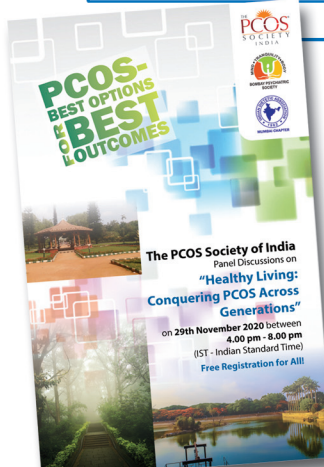
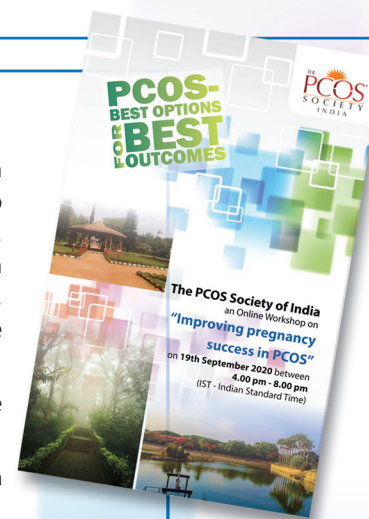
This workshop discussed the optimization of stimulation in difficult situations and the way forward in the presence of obesity, insulin resistance and high androgen and LH levels. It also looked at how modifying conventional stimulation protocols according to patients' characteristics and ovarian reserve, makes it patient-friendly, optimizes the chance of live birth and prevent complications. It also discussed the impact of PCOS and stimulation on implantation and how individualized controlled ovarian stimulation protocols single embryo transfer or freeze all policy could help in increasing success of ART thus reducing miscarriage rate, stress, anxiety and complications. It made the participants understand the interplay of endocrinology, immunology, the uterus and the embryo, in PCOS women and how we could modulate these for better outcomes.

World experts in the field of reproductive endocrinology deliberated on topics of high interest in the field of reproductive endocrinology. The speakers for this workshop were

**Louise Hull** from Australia, **Anuja Dokras** and **Fady Sharara** from USA, **Duru Shah, Madhuri Patil, Sujata Kar and Padma Rekha Jirge** from India.

Participants who attended this workshop were fully updated with evidence based knowledge on how to increase success rates in ART through optimisation of treatment protocols. They were also made aware of the limitations and practical barriers so as to help them to incorporate this knowledge in clinical practice.

We had around 1300 registrations for this Workshop.



On **29<sup>th</sup> November 2020**, we conducted an evening workshop with a difference! Entitled "**Healthy Living: Conquering PCOS Across Generations**", this was a lifestyle event, that comprised of multiple interactive panels that brought together a myriad of experienced and popular Dermatologists, Nutritionists, Psychiatrists, Endocrinologists, Gynaecologists, Gastroenterologists, Fitness experts, Pulmonologists, Psychologists, Yoga experts and Fitness gurus – each representing the different doors of entry for young girls and women suffering with PCOS at different points across their lifetimes and across generations. We had 858 delegates for the workshop.

The event convened by **Piya Ballani Thakkar** and **Dr. Madhuri Patil** held in collaboration with **The Indian Dietetic Association, Mumbai Chapter** and **Bombay Psychiatric Association** was attended by a multi-disciplinary faculty audience, who ended the evening with numerous practical take home pearls and the sense that team-effort is necessary to successfully tackle the many faces of PCOS.

The videos of all workshops will be available at <https://www.pcosindia.org/video-gallery.php>

## Upcoming workshop 9<sup>th</sup> Jan 2021

The PCOS Society of India  
Workshop on "**Tackling the Pregnant PCOS**"  
on **Saturday, 9<sup>th</sup> January, 2021**

Dear Friends and Colleagues,  
Greetings from "The PCOS Society of India".  
It gives us great pleasure in inviting you to participate in our diverse workshop on "Tackling the Pregnant PCOS" organized by "The PCOS Society of India".

**9<sup>th</sup> January 2021 | Workshop 4 | 4.00 - 8.00 pm (IST)**

4.00 pm	Welcome by Duru Shah
<b>Session 1</b>	<b>Common Pregnancy Problems Patients worry about</b>
4.05 - 4.20 pm	Am I at increased risk of Abortion? Will anything prevent it?
4.20 - 4.25 pm	Discussion
4.25 - 4.35 pm	Can I continue my Beauty Regime in Pregnancy - Hair colour, laser, etc.
4.35 - 4.50 pm	Diet and exercise helped me to conceive - now what level shall I continue in Pregnancy?
4.50 - 5.00 pm	Discussion
<b>Session 2</b>	<b>Hyperglycemia in Pregnancy - HIP</b>
5.00 - 5.20 pm	Hyperglycemia in first trimester - risks and management
5.20 - 5.25 pm	Discussion
5.25 - 5.45 pm	Comparing Methods of Monitoring Sugar Levels - what is recommended and what is practical for the patient
5.45 - 5.50 pm	Discussion
5.50 - 6.10 pm	Metformin or Insulin - Which to start & when?
6.10 - 6.15 pm	Discussion
<b>Session 3</b>	<b>Delivery &amp; After - the 4<sup>th</sup> Trimester</b>
6.15 - 6.35 pm	When to terminate a Pregnancy in HIP ?
6.35 - 7.00 pm	Immediate Post-partum care in the Hospital and first 6 weeks (advice on sugar control, breast feeding, contraception and exercise)
7.00 - 7.05 pm	Discussion
7.05 - 7.25 pm	Long term follow up - Keeping PCOS at Bay - screening for diabetes, metabolic syndrome, perimenopausal life, cancer screening, planning the next pregnancy
7.25 - 7.30 pm	Discussion
7.30 - 7.50 pm	Improving the call back rate of this group
7.50 - 8.00 pm	Discussion

We look forward to seeing you join our multi-disciplinary faculty online workshop.

## Convenors of Workshops



Duru Shah



Madhuri Patil



Piya Ballani Thakkar



Uday Thanawala

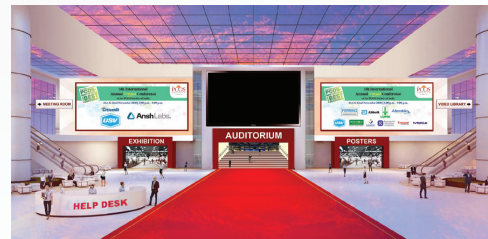


**Dr. Duru Shah**  
President

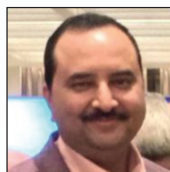


**Dr. Madhuri Patil**  
Vice President

On the 21<sup>st</sup> and 22<sup>nd</sup> of November, The PCOS Society of India held the 5<sup>th</sup> International Annual Virtual Conference on "PCOS – Best Options for Best Outcomes" under the guidance of **Dr. Duru Shah**, Founder President and **Dr. Madhuri Patil**, Vice President. This conference brought together all specialties dealing with PCOS women like gynecologists, endocrinologists, dermatologists, reproductive endocrinologists, diet experts and health and wellness experts under one roof to deliberate on the problems of PCOS.



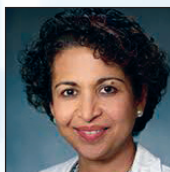
## SPEAKERS



**Ajay Kumar**  
USA



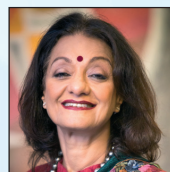
**Ajit Menon**  
India



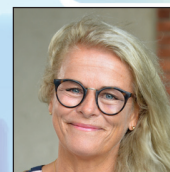
**Anuja Dokras**  
USA



**Clare Boothroyd**  
Australia



**Duru Shah**  
India



**Elisabet-Stener-Victorin**  
Sweden



**Helena Teede**  
Australia



**Joop Laven**  
The Netherlands



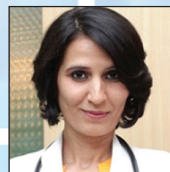
**Louise Hull**  
Australia



**Manjiri Valsangkar**  
India



**Mary Ann Lumsden**  
UK



**Piya Ballani Thakkar**  
India



**Ramen Goel**  
India



**Rasya Dixit**  
India



**Ricardo Azziz**  
USA



**Richard Anderson**  
UK



**Scott Nelson**  
Scotland



**Shashank Joshi**  
India



**Sujeet Rajan**  
India



**Susan Davis**  
Australia



**Urmila Nischal**  
India

## PROGRAMME

### Day 1 – 21<sup>st</sup> November, 2020

#### OPENING CEREMONY

**Amit Deshmukh**, Chief Guest

**Alpesh Gandhi, R.S.Sharma, Smita Mahale** – Guest of Honors

#### Session 1: Recent Advances in PCOS

Master of Ceremony: **Sabahat Rasool**

Chairpersons: **Krishnendu Gupta, Sudhaa Sharma** and **Mirudhubashini Govindarajan**

- Androgenic PCOS: is there a beneficial effect on female bone? **Shashank Joshi**, India
- Kisseptin: the new hormone from the brain, does it affect PCOS? **Richard Anderson**, UK
- Long acting Antagonist – a good choice for PCOS **Louise Hull**, Australia

#### Session 2: Managing PCOS with Metformin

Master of Ceremony: **Sabahat Rasool**

Chairpersons: **Padmavathy Menon, Kanthi Bansal** and **Sujata Kar**

- Obesity **Helena Teede**, Australia
- Fertility treatment **Duru Shah**, India
- Menstrual Dysfunction **Mary Ann Lumsden**, UK

#### Session 3: Tackling Insulin Resistance – Emerging Evidence in PCOS

Master of Ceremony: **Lipika Moharana**

Chairpersons: **Ratnabali Chakraborty, Sarita Bhalerao**

- Inositols **Manjiri Valsangkar**, India
- Bariatric surgery **Ramen Goel**, India

#### Keynote address – Does PCOS begin in the fetus?

Master of Ceremony: **Lipika Moharana**

Chairpersons: **Madhuri Patil** and **Sangeeta Agrawal**

**Elisabet-Stener-Victorin**  
Sweden

#### Session 4: Role of "AMH" in PCOS

Master of Ceremony: **Lipika Moharana**

Chairpersons: **Padma Rekha Jirge, Nikhil Bhagwat** and **Nitin Chaubal**

- Predicting fertility outcome in PCOS women **Anuja Dokras**, USA
- Role of AMH in assessing hyperandrogenemia **Elisabet-Stener-Victorin**, Sweden
- PCOM Check: A Novel Approach to diagnose Women with PCOS **Ajay Kumar**, USA

### Day 2 – 22<sup>nd</sup> November, 2020

#### Welcome

#### Session 5: Endocrine disorders and PCOS

Master of Ceremony: **Payal Bhargava**

Chairpersons: **Suvarna Khadilkar, Ganpathi Bantwal** and **Sonia Malik**

- Do Hyperandrogenic women have more libido? **Susan Davis**, Australia
- The relationship between PCOS and Hypothyroidism **Clare Boothroyd**, Australia
- Gut dysbiosis: do the gut bacteria protect us from PCOS? **Joop Laven**, The Netherlands

#### Session 6: Dealing with co-morbidities in PCOS

Master of Ceremony: **Payal Bhargava**

Chairpersons: **Nirja Chawla, Uday Thanawala, Shobhana Patted** and **Pratap Kumar**

- Cardiovascular risk **Ajit Menon**, India
- What is new in Gestational Diabetes? **Piya Ballani Thakkar**, India
- Sleep Apnea **Sujeet Rajan**, India
- IVF in the medically complicated patient **Scott Nelson**, Scotland

Keynote address – **PCOS and Non-Classical Congenital Adrenal Hyperplasia: distinctions and commonalities** **Ricardo Azziz**, USA

Master of Ceremony: **Ruby Sound**

Chairpersons: **Duru Shah** and **Shashank Joshi**

#### Session 7: Dermatological manifestations - top trends in Management

Master of Ceremony: **Ruby Sound**

Chairpersons: **Sandhya Saharan, Rita Bakshi** and **Manoj Chadha**

- Acanthosis nigricans and skin tags **Rasya Dixit**, India
- Androgenic Alopecia **Urmila Nischal**, India
- Is hirsutism a marker of metabolic dysfunction? **Ricardo Azziz**, USA

#### Valedictory

The videos of the conference will be available at  
<https://www.pcosindia.org/video-gallery.php>



**Elisabet Stener-Victorin**

Professor, PhD,  
Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden.

## Does PCOS begin in the fetus?

In a register-based study and in a clinical case-control study from Chile of nearly 30,000 daughters of women with or without PCOS, we recently found that daughters of women with PCOS have a five-fold increased risk of being diagnosed with the syndrome (Nature Medicine, 2019, 2). But how PCOS is inherited is unclear as PCOS loci identified by genome-wide association studies account for only 10% of the heritability. Growing evidence suggests that epigenetic and developmental programming contributes significantly to the inheritance of PCOS.

In the same study we discovered that PCOS-like traits induced by the non-aromatizable androgen dihydrotestosterone (DHT) exposure during pregnancy in mice can be passed on from mothers (F0) to daughters (F1), granddaughters (F2), and even great-granddaughters (F3), and that transcriptional and mitochondrial perturbations of oocytes accompany this transmission (Nature Medicine, 2019). Importantly, several of the oocyte gene signatures were detectable also in serum from daughters of women with PCOS and in adipose tissue of unrelated women with PCOS, indicating communication between germ cells, serum and somatic tissues/cells and supporting the translational relevance of our mouse findings.

## Role of AMH in assessing hyperandrogenemia

While >50% of women with polycystic ovary syndrome (PCOS) are obese, which exacerbates their symptoms, the key feature of PCOS is hyperandrogenism, with a recent study showing a causal link between high levels of bioavailable testosterone and PCOS, type-2 diabetes, and endometrial cancer in women. The main source of hyperandrogenism in PCOS is ovarian androgen hypersecretion which is exacerbated by GnRH-dependent LH secretion. This androgen production from theca cells and inhibits follicular maturation, resulting in large numbers of small antral follicles and in anovulation. The accumulation of small antral follicles results in excessive production of anti-Müllerian Hormone (AMH) by granulosa cells, such that women with PCOS also have 2-3 times the normal level of circulating AMH. This increase in AMH levels in turn increases GnRH and LH secretion. AMH could in this way trigger ovarian hyperandrogenism and play a key role in the pathogenesis of PCOS. Measurement of serum AMH has been proposed to replace detection of polycystic ovarian morphology on ultrasound (PCOM) and to be used in the diagnosis of PCOS. AMH levels show significant variation due to biological and measurement-related technical factors. Moreover, recent studies show poor to fair validity for AMH to diagnose PCOS among unselected women, except for those patients with phenotype A. Thus, there is a correlation between AMH and circulating androgens but there is no evidence that AMH can be used to access hyperandrogenism.



**Anuja Dokras**

MD, PhD  
Director – Penn PCOS Center  
Associate Executive – AE-PCOS Society  
Past President – AE-PCOS Society  
Director – Hospital of the University of Pennsylvania  
Reproductive Surgical Facilities

## Predicting fertility outcome in PCOS women

Anti mullerian hormone was 1st discovered as a testicular factor by Alfred Jost in 1947. It is a dimeric glycoprotein and a member of the TGF beta super family. AMH is produced by the pre antral and early antral follicles within the ovaries. It acts as a regulator of folliculogenesis by inhibiting the recruitment of primary follicles from the primordial pool. The serum levels of AMH are affected by several factors including age, BMI, time in the menstrual cycle, use of hormonal contraceptives, and AMH assay used. AMH levels have been shown to decrease with age in several populations. In addition, there is an inverse correlation between AMH and BMI. These associations hold true in women with PCOS as well. Further, AMH levels may be suppressed with prolonged use of hormonal contraception and have shown to reverse on discontinuation. The fluctuation in AMH levels noted with menstrual cyclicity may not be of clinical significance. In addition to measuring serum FSH levels and antral follicle counts by ultrasound, AMH has been used as a marker of ovarian reserve. In women with PCOS undergoing oral ovulation induction, those with high AMH levels were shown to have higher rates of non-ovulation. In women undergoing in vitro fertilization, individual patient data from meta-analysis show that AMH is a good predictor of both high and low ovarian response. On the other hand, AMH is a weak independent predictor of live birth rate after controlling for age, BMI, day of transfer, and number of embryos transferred. Some studies have shown that AMH can be used to induce visualize FSH in dosing regimens. In conclusion, AMH is a well-established marker of ovarian reserve. It can be used to predict fertility outcomes such as response to ovulation induction but has limited value in predicting live birth rates.



**Ricardo Azziz**

MD, MPH, MBA  
Obstetrics & Gynecology, University of Alabama at Birmingham. Health Policy, Management, and Behavior, University at Albany, SUNY

## Is Hirsutism a Marker of Metabolic Dysfunction?

Hirsutism is the growth of terminal and body hair in women in a masculine pattern. Visually, the extent of masculine pattern terminal hair growth is assessed by the modified Ferriman-Gallwey (mFG) score. Hirsutism affects approximately 10% of women globally, defined using cluster analysis to define the normal upper limit for the mFG score, usually a score of 3-5. Hirsutism has a significant negative impact on Quality of Life (QOL). Approximately 80-90% of women with hirsutism have PCOS, and 65-70% of PCOS women have hirsutism. Overall, 70-90% of PCOS women have insulin resistance (IR) and hyperinsulinemia for their BMI and are predisposed to metabolic dysfunction and related morbidities. Androgen levels and the hyperandrogenic PCOS phenotypes A-C are associated with greater IR and metabolic risk, and the mFG score is associated primarily with measures of IR. Overall, hyperandrogenism, including hirsutism, can be inferred to be a strong predictor of metabolic dysfunction in PCOS.

## PCOS and NCAH: Distinctions and Commonalities

The polycystic ovary syndrome (PCOS) is a reproductive-metabolic complex genetic trait that affects approximately 1:8 to 1:10 individuals, most clinically obvious in women of reproductive age. Non-classic adrenal hyperplasia due to 21-hydroxylase (cytochrome P450c21) deficiency is an autosomal recessive disorder affecting CYP21A2, affecting between 1:800 and 1:1500 individuals, regardless of sex and depending on the ethnicity of the population. Clinically, both PCOS and NCAH may present similarly, although NCAH may present with milder signs and symptoms, and/or degrees of metabolic dysfunction.

It is not possible to distinguish NCAH from PCOS clinically, particularly because many NCAH will have ovarian androgen excess/PCOS-like signs and symptoms. Furthermore, both PCOS and NCAH will respond favorably to suppression using oral contraceptives and antiandrogens. The only approach to distinguishing PCOS from NCAH is to assess the basal follicular phase morning 17-HP, for screening, and 17-HP after ACTH stimulation, for diagnosis.



**Susan R Davis**

MBBS, FRACP, PhD, FAHMS  
Women's Health Research Program, School of Public Health and Preventive Medicine, Monash University, Melbourne, Victoria, Australia 3004.

## Do premenopausal women with higher androgen levels have more libido?

It is frequently assumed that androgens drive libido in women, including in premenopausal women. Despite this being a common assumption there is little scientific basis for this. In premenopausal women, the main androgen, testosterone is primarily secreted by the ovaries, but in addition a significant proportion is produced from pre-androgens (androstenedione and DHEAS) produced by the adrenal glands, and androstenedione produced by the ovaries. Like the oestrogens, testosterone concentrations increase mid cycle and remain elevated during the luteal phase of the menstrual cycle. We have examined the associations between testosterone and the pre-androgens, and sexual function in pre-menopause women, and the findings will be reported in this presentation.



**Richard Anderson**

MD, PhD, FRCOG, FRCP (Ed)  
MRC Centre for Reproductive Health, University of Edinburgh

## Kisspeptin and neurokinins in PCOS

The central regulator of the reproductive axis is the secretion of GnRH by the hypothalamus, and recent years have provided much information on how that is controlled. Specifically a population of neurons that control GnRH secretion called 'KNDY neurons' have been identified, so called because they co-express kisspeptin, neurokinin B and dynorphin. These act directly on GnRH neurons, and there are emerging data in humans of how they thus regulate key aspects of reproductive function, including ovulation. The availability of neurokinin B antagonists has also led to studies exploring their potential for therapeutic benefit, including in PCOS. In this talk I will introduce this pathway and illustrate the key clinical findings so far available.



**Joop S. E. Laven**

Ph.D., M.D., Division of Reproductive Endocrinology and Infertility, Erasmus University Medical Center, Rotterdam. The Netherlands.

## Does the gutmicrobiome protects us from PCOS?

In 2010 the human microbiome project started. The aim of this project was to assess the different microbiota in the human body. By far the most studied microbiome in this project is the gut microbiome. Ways to assess the diversity of the different species within a certain microbiome is usually done using the alpha diversity index giving an estimate of the heterogeneity of the microbiome. Another measure, the beta diversity is addressing the homogeneity of a specific sample of microbiome.

In women with PCOS the microbiome is different in terms of a lower alpha and a higher beta diversity. Moreover it seems that the gut epithelial lining in women with PCOS is leaky giving all kinds of toxin the opportunity to bridge the endothelium and cause inflammation in the subendothelial compartment. Indeed hs-CRP as well zonulin and lipo-polysaccharide levels are higher in sera of women with PCOS indicating such a leaky gut. Moreover, interleukin 22 levels are extremely low in women with PCOS.

Animal models have shown that transfecting germ free rats with stools from women with PCOS do induce a PCOS phenotype in these rats. They develop insulin resistance along with a perturbed carbohydrate metabolism. Later on they also are less often in estrous and develop multicystic ovaries with fewer corpora lutea. They also show differences in the content of bile acids in the gut and lower interleukin 22 levels in both the gut and the serum. Treating them with interleukin 22 or with specific bile acids e.g. Glycodeoxycholic acid restored a normal carbohydrate metabolism with normal insulin sensitivity within a few weeks. Indeed a normal reproductive phenotype was also completely restored within the same period of time. Finally, the level of inflammation was reduced and this coincided with an increase of browning of the adipose tissue. This study suggests that modifying the gut microbiota, altering bile acid metabolism and/or increasing IL-22 levels may be of value for the treatment of PCOS.



**Mary Ann Lumsden**

BSc Hons, MB,BS, MRCOG, MD, FRCOG  
Honorary Professor, University of Glasgow  
CEO FIGO.

## Menstrual Irregularity in PCOS

PCOS is a condition that is frequently associated with irregular menses as a result of oligo- or anovulation. Less than 20% of women with PCOS will have regular cycles, which in some instances will be ovulatory. Diagnosis of PCOS isn't always straight forward as irregular menses are common following the menarche and also during the years leading up to the menopause. Also in adolescent girls physiological hyperandrogenism is common and so there is a significant risk of over-diagnosis. As a result, caution is needed in the 1st 2 or 3 years post menarche. PCOS can also present with primary amenorrhoea although this is uncommon.

Obesity is a common feature of PCOS and produces a range of endocrine effects that are similar to those described in PCOS which can resolve on weight loss increasing the number of menses and increasing the rate of ovulation. Obesity is increasing in incidence throughout the world and is also associated with significant chronic disease in later life. In young women the increased incidence of anovulation contributes to both irregular menses and sub-fertility.

Oligo - and anovulation in peri-menopausal women leads to unopposed oestrogen stimulation and an increased change of developing endometrial hyperplasia and cancer. The likelihood is increased particularly in women with PCOS and obesity when endometrial biopsy should be undertaken in the presence of increased endometrial thickness on ultrasound scan. Usually it will be well-differentiated and the cure rates are high.

Initial treatment should always be with advice on lifestyle and weight loss and this advice must always underpin pharmacological treatment. The mainstays of treatment are the combined oral contraceptive pill (COCP), progestogens both continuous and cyclical, the levonorgestrel-secreting IUS and insulin sensitizing agents. All the hormonal medications will decrease the incidence of endometrial hyperplasia and will lead to regular menstruation and amenorrhoea in most women although irregular break through bleeding is common. For older women with obesity, the COC may not be suitable due to the increased risk of venous-thromboembolism and progestogen alone safer. Metformin administration has also been shown to increase the number of cycles and promote weight loss and can be very useful for many women with PCOS. In those with heavy menstrual bleeding, iron deficiency anaemia should not be missed.

Menstrual irregularity can be satisfactorily treated in most women with PCOS although for those not wanting hormonal treatment this can be more challenging.



**Louise Hull**

*MB ChB (Otago), FRANZCOG  
Associate Professor, University of Adelaide & Scientific  
Director, Embrace Fertility & Women's and Children's  
Hospital in Adelaide.*

## Long-Acting GnRH antagonists – a good choice?

A significant development for women with PCOS has been the increasing use of GnRH antagonist cycles to stimulate the ovaries in IVF cycles. These cycles carry a lower risk of Ovarian Hyperstimulation Syndrome (OHSS), which is even further reduced if a GnRH agonist trigger is used. For women with PCOS, the development of longer acting GnRH antagonists raises the prospect of down regulating the hypothalamic-pituitary-gonadal axis, normalising the metabolic environment and synchronising follicular development before FSH stimulation, while retaining the ability to use a GnRH agonist to trigger an endogenous LH surge, if too many follicles develop.

Limited data exists regarding the benefits of the long acting GnRH antagonist (Degarelix). Papanikalou et al published a proof of concept paper demonstrating the effectiveness of midluteal administration of 80mg Degarelix sc before the start of the cycle in suppressing the LH surge in 5 egg donors and 5 infertile women. A GnRH agonist triggers was used for the egg donors, whereas an hCG trigger was used by the infertile women. Five blastocysts were transferred in the infertile group and 3 women had ongoing pregnancies.

In a 3 armed, placebo double-blinded randomised controlled trial in 80 egg donors, mid luteal and day 6 Degarelix administration was compared to Day 1 and day 6 Degarelix administration or a flexible standard GnRH antagonist cycle. An hCG trigger was used in all arms. When Degarelix was administered in the midluteal phase, FSH, LH and E2 levels were suppressed compared to the placebo group although follicular size, recruitment and pregnancy rates were comparable across the 3 groups.

Egg donors tend to be young and healthy with optimal metabolism, whereas women with PCOS may benefit more from down regulation of the hypothalamic-pituitary-gonadal axis. A trial has been registered comparing Day 1 administration of Degarelix compared to a standard flexible antagonist cycle in PCOS women. The trial intended to randomise 80 PCOS patients who had previous OHSS and fertility problems. At this point it has been partially reported in a conference abstract when data from 40 patients were analysed. The results suggested that there may be a higher pregnancy rate (65% vs 30% (p<0.05)), higher numbers of mature oocytes and a lower OHSS rate (5% vs 20% (p<0.05)) in the Degarelix group<sup>6</sup>.

Given the promise of this study, it is surprising that further trials haven't been completed. The most likely reasons are safety concerns for the fetus. Currently Degarelix is contraindicated in women who are pregnant or trying to conceive. This is because of an increase in embryo/fetal lethality and abortion in animal studies although there is little data in humans.

Thus although promising, several factors need to be addressed before the use of a long acting GnRH antagonist can be recommended. Safety concerns for the fetus must be tackled to prevent harm. A proven benefit in pregnancy rates, outcomes and convenience over flexible antagonist cycles must be shown in PCOS women at risk of OHSS. Large well-designed, RCTS then need to be performed to validate any preliminary promising findings.

Currently, the jury is out regarding the future use of long acting GnRH antagonists. Further development of safe, easy to use, long acting GnRH antagonists may improve outcomes for PCOS women and it is an exciting to watch developments in this area of reproductive medicine.



**Sujeet Rajan**

*MD, DETRD, DNB  
Consultant Respiratory Physician, Interstitial Lung  
Diseases, Bombay Hospital Institute of Medical  
Sciences and Bhatia Hospital Mumbai, India*

## Sleep Apnea

Sleep-disordered breathing is not uncommon in women, and especially with PCOD and pregnancy. The purpose of this talk will be to highlight the importance of recognizing it early, and understanding why early recognition can prevent complications in later life, and during pregnancy.

The lungs have a higher minute ventilation during pregnancy which compensates for a lot of the compromise that the diaphragm (elevated by 4 - 5 cm) causes. Cardiac output is also increased, with reduction of the pulmonary and systemic vascular resistance.

Simple questionnaires like the STOP-BANG can identify patients who could be at a high risk of sleep apnea, and testing has moved to the home. Simple tests like the Apnealink can be performed at home, and even strips like the NightOwl will be the future of simple home sleep studies.

Insomnia is an equally common problem and needs to be dealt with appropriately, less with drugs, and more with non-pharmacological methods. We will also review the simple measures to treat sleep apnea when it's mild to moderate, and of course the importance of nasal CPAP in severe obstructive sleep apnea.



**Piya Balani**

*MD, DNB, DGO, FCPS  
Director – Dr. Ballani's Clinic, Mumbai*

## What is New in Gestational Diabetes

The IDF estimates that 1 in 6 of the 20 million annual live births (16.8%) occur to women with some form of hyperglycemia; 16% of these relate to diabetes in pregnancy; 84% to GDM. Asian people have higher risk of GDM (18.9%) compared to the rest. According to the IADPSG and WHO criteria, GDM is associated with almost twice the risk of large-for-gestational-age babies, increased fetal adiposity, neonatal hyperinsulinemia and preeclampsia, and a 50% higher risk of preterm delivery and shoulder dystocia. The recent publication of the Hyperglycemia and Adverse Pregnancy Outcome Follow Up Study (HAPO FUS) provides further evidence regarding the adverse impact of GDM on long-term maternal and infant health, including Type 2 Diabetes in the mother and diabetes and obesity in the offspring. As routine screening for GDM is not done, probably the undiagnosed glucose intolerance that has been occurring in the past has resulted in the increased prevalence of diabetes in India. Universal screening is therefore essential.

Although multiple criteria exist for diagnosis of GDM, in India, the one step DIPSI procedure of challenging women with 75 gm glucose and diagnosing GDM if > 140 mg/dl is simple, economical and feasible. Once diagnosed, 70-80% patients respond to medical nutrition therapy (MNT) alone. Small, frequent meals with low glycemic index are useful. Moderate intensity exercise is beneficial. As insulin does not cross the placenta, it is the preferred agent in women with GDM. Ultra longacting analogue-degludec has a dedicated clinical trial on going for use in pregnancy (EXPECT), results of which may be out by 2024.

The chase for making the bolus insulin profile more close to physiological mealtime insulin response, has led to the development of ultrafast acting insulins. Fiasp (Fasterasp) marks the era of ultrafast acting insulins and is currently approved in 35 countries (including India) and launched in 11 countries. Metformin is a suitable alternative in those who refuse/fail to comply with insulin, although many bodies recommend it as a first line agent. Continuous glucose monitoring (CGM) identifies glycemic excursions that may go undetected with SMBG and may be recommended when patients are unable to achieve target glucose levels with SMBG alone.

CGM can reduce macrosomia and neonatal hypoglycaemia in pregnancy complicated by type 1 diabetes. Current updated evidence suggests that CGM is superior to SMBG among GDM pregnancies which might result in an improvement of maternal and fetal outcomes. The overall health and economic benefits that accrue from identifying and treating GDM both in the short term (perinatal complications) and the long term through postpartum lifestyle interventions to prevent or delay the onset of Type 2 diabetes, obesity, and cardiovascular diseases both in the mother and offspring should be recognised.



**Ajay Kumar**

*MD, PhD  
AnshLabs, 445 Medical Center Blvd.,  
Webster, TX-77598, USA.*

## PCOM Check: A Novel Approach to Diagnose Women with Polycystic Ovary Syndrome (PCOS)

At times clinicians wonder why a subject's Anti-Mullerian Hormone (AMH) does not correlate to the antral follicle count (AFC). AMH is secreted as a full-length protein and undergoes proteolytic cleavage at amino acid 451 to become biologically active. Additional proteolytic processing takes place at aa229. This processing, which may differ between individuals with different clinical conditions, exposes new antigenic sites which affect AMH measurements. Moreover, AMH epitopes may be masked by protein interactions in circulation. PCOCheck method uses mathematical model which incorporates the biochemical and biophysical parameters to diagnose PCOM and risk stratify subjects for further PCOS evaluation. Recent research also indicates that AMH and LH play a vital role in pathophysiology of PCOS.

A specific AMH assay, PCOCheck, has been developed using novel two-sided linear epitope antibody. This PCOCheck AMH assay has the best-known correlation to AFC and a good predictor of PCOM. It is not impacted by confounding factors such as post-translational modifications, known AMH mutations or conformational changes due to thermal instability or other interacting proteins. A well characterized cohort of 2218 PCOS subjects was studied with respect to their age, Body Mass Index (BMI), PCOCheck AMH and serum LH measurements. ROC analysis of PCOCheck yielded area under the curve (AUC) of 0.95 (0.92-0.97). Comparative ROC analysis by PCOS phenotypes (A-D) using PCOCheck AMH was 0.96, 0.68, 0.92 and 0.93, respectively. Addition of LH improved the AUC of phenotype B by 7%. This yielded a sensitivity of 92% at a false positive rate of 14.7% with all phenotypes combined.

PCOCheck provides clinicians a better tool for patient management. Such tests will also help resolve the observed AMH discrepancies with AFC using legacy AMH tests. It will serve as a valuable tool for assessment of ovarian reserve, PCOM and stratifying high risk PCOS subjects for further evaluation.



**Duru Shah**

*MD, FRCOG, FCPS, FICOG, FICMCH, DGO, DFP  
Director, Gynaecworld*

## Managing Infertility in PCOS with Metformin

PCOS is the most frequently observed cause of female infertility and accounts for nearly 70% of anovulatory infertility. Obesity adds on to the Insulin Resistance (IR) and Hyperandrogenaemia (HA) seen in PCOS. Increasing prevalence of HA and IR is observed from 25% in normal weight PCOS women to almost 80% in overweight and obese women.

Insulin Resistance is known to cause increasing hyperandrogenism and impacts reproduction by impairing folliculogenesis leading to chronic anovulation, raised LH secretion, and Oligoamenorrhoea. Weight loss is known to increase spontaneous pregnancy rates and the number of embryos available for transfer with higher clinical pregnancy and livebirth rates. Loss of intra-abdominal fat (visceral fat) leads to earlier resumption of ovulation versus loss of only subcutaneous fat, suggesting that lowering insulin resistance helps to improve ovulation. Waist Circumference is an easy tool to assess the loss of visceral fat.

Our own experience has shown that with increasing BMI, there is a reduction in fertilization, cleavage, clinical pregnancy and livebirth rates in PCOS women. And besides BMI, waist circumference which is a marker for Insulin Resistance, also independently lowers the live birth rate in PCOS women.

Insulin Resistance is best managed by the use of Metformin which acts by improving insulin sensitivity, lowering hyperandrogenaemia, improving ovarian steroidogenesis and endometrial receptivity through different mechanisms. Metformin is known to have a positive effect on gut microbiota and liver enzymes leading to improved insulin sensitivity. When compared to other Insulin Sensitizers, Metformin lowers insulin resistance, lipid and testosterone levels, and lower BMI, increases SHBG and cycle regularity. Various metanalysis and the latest Cochrane Database Review have found an increasing benefit with Metformin on the clinical pregnancy rate and a lowering of OHSS rate when used during ovulation induction, especially in women who are overweight or obese.

The International Guidelines on PCOS have recommended the use of Metformin both prior to and during ovarian stimulation in PCOS women undergoing ART with a GnRH agonist protocol to improve clinical pregnancy rates and reduce the risk of OHSS. The Cochrane Database of Reviews 2019 concluded that addition of Metformin to ovulation induction with Clomiphene Citrate / Letrozole and after Laparoscopic drilling, increases the odds of ovulation and clinical pregnancy rates, though Metformin also adds to the rate of gastrointestinal side effects.

The use of Metformin during pregnancy in PCOS is still debatable, as Metformin is known to be transmitted through the placenta, and not enough evidence is available on its effect on the pregnancy and the foetus.



**Helena Teede**

*FRACP, PhD, FAAHMS  
Executive Director Monash Partners Academic Health  
Research Translation Centre. Director Monash Centre  
for Health Research and Implementation, School of  
Public Health, Monash University. Endocrinologist  
Monash Health*

## Metformin and PCOS

PCOS is a complex and chronic disorder with reproductive, metabolic and psychological implications. Propensity to rapid weight gain and adverse complications of this are common. Healthy lifestyle, prevention of weight gain and management of obesity are all critical in this condition.

Metformin plays a role in prevention of weight gain and management of metabolic complications, in addition to healthy lifestyle. The recent literature in this area will be discussed along with the strengths and gaps in evidence.

*More Abstracts Continued on page 109*



# OPENING CEREMONY

The Virtual Conference witnessed 12 International and 30 National experts come together for an enriching two-day conclave on PCOS. The meeting was attended by 2400 delegates. The conference was extensively covered by the media. The deliberations and experience shared by speakers remained as a memorial and fruitful experience for all the delegates.

**Honourable Cabinet Minister, Mr. Amit Deshmukh** presided as the **Chief Guest for the Opening Ceremony held on the 21<sup>st</sup> November 2020** along with **Guest of Honor, Dr. Alpesh Gandhi, President of The Federation of Obstetric & Gynaecological Societies of India (FOGSI) & Dr. Smita Mahale, Scientist 'G' & Director, ICMR – National Institute for Research in Reproductive Health (NIRRH)**. Their encouraging words have been very inspirational for all the experts and participants.



**THE INTERNATIONAL CONFERENCE**  
**PCOS- BEST OPTIONS FOR BEST OUTCOMES**

**Opening Ceremony**

You are cordially invited for the Opening Ceremony of the **5th International Annual Virtual Conference** of the PCOS Society of India

on 21st November 2020 at 2:30 p.m.

2:30 pm	Welcome and Introduction	Dr. Sangeta Agrawal
2:31 pm	Presidential Remarks	Dr. Duru Shah
2:33 pm	Vice Presidential Remarks	Dr. Shashank Joshi
2:35 pm	Address by Guest of Honour	Dr. Alpesh Gandhi, President FOGSI
2:41 pm	Address by Guest of Honour	Dr. R. S. Sharma, Senior Deputy Director Maternal and Child Health ICMR
2:47 pm	Address by Guest of Honour	Dr. Smita Mahale, Director NIRRH
2:52 pm	Address by Chief Guest	Mr. Amit Deshmukh, Hon. Minister of Medical Education and Cultural Affairs
3:03 pm	Vote of Thanks	Dr. Sangeta Agrawal
3:04 pm	National Anthem	

Dr. Duru Shah President  
Dr. Madhuri Dhall Vice President



Speaking at the conference, **Mr. Amit Deshmukh** noted how healthcare workers have emerged as the real warriors during the pandemic. He lauded the efforts of the PCOS Society in creating awareness and suggested that a collective and participative effort is required to take care of the overall health and wellbeing of girls and women.

**Dr. Alpesh Gandhi** remarked that PCOS is a lifetime disorder known to cause profound physical and mental impact on the patient. He also added that the ignorance and lack of awareness on PCOS necessitates need for education and prevention.



**Dr. Smita Mahale** mentioned that it gave her great pleasure to be part of this conference as a representative of ICMR – National Institute for Research in Reproductive Health. As part of their research activity, NIRRH has been undertaking many programs to look at the prevalence of PCOS in the society and to develop a model for the management of PCOS. This conference provided them a platform to share with their observations and she was extremely glad to have shared their learnings."



## ABSTRACTS



**Manjiri Valsangkar**

**DGO, MS, Dip Endo**  
Director & Consultant IVF Sp.  
Bhide Hospital Test Tube Baby Centre, Navi Peth, Pune

### Inositols in polycystic ovary syndrome and pragmatic use of their combination treatment

- In PCOS, metformin, clomiphene and oral contraceptives inadequately achieve metabolic control, ovulation and euandrogenemia, respectively.
- Insulin-sensitizing agents have been the choice of therapy for PCOS
- Inositol, a six-carbon polyol, is an insulin sensitizing agent
- Myo-inositol (MI) and D-chiro-inositol (DCI) are isomers of inositol (formed by epimerization of inositol)
- DCI is synthesized when enzyme epimerase converts MI into DCI
- Ratio of MI and DCI is insulin dependent
- Hyperinsulinemia in PCOS increases epimerization to MI to DCI (overproduction of DCI) and reduces MI level.
- MI depletion is responsible for the poor oocyte quality in PCOS
- MI deficiency impairs FSH signalling and increases risk of ovarian hyperstimulation syndrome in PCOS
- High levels of DCI do not improve insulin sensitivity, hormonal profile or regulates menses in PCOS ("DCI paradox").

Why MI/DCI combination in PCOS?

- Since MI and DCI regulate different biological functions, their synergy is more beneficial
- Reduced plasma glucose and insulin concentrations after three months treatment with combination compared with MI alone.
- Decreased total testosterone and increased serum sex hormone binding globulin with combination after 3 and 6 months of treatment.
- Striking improvement in ovulation functions with combination
- Combination minimally converts MI to DCI
- Combination improves insulin-receptor activity.
- Pregnancy rates higher with 150 mg of DCI twice daily
- High dose combination therapy improved pregnancy rates and reduced the risk of OHSS in women with PCOS undergoing ICSI
- Combination MI 550mg + DCI 150 mg was associated with 60.45% higher pregnancy and 73% higher live birth rates compared with MI 550 mg + DCI 13.8mg dosage.
- Combination 550mg of MYO + 150mg of DCI twice daily was associated with 81% lower risk of ovarian hyperstimulation syndrome (OHSS) compared with 550mg MYO + 13.8mg of DCI dosage
- High dose combination therapy was associated with improved oocyte or embryo quality.



**Ramen Goel**

**MS, FIAGES, FALS, FRCS(Edin)**  
Director of Center of Excellence in Metabolic & Bariatric Surgery at Wockhardt Hospitals, Mumbai.  
President of the Indian Association of Gastro-intestinal Endo Surgeons (IAGES)

### Bariatric Surgery in PCOS Women

It is now established that obesity contributes to over 200 comorbidities including PCOS & related consequences. Obesity also leads to insulin resistance, an important contributing factor of PCOS. Considering that Asians have thin body frame, marginal weight gain of few kilograms alters the muscle:fat ratio significantly, resulting in reduced insulin sensitivity and type 2 diabetes mellitus or PCOS. An Australian study recommends bariatric surgery even in lower BMI women with PCOS.

Bariatric surgery is known to improve insulin sensitivity immediately after surgery presumably through interplay of calorie restriction, gut hormone alteration, healthier gut microbiome secondary to change in gut homeostasis, altered biliary levels etc. In one of our study published in 2011, insulin resistance(HOMA index) reduced by 90% within 6 months of surgery.

Multiple studies have shown that besides hormones and menstrual normalization, over 60% women have improved fertility with positive outcomes after 1-2 IVF cycles after bariatric surgery. Owing to concomitant improvement in metabolic syndrome, post bariatric women are likely to have safer pregnancy, delivery and healthier child.

Considering its strong association with PCOS, Gynecologists can contribute significantly in identification of early metabolic syndrome even when the women presents with menstrual irregularity alone.



**Urmila Nischal**

**MD**  
Consultant Dermatologist,  
Nirmal Skin & Hair Clinic, Bangalore

### Androgenetic Alopecia: Top trends in management

Androgenetic Alopecia in females should be termed as Female pattern hair loss or female pattern alopecia. It is a common hair condition in women characterized by diffuse hair thinning over the crown and parietal scalp with retention of the frontal hairline. Hallmark of the condition is miniaturization of the hair follicles with progressive shortening of the anagen phase. This leads to increase in fine hairs with decreased coverage of the scalp.

Aim of the treatment is to arrest miniaturization and improve the thickness of the hair. Counselling regarding the progressive nature of the condition and need for long standing treatment is very crucial. Topical Minoxidil 5%/10% is the mainstay of the treatment. Topical finasteride is a good option for females with known hyperandrogenism. It is effective without causing the systemic side effects of oral finasteride. Peptide serums and Caffeine (Capixyl, Redensyl, Procapil) help in thickening of the hairs and prevent hair loss. They are well tolerated and aesthetically appealing. Low dose oral minoxidil 0.25mg to 1mg per day has shown promising results. Several botanical supplements have also shown to be effective in FPHL. Procedural treatments include low level light therapy, platelet rich plasma therapy (PRP), Growth factor concentrate therapy (Variant of PRP), Botulinum toxin, Autologous micrografts injection, Plant based biomimetic peptide injections.

Early initiation of the treatment and a combination of therapies is a key towards achieving good results.

## E-POSTER WINNERS

### 1<sup>st</sup> Prize Winners



**Kavya Venkatappa**  
**Is Embryogenesis and ART Outcome different in PCOS?**



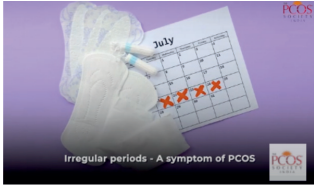
**Ashutosh Halder**  
**DHT: A potential biomarker of hyperandrogenaemia in PCOS**



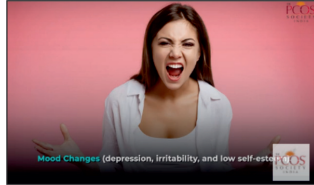
**Anupama Bahadur**  
**Correlation of HOMA-IR, Anti-Mullerian Hormone & Body Mass Index in characterization of Polycystic Ovary Syndrome Phenotypes in Reproductive age group: A Cross Sectional Study**

# Club PCOS

## Educational Videos on PCOS



Irregular Mestrual Cycles



Sign & Symptoms of PCOS



Cosmetic Issues in PCOS

**WATCH MORE VIDEOS ON**  
<https://pcosindia.org/patient-awareness-videos.php>

## Insta live Sessions

The PCOS Society of India in collaboration with "Conquer PCOS", has organized a series of educational Instagram Live Sessions for women / girls on the subject of PCOS. These sessions create awareness and answer questions on PCOS. The physicians from different specialities answer questions on PCOS. The program was initiated on 28 August 2020, and conducted every Friday at 4.00 pm. with each session lasting for 45 mins duration. 15 sessions have been conducted so far and the sessions have been viewed by 3500 viewers. Topics on various aspects of PCOS have been covered. A big thank you to all our members who contributed in making these sessions a huge success.

### JOIN THE INSTAGRAM LIVE SESSION WITH

 <b>Dr. Lipika Moharana</b> Chief Consultant Infertility, PCOS, Sexual Medicine, Azodogram Clinics, Cuttack, Odisha In discussion with <b>TOPIC: PCOS and Baldness</b> Date: August 28, 2020 at 4:00 pm	 <b>Dr. Padma Rekha Jirge</b> MICOE (UK), PCOS, MHA (Health Care Management) IVF Specialist In discussion with <b>TOPIC: PCOS &amp; Infertility</b> Date: Sept 4, 2020 at 4:00 pm	 <b>Dr. Geeta Mehra</b> MBBS, DPO(Corair), Dermatocosmetologist, Founder, Skin & You In discussion with <b>TOPIC: Skin Camouflage</b> Date: September 11, 2020 at 4:00 pm
 <b>Dr. Rachita Dhurat</b> Professor & Head, Department of Dermatology, LTM Medical College, Mumbai In discussion with <b>TOPIC: Mental Health in PCOS</b> Date: September 17, 2020 at 4:00 pm	 <b>Dr. Madhuri Patil</b> Clinical Director of Dr. Patil's Fertility & Endoscopy Clinic, Bangalore In discussion with <b>TOPIC: Diagnosis of PCOS</b> Date: Friday, September 25, 2020 at 4:00 pm	 <b>Dr. Rita Bakshi</b> MD, MD(Obs & Gynae), FICMCH, FICOG, Member of PCOS Society of India In discussion with <b>TOPIC: Diabetes during pregnancy in PCOS women</b> Date: Friday, October 2, 2020 at 4:00 pm
 <b>Dr. Mohit Shah</b> Consultant Psychiatrist at Unlimited potentialities & Advanced Multiplespecialty Hospital In discussion with <b>TOPIC: Dealing with PCOS: Can I lose weight with bariatric surgery?</b> Date: Thursday, October 8, 2020 at 4:00 pm	 <b>Dr. Madhuri Patil</b> Clinical Director of Dr. Patil's Fertility & Endoscopy Clinic, Bengaluru In discussion with <b>TOPIC: Obstructive Sleep Apnea in PCOS</b> Date: Friday, October 16, 2020 at 4:00 pm	 <b>Dr. Sarita Bhalara</b> Consultant Obstetrics & Gynaecology, Mumbai In discussion with <b>TOPIC: Common Myths &amp; Facts in PCOS</b> Date: Friday, October 23, 2020 at 4:00 pm
 <b>Dr. Uday Thanawala</b> Consultant Obstetrician & Gynaecologist In discussion with <b>TOPIC: Preventing PCOS from Children</b> Date: Friday, October 30, 2020 at 4:00 pm	 <b>Dr. Sujata Kar</b> Consultant Gynaecologist, Bhubaneswar In discussion with <b>TOPIC: 5 Diet Changes To Control Weight Gain in PCOS</b> Date: Friday, November 6, 2020 at 4:00 pm	 <b>Dr. Shobhana Patted</b> Consultant Obstetrician, Gynaecologist & Fertility Expert, Bengaluru, Karnataka In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm
 <b>Dr. Kanthi Bansal</b> Consultant Gynaecologist & IVF Specialist, Gujarat In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm	 <b>Dr. Piya Ballani Thakkar</b> Consultant Physician & Endocrinologist, Mumbai In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm	 <b>Dr. Reeta Biliangady</b> Seasoned Physician & Specialist, Bengaluru, Karnataka In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm
 <b>Dr. Ramen Goel</b> Consultant Obesity & Metabolic Surgeon, Mumbai In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm	 <b>Dr. Toral Shinde</b> Consultant Obstetrician & Infertility Specialist In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm	 <b>Dr. Sukhpreet Patel</b> Founder and Consultant - ThePCOS Clinic, Mumbai In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm
 <b>Dr. Payal Bhargava</b> Consultant Obstetrician and Gynaecologist, Hyderabad In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm	 <b>Dr. Shilpa Joshi</b> Director, Mumbai Diet and Health Centre & Practising Dietician In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm	 <b>Dr. Sabahat Rasool</b> Consultant Gynaecologist, Reproductive medicine and Infertility Specialist In discussion with <b>TOPIC: PCOS: Long term health problems</b> Date: Friday, November 13, 2020 at 4:00 pm

Follow us on



<https://www.instagram.com/pcossocietyindia/>

## Collaborations

### PCOS: Tip of the Iceberg

In collaboration with Thane Obs-Gyn Society 30<sup>th</sup> Aug., 2020

The keynote speakers were **Prof. Robert Norman**, specialist in reproductive and Periconceptual medicine from the University of Adelaide, who spoke on **Obesity and PCOS** and **Dr. Duru Shah** spoke on the **Impact of AMH in PCOS women**. The interactive Q&A Session was immensely informative, which was followed by a panel discussion on case scenarios in PCOS women over the Ages, moderated by **Dr. Sandhya Saharan**, Vice President of TOGS. The panel projected cases ranging from Adolescence PCOS, infertility and covered different aspects of PCOS elaborately, which proved to be immensely beneficial to the delegates. This webinar was attended by 500 delegates.

**Thane Obs-Gyn Society In association with The PCOS Society India**  
 Presents  
**PCOS - TIP OF THE ICEBERG**  
 30<sup>th</sup> AUG., 2020  
 11:00 a.m. - 1:30 p.m.  
**INTERNATIONAL SPEAKER**  
 Topic: Obesity & PCOS  
**CHAIRPERSONS**  
**SPEAKERS**  
 Topic: Impact of AMH in PCOS women  
**CHAIRPERSONS**  
**Panel Discussion - CASE SCENARIOS ON PCOS THROUGH THE AGES**  
**Moderator & Convener**  
**EXPERT PANEL**

## PCOS: Connecting the Dots

in collaboration with Indian Dietetic Association, Mumbai Chapter

31<sup>st</sup> Oct., 2020

The webinar helped in demystifying the complexities of PCOS with simple solutions. Expert tips were given on how to achieve a sustainable and healthy diet. Practical tips on patient centered management of PCOS with an integrated approach were given by the field experts. The event was attended by 1000 + delegates.

**INDIAN DIETETIC ASSOCIATION MUMBAI CHAPTER**  
 IN COLLABORATION WITH THE PCOS SOCIETY (INDIA)  
 PRESENTS A WEBINAR ON  
**PCOS: CONNECTING THE DOTS**  
 SATURDAY, OCTOBER 31, 2020  
 4:30 PM TO 6:00 PM  
**Speaker**  
**Panelist**  
**Panelist**  
**Panelist**  
**Moderator**

VIEW THIS WEBINAR <https://pcosindia.org/recorded-presentations.php>

VIEW THIS WEBINAR <https://youtu.be/ZF1BzsrfoY>

## Upcoming Events



THE  
**PCOS**  
SOCIETY  
INDIA

### Masterclass : “Elective Freeze-All” in PCOS

Convenors: Dr.Duru Shah | Dr.Madhuri Patil | Dr.Rajvi Mehta  
International and National Faculty (IVF Experts and Embryologists)

**20<sup>th</sup> - 21<sup>st</sup> March 2021 | 3:00 - 9:00 p.m.**

**Session I: Elective Freeze-All Concept**

- Why Freeze all?
- Do stimulation Protocols affect the quality of oocytes and embryos?
- Should we freeze D3 or D5 embryos?

**Session II: Vitrification and Warming**

- Principles of Vitrification and Warming
- Safety and Concerns about contamination in open v/s closed system
- Comparing fertilization and cleavage rates in fresh v/s vitrified embryos

**Session III: Endometrial Preparation For Frozen Thaw Cycles**

- Which protocols of endometrial preparation give the best results?
- Which molecules are most effective during endometrial preparation?
- Which is better: the natural cycle or the artificially prepared cycle?

**Session IV: Synchronizing The Endometrium And Embryo**

- Why do we synchronize?
- How do we synchronize in patients with regular & irregular cycles?
- How do we synchronize for D3 / D5 embryos?

**Session V: Embryo Storage**


- The current scenario of embryo storage
- Transporting embryos from one site to another
- Handling unclaimed embryos... the legal and ethical aspects

**Session VI: Children Born After Fresh v/s Frozen Embryo Transfer**

- Pregnancy outcomes and Live Birth rates
- Perinatal outcomes
- Long term outcomes

**Session VII: Oocyte Vitrification**

- Indications for Oocyte Vitrification
- Challenges in Oocyte Vitrification
- In Vitro Maturation and Vitrification



THE  
**PCOS**  
SOCIETY  
INDIA

# WHAT WHEN WHY

**Interactive Case Discussions on PCOS**

**Webinar Series**

**Starting January 2021**

**expert**

EXcellence in PCOS & Expertise  
in Reproductive Technology

**6 Modules** handcrafted by  
**Dr. Duru Shah & Dr. Madhuri Patil**

**FREE  
CONTENT  
FOR ALL**

**Certification only for  
PCOS Society Members**

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For further queries contact us on +91 98332 25280 / +91 98192 19787  
<https://www.pcosindia.org/expert-course.php>

THE  
**PCOS**  
SOCIETY  
INDIA

—Presents—

**PCOS QUIZZES**

Launched on 15<sup>th</sup> Aug. 2020  
every Monday...

Convenors: Dr. Duru Shah | Dr. Madhuri Patil  
Co-ordinators: Dr. Sujata Kar | Dr. Sarita Bhalerao

**Register Today**

[https://www.pcosindia.org/become\\_a\\_quiz\\_member.php](https://www.pcosindia.org/become_a_quiz_member.php)



**In Obese PCOS patients,  
Prevalence of insulin resistance  
approaches 80%<sup>1</sup>**

**Altered metabolism of inositol or IPG  
Contributes to the insulin resistance**

# NORMOZ DS

MI 1.1gm, DCI:27.6 mg, Chromium Picolinate & Vitamin D<sub>2</sub> tab

**Double Strength for Effective Action in Obese PCOS**

**A study on 50 overweight women with PCOS with  
MI+DCI (40:1) for 6 months concluded that<sup>2</sup>**

Combined administration of MI and DCI in physiological  
plasma ratio (40:1) should be considered as the first line  
approach in PCOS overweight patients<sup>2</sup>

**Significantly better results in weight reduction,  
resumption of spontaneous ovulation and  
spontaneous pregnancy compared with metformin  
in polycystic ovarian disease patients<sup>3</sup>**

Ref: 1. Vittorio Unfer et al International Journal of Endocrinology volume 2016 2. M Nordio Eur Rev Med Pharmacol Sci. 2012 May;16(5):575-81 3. Evidence Based Women's Health Journal 2015, 5:61-66. MI - Myo-Inositol, DCI - D-Chiro-Inositol, IPG - Inositol phosphoglycan



For the use of Registered Medical Practitioner or a Hospital or a Laboratory only.

**From Preconception Pregnancy to Lactation,**

Rx **Shelcal-XT**

Calcium carbonate 1250 mg, Vitamin D<sub>2</sub> 2000 IU, Methylcobalamin 1500 mcg,  
L-Methyl folate 1000 mcg, Pyridoxal 5 Phosphate 20 mg

The High Potency Calcium with Extraordinary Power of Vitamin D<sub>2</sub> & Active Form of Vitamins



**In Male & Female Idiopathic Infertility**

Rx **CARNISURE XT**

L-Carnitine 500 mg + L Arginine 10mg + Lycopene 2.5 mg + CoQ 10 30mg + Withania somnifera 250mg +  
Folic Acid 100 mcg + Vitamin D3 400 IU Tablets

Rx **CARNISURE LQ**

L-Carnitine 500 mg + L Arginine 3gm + Lycopene 2.5 mg + Co Q10 100mg + Folic Acid 100 mcg +  
Cyanocobalamin 1 mcg + Vitamin D3-400 IU + Elemental Zinc 10 mg + Selenium 40 mcg Sachets

The sperm and ovum vitalizer powered with Pro-fertility Nutrients

**Nutritional supplement from pregnancy to lactation**

Rx **Shelcal-MOM**

Calcium Carbonate 1250 mg + Vitamin D3 400 IU + DHA 150 mg + Folic Acid 294 mcg + Cyanocobalamin 1.2 mcg+ Pyridoxal- 5- Phosphate 2.5mg Tablets

Triad of Vision, Brain & Bone development formula



**In Pcos Management,**

Rx **D-360**

Vitamin D, Capsules & Granules 60000 IU

Efficiency in Deficiency with Better Patient Compliance

