Inositols in PCOS
- Daniela Menichini, Fabio Facchinetti
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Inositols in PCOS

1. Introduction on PCOS
Polycystic ovary syndrome (PCOS) is a state of hormonal dysregulation and unbalanced ovarian follicle dynamics affecting 5-10% of women in reproductive age. The wide range of PCOS signs and symptoms makes its severity & grading challenging. Clinically PCOS can be characterized by some or all of these features:
1. hyperandrogenemia
2. oligo/amenorrhea
3. menstrual irregularity
4. insulin resistance (IR)
5. presence of 2-9 mm ovarian microcysts;
6. an ovarian volume greater than 10 ml.

Due to its multifactorial nature, the precise etiology of PCOS has not yet been completely elucidated, but some risk factors as cardiovascular disease, type 2 diabetes, hypertension and obesity have been proposed as new therapeutic approaches. The rationale behind the use of inositols in PCOS is provided, but mechanisms underlying these effects have not been identified. In their conjugated form, inositols are components of cellular membranes, and have a crucial function in membrane integrity and intracellular signaling. Both MI and DCI-phosphoinositides are able to influence the intracellular metabolic processes activating key enzymes involved in oxidative and non-oxidative glucose metabolism. MI is involved in the metabolism, transport and breakdown of glucose and its conversion to glycogen, while DCI is involved in the insulin-signaling pathway and in the stimulation of enzymes that are in turn involved in the regulation of glucose metabolism, e.g., pyruvate dehydrogenase phosphatase (PDPH), protein phosphatase 2C (PP2C), inositol-phosphate glycan.

4. Role of Inositols in PCOS
The rationale behind the use of inositols in PCOS derives from studies showing that PCOS patients, due to IR, have an excess of MI and a deficiency of DCI, together with a reduction of MI/DCI epimerase activity in peripheral tissues. It is, however, still unknown at the molecular and cellular level, whether inositol supplementation directly affects insulin signaling and/or restores insulin sensitivity. Such an effect would be beneficial as both IR and secondary hyperinsulinemia trigger hyperandrogenic anovulation and/or irregular cycles. Up to now, evidence supporting beneficial clinical effects of inositol supplementation in PCOS is provided, but mechanisms underlying these effects have not been identified.

Recent studies demonstrated defects in tissue availability and altered metabolism of inositol phosphoglycan (IPG) in PCOS. DCI was found to be involved in post-receptor insulin signalling, including androgen synthesis. Due to MI involvement in FSH signalling, its impairment in PCOS might be caused by MI deficiency. A systematic review showed that less MI-containing inositol-phosphoglycan (DCI-IPG) was released in PCOS women compared to controls and this seems positively correlated with IR and hyperinsulinemia. DCI administration had beneficial effects on ovulation, anthropometric and metabolic markers in PCOS by enhancing insulin sensitivity.

In PCOS, the increased release of glucose-stimulated DCI-IPG via DCI supplementation is significantly correlated with improved insulin sensitivity. The significant relationship between DCI-IPG release and insulin sensitivity prompted some scientists to suggest that the DCI-IPG mediator may be a target for therapeutic interventions in PCOS.

Both MI and DCI are necessary to assure the correct glucose metabolism in cooperation with insulin. In physiological conditions, the intracellular pool of inositol inhuman ovaries is about 99% of MI whereas DCI is the remaining part. Insulin controls the epimerase-converting MI into DCI. It is important to highlight that the ovary maintains normal insulin sensitivity also in the presence of systemic IR. This can explain why increased insulin release stimulates ovarian epimerase activity leading to intracellular DCI increase and MI decrease. In agreement with this, in hyperinsulinemic PCOS women unexpectedly high levels of DCI can be found in the ovary, concomitant MI depletion. This finding was called ‘The Ovarian Paradox’ and might be considered the main cause of FSH signalling impairment in PCOS. In these conditions, glucose uptake and metabolism could negatively affect oocyte quality depending on MI. Ovarian function improvement, as well as hormonal and metabolic parameters, was demonstrated after MI treatment in PCOS. Moreover, MI shows results comparable or slightly better than metformin in ovulation induction but without anyside effects. On the contrary, high doses of DCI alone, administered to PCOS subjects, were found significantly detrimental for oocytes and therefore for fertility. While MI is a well-established safe molecule, the data are lacking on DCI.

While a number of studies have analysed the effectiveness of MI and DCI alone or in combination, in PCOS, only two studies have compared the effects of MI to DCI and found that they seem to exert comparable effects.

5. Clinical Evidences of Effectiveness of MI/DCI Combination
Different authors examined the possibility of administering the MI/DCI combination in PCOS. Based on the supposed alteration of MI/DCI ratio occurring in ovary in PCOS, the combination MI/DCI 40:1 was tested and resulted twice effective in reducing HOMA-IR, compared to MI alone and induced an improvement, compared with placebo, of LDL, HDL, and triglycerides. A single study compared the combination MI/DCI (40:1) to treatment with DCI only in PCOS women undergoing in vitro fertilization (IVF). The patients were treated twice a day with either MI plus DCI or with DCI alone, for 12 weeks before rFSH administration and throughout pregnancy. The results suggest that combination therapy improved oocyte and embryo quality and the chance of becoming pregnant.

Continued on page 11
Dear Friends,

We have had a very eventful quarter after our last issue of Pandora! It’s amazing how our Society has grown and we are all very proud of it. There have been 2 programs which I particularly would like to talk about.

We organized a brilliant "Masterclass on ‘PCOS and Infertility’" in collaboration with the CRE-PCOS (Centre for Research Excellence in Polycystic Ovary Syndrome) and the Indian Society of Assisted Reproduction in March this year, limiting participation to 100 delegates only. The knowledge gained through interaction with experts like Rob Norman, Helena Teede from Australia and Chandrika Wijeyratne from Sri Lanka, was stupendous and a treat for all who attended. And the cherry on the cake was the spontaneous offer by Rob and Helena of a Travel Grant to a young delegate less than 40 years in the meeting to Australia, on behalf of CREPCOS, in July this year. Applications were invited from the delegates were invited from the delegates who attended and we received 4 and sent them to Rob and Helena, who reviewed the applications and have just sent us the name of the winner......... Dr. Sabahat Rasool!

The other program was the Online Certificate Examination which was based on the 6 Online Modules which we have installed on our PCOS Society Website (http://www.pcosindia.org/pcos_tutorials.php). The exam for this certificate course was held online on 2 consecutive Sundays with 2 different sets of questionnaires, to give an opportunity to those who could not appear or clear the exams on the first Sunday. We had a total of 787 participants who took the exams on the two days. Of these 469 have cleared the exam with a percentage of 75% and more. Unfortunately, 318 have not cleared. Of the Participants who have cleared 40 have excelled with 100% questions correct! A hearty congratulations to them.

The Third Annual International Conference of the PCOS Society of India; is to be held very soon in June this year, once more in collaboration with the International Society of The Androgen Excess & PCOS Society. After having 2 very successful meetings, one in the West zone (Mumbai) and the other even better in the South zone (Bengaluru), with the enthusiasm shown by the organizing team in Gurugram, I am sure it will be even better! The entire program has been printed in this issue of the Pandora. Registrations can be made online through our Website (http://www.pcosindia.org/upcoming_events.php) or by bank transfer and cheque (details on the registration form).

An added attraction in this meeting is the PCOS Practitioner Exam which will be conducted at the Conference and is open to all members of the PCOS Society. The exam will be held as a multiple choice exam and all those who clear will be offered a beautiful certificate of being a "PCOS Practitioner". So if you are not a member please become one by applying through the website. (http://www.pcosindia.org/membership.php)

We are looking for a young brigade for our society so that we can achieve even more! All those less than 40 and interested in joining our brigade, please write to us at thepcossociety@gmail.com if you fulfill the following conditions:

- Less than 40 yrs, Willing to give some time to the organization, Willing to take on a responsibility, Willing to update girls and women about PCOS through the “Conquer PCOS” Program.

I look forward to hearing from you all.

With warm regards,

Duru Shah
Founder President, The PCOS Society, India
Editor, Pandora
Events and Updates

Travelling Seminar on Understanding PCOS

The PCOS Society’s Travelling Seminars on “Understanding PCOS” are aimed at educating the treating gynaecologists about the basics of the multifaceted disorder called PCOS. This “Travelling Seminar” was conceptualized to bring to your door steps the latest and best evidence-based medicine for preventing and treating the various symptoms and health consequences arising from PCOS through exhaustive interactive sessions and case discussions. Experts from the PCOS Society, India, have been delivering lectures in various parts countrywide. The Travelling Seminars are being conducted with an unconditional educational grant from USV and till May 2018, twenty eight travelling seminars have been conducted throughout the various states of the country.

BHATINDA
January, 24th 2018
Dr. AP Sidhu
Dr. Neera Gupta
Dr. Veena Kaur
Dr. Poonam Rastogi

BHAYENDER
December, 16th 2017
Dr. Rajendra Nagarkatti
Dr. Uday Joglekar
Dr. Sheetal Pandey
Dr. Kastubh Kulkarni
Rajesh Koradia

CUTTACK
October 10th 2017
Dr. Sujata Kar
Dr. Maya Padhi
Dr. Sujata Mishra
Dr. PC Mahapatra

GURGAON
November 30th 2017
Dr. Shakuntala Kumar
Dr. Ila Gupta
Dr. Shalu Gupta
Dr. Divya Sardana

JALGAON
January, 20th 2018
Dr. Indrani Hatwar
Dr. S B Nawal
Dr. Tushar Nehete

JALGAON
January, 20th 2018
Dr. Indrani Hatwar
Dr. S B Nawal
Dr. Tushar Nehete

SRIHATNA
January, 13th 2018
Dr. Imam-ul-Haq
Dr. Gulshan Zehra
Dr. Mehrajuddin Bhat

SURAT
December, 31st 2017
Dr. Sanjiv khurd
Dr. Purnima Nadkarni
Dr. Usha Valadra
Dr. Mona Shroff
The PCOS Society of India and The Indian Society for Assisted Reproduction (ISAR) jointly organized a Masterclass on “PCOS and Infertility” on 24th-25th March, 2018 at Mumbai. The Masterclass was an academic treat attended by nearly 100 delegates from all over India.

The distinguished speakers included Prof. Robert Norman, Professor of Periconceptual & Reproductive Medicine from the University of Adelaide, Prof. Helena Teede, President of the Androgen Excess Society and Prof. Chandrika Wijeyaratne, President of Sri Lanka Medical Association.

The national faculty included Drs. Mridubhushani Govindraj, Madhuri Patil, Sonia Malik, Sujata Kar and Duru Shah.

The program was spread over two days. Day 1 of the Masterclass started with an introduction by Dr. Duru Shah and Prof. Rob Norman. This was followed by interactive and educational talks on nomenclature and diagnosis of PCOS and Genotype/Phenotype in Asian versus Caucasian population by Prof. Teede and Dr. Wiyayaratne, respectively.

After lunch, the session included the workup and infertility management in PCOS, Genetic and environmental interplay as the etiology of PCOS and Metabolic Syndrome.

Day 2 of the Masterclass started off with exhaustive lectures on Insulin Resistance and Ovulation Induction in PCOS. Afternoon session was dedicated to Assisted Reproduction in PCOS and research methodology and collaborations.

The lectures were up-to-date, very informative and generated a lot of audience interest and interaction. The national anthems of Australia, India and Sri Lanka were played at the end of the session on the Second day and the meeting closed on a very happy note.

Prof. Norman and Prof. Helena announced an Observership from amongst the delegates at the Masterclass, for a young member between 30-45 years. The Observership includes free travel to Australia, free Registration and free stay to the best applicant, to attend a 3 day meeting in Australia organized by CRE-PCOS. Applications were invited by the PCOS Society. 5 applications were received which were forwarded to Prof. Norman and Prof Helena for selection.

Dr. Sabahat Rasool has been selected for this Visiting Fellowship by Prof’s Norman and Teede.
Dear Friends & Colleagues,

Welcome to the Third Annual Congress of the PCOS Society of India, being held in collaboration with the Androgen Excess and PCOS Society on 22nd, 23rd and 24th June 2018 in Gurugram NCR, Delhi at the Leela Ambience Hotel.

PCOS affects women at all stages of life hence, this conference is entitled "PCOS...through the cycle of life”. The Conference will focus on the different stages of life, including the prenatal, childhood, adolescent, reproductive and post-menopausal periods. As gynaecologists, we are the primary care physicians of women and manage many PCOS patients with different presentations at different ages.

The Conference includes 3 Pre-Congress Workshops and the main conference which will be interactive and will give in-depth knowledge on both the subjects. Learning from experts from various disciplines of medicine can add to our understanding of this complex endocrine problem. We will also be conducting for the first time the "PCOS Practitioner" Exam and the "PCOS Quiz" during the conference.

We welcome you and we are confident that it will excite you with the latest knowledge and cutting edge research on PCOS.

For any queries, you may contact us at pcosconference2018@gmail.com or thepcossociety@gmail.com

Looking forward to meeting with you.

With warm regards,

Duru Shah
Founder President
The PCOS Society, India

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**22nd June 2018 – PRE-CONGRESS WORKSHOPS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
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<tbody>
<tr>
<td>08.00 am</td>
<td>Registration</td>
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<tr>
<td>09.00 am</td>
<td><strong>Hall A - Workshop 1</strong></td>
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<tr>
<td></td>
<td>Lifestyle Changes – The First Step to combating PCOS</td>
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<tr>
<td></td>
<td>Workshop Inauguration: Padmashree Prof. Raj Baveja</td>
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<td>Workshop Convenors: Shilpa Joshi, Yukti Wadhawan, Shakuntla Kumar</td>
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<tr>
<td>09.00 am</td>
<td><strong>Session I: Impact of lifestyle in PCOS</strong></td>
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<tr>
<td>09.00 am</td>
<td>Are dietary options different in lean and obese PCOS?</td>
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<tr>
<td>09.20 am</td>
<td>PCOS: A Body Image Disorder</td>
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<td>09.40 am</td>
<td>Fad diets (Mediterranean / South Beach / Paleolithic / Atkins / gluten free) – What do all these diets mean?</td>
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<tr>
<td>10.00 am</td>
<td>Discussion</td>
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<tr>
<td>10.30 am</td>
<td><strong>Session II: Lifestyle interventions</strong></td>
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<tr>
<td>10.30 am</td>
<td>Do lifestyle changes improve sexual dysfunction?</td>
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<tr>
<td>10.50 am</td>
<td>Role of Nutraceuticals in diet</td>
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<tr>
<td>11.10 pm</td>
<td>Ideal Exercise in Lean and Obese PCOS</td>
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<td>11.30 pm</td>
<td>Evidence of Yoga therapy in PCOS</td>
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<tr>
<td>11.50 pm</td>
<td>Discussion</td>
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<tr>
<td>12.15 pm</td>
<td><strong>Session III: When lifestyle fails – Reducing Morbidity of Obesity</strong></td>
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<tr>
<td>12.15 pm</td>
<td>Role of Bariatric surgery</td>
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<tr>
<td>12.35 pm</td>
<td>Management of Sleep Apnea – what should the Gynec know?</td>
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</tbody>
</table>

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**Jointly Organized by**
The PCOS Society (India) & The Androgen Excess & PCOS Society (International)

**Venue:** Leela Ambience Hotel, Gurugram, near Delhi Airport, India
12.55 pm  Discussion

1.15 - 01.45 pm  Session IV: Footloose
Put on your dancing shoes (Zumba) Team from Mama Mia

10.00-12.00 pm  Hall B - "The PCOS Practitioner" Certificate Exams
Conveners: Madhuri Patil, Ashok Kumar, Rita Bakshi

01.45- 02.30 pm  LUNCH

02.30 - 06.30 pm  Hall A – Workshop 2
"PCOS: A diagnosis of Exclusion" – What you see is not always what you get!
Workshop Convenors: Piya Ballani Thakkar, S K Bakshi, Ragini Agrawal

02.30 - 04.30 pm  Session I:
02.30 pm  Introduction of the Course  Piya Ballani Thakkar
02.40 pm  Hypothyroidism  Madhuri Patil
03.00 pm  Hyperprolactinemia  Piya Ballani Thakkar
03.20 pm  Cushing Syndrome and Acromegaly  Beena Bansal
03.40 pm  Adrenal disorders – CAH and adrenal tumors  Deep Dutta
04.00 pm  Discussion

04.30 - 06.00 pm  Session II:
04.30 pm  Androgen secreting ovarian tumors  Pratima Mittal
04.50 pm  Premature ovarian failure  Padma Rekha Jirge
05.10 pm  Uterine abnormalities  Ranjana Sharma
05.30 pm  Discussion

02.30 - 06.00 pm  Hall B – Workshop 3
Cosmetic Therapies – Live demonstration
Workshop Convenors: Rekha Sheth, Pankaj Chaturvedi, Monisha Kapoor
1. Laser Hair Reduction: What works, what doesn’t and what’s new?
2. Treatment of Adult Acne by Energy based Devices

06.00 pm  COFFEE BREAK

06.30 - 7.30 pm  A thought provoking Panel Discussion on
“How do we reduce the epidemic of PCOS in our country?”
With Gynaecologists, Endocrinologists, Public Health Experts, Media Representatives, Scientists,
Private Health Care and Government Representatives………
Moderator: Shereen Bhan
Panelists: Alka Kriplani, Ameera Shah, Duru Shah, Nomita Chandhiok, Pooja Shali, Rama Vaidya, Shailaja Chandra

07.30 pm  Inauguration

08.30 pm  BANQUET (By Invitation)

International Faculty

Anuja Dokras  USA
Enrico Carmina  Italy
Kannan Alpadi  USA
Kathleen Hoeger  USA
Togas Tulandi  Canada

Conference Day 1 – June 23rd, 2018

08.00 - 09.00 am  Invited free papers

09.00 - 10.30 am  Session I: Diagnosis of PCOS
09.00 am  What are the new criteria for Polycystic Ovarian Morphology (PCOM)?  Harsh Mahajan
09.20 am  Is Anti Mullerian Hormone a new marker for PCOS?  Togas Tulandi
09.40 am  Revisiting PCOS phenotype  Enrico Carmina
10.00 am  Discussion

10.30 am  COFFEE BREAK

11.00 am - 12.00 noon  Keynote Address

Chairpersons: Rama Vaidya, Nomita Chandhiok

11.00 am  International Guidelines on PCOS  Anuja Dokras
11.30 am  Role of gastrointestinal function in determining the metabolic aspect of PCOS  Enrico Carmina
12.00 - 01.00 pm

**Session II: Dermatological manifestations – Current Trends in Management**

- **12.00 pm**
  - Acanthosis Nigricans
    - Anil Agrawal

- **12.15 pm**
  - Androgenic Alopecia
    - Rekha Sheth

- **12.30 pm**
  - Hirsutism
    - Anil Ganjoo

- **12.45 pm**
  - Discussion

01.00 pm

**LUNCH**

02.00 - 02.30 pm

**Keynote Address**

Chairpersons: Maninder Ahuja, Nita Dalal

- The diagnosis and management of PCOS – Novel Immunodiagnostic Methods
  - Kannan Alpadi

02.30 - 03.45 pm

**Session III: Metabolic syndrome and PCOS**

- **02.30 pm**
  - Does Metabolic Syndrome present differently in Indian Women?
    - Sujata Kar

- **02.45 pm**
  - Is there a difference in metabolic risks of lean and obese PCOS?
    - Anuja Dokras

- **03.00 pm**
  - PCOS and GDM Nexus
    - Hema Divakar

- **03.15 pm**
  - Discussion

03.45 - 05.00 pm

**Session IV: Impact of Stress on quality of life and how to reduce it?**

- **03.45 pm**
  - Are women with PCOS more stressed?
    - Kathleen Hoeger

- **04.05 pm**
  - Panel Discussion: Helping patients to deal with Stress – Multidisciplinary approach –
    - Get your answers from Clinicians, Mind Therapist and a Lifestyle guru.
    - Moderator: Uday Thanawala
    - Panelists: Kathleen Hoeger, Kiran Aggarwal, Manju Verma, Mansi Kothari, Siddharth Saunthalia, Vani Jain. Vinit Taneja

05.00 pm

**COFFEE BREAK**

05.30 - 06.30 pm

**Session V: Pregnancy and PCOS**

- Panel Discussion:
  - Are PCOS women at a higher risk of pregnancy and delivery complications? Case-based Discussion
  - Moderators: Rita Bakshi, Ashok Kumar
  - Panelists: Garima Kachhawa, Kanwal Gujral, Kiran Guleria, Nupur Gupta, Sanjivini Khanna, Vatsala Dadwal

6.30 pm

**GBM**

07.00 pm

**Session VI: Poster Session**

- Savita Singhal, Bharti Minocha

08.00 pm

**Cultural program**

09.00 pm

**CONFERENCE DINNER**

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**National Faculty**

- Aakanksha Bhatia
- Geeta Kinra
- Manvir Bhatia
- R. P. Gupta
- Sharmila Majumdar

- Alka Kripiani
- Gulrez Tyebkhan
- Munsj Prabhakar
- Ragi Agrawal
- Shashi Lata Kabra

- Ameera Shah
- Harsh Mahajan
- Nanini Mahajan
- Raj Baveja
- Shereen Bhan

- Anil Agrawal
- Hema Divakar
- Naveen Magon
- Rajesh Rajpal
- Shilpa Joshi

- Anil Ganjoo
- Hemani Sarbadhikary
- Neena Malhotra
- Rakhi Singh
- Shiny Surendran

- Anita Sabhanwal
- Indu Koul
- Nilanjana Singh
- Rama Vaidya
- Siddharth Saunthalia

- Anjali Tempe
- Jaideep Malhotra
- Nomita Chandhiok
- Ranjana Sharma
- Smita Mahale

- Anjuri Soni
- Jyoti Malik
- Nupur Gupta
- Rekha Seth
- Sonia Malik

- Anushree Patil
- K. D. Nayyer
- Nutan Agrawal
- Renu Misra
- Sudha Prasad

- Archana Singhal
- Kanthi Bansal
- O P Gangwani
- Rita Bakshi
- Sudha Sharma

- Arshi Iqbal
- Kanwal Gujral
- Padma Rekha Jirge
- Ritu Jain
- Sujata Kar

- Aruna Batra
- Kiran Aggarwal
- Pankaj Chaturvedi
- Rukma Iadanani
- Sujata Sharma

- Aruna Murlihdar
- Kiran Guleria
- Pankaj Talwar
- S K Bakshi
- Sunita Malik

- Ashok Kumar
- Lakhbir Dhilliwal
- Piya Ballani Thakkar
- Sangeeta Agrawal
- Swati Singh Rathor

- Ashok Taneja
- M. P. S. Chawla
- Pooja Shalil
- Sanjay Narula
- Uday Thanawala

- Beena Bansal
- Madhuri Patil
- Poonam Goyal
- Sanjivini Khanna
- Vandana Narula

- Bharti Minocha
- Manisha Kapoor
- Pratima Mittal
- Satish Koul
- Vani Jain

- Chandan Kachru
- Manju Puri
- Praveen Bhatia
- Savita Singh
- Vatsala Dadwal

- Deep Dutta
- Manju Verma
- Preeti Kumar
- Seema Pandey
- Vinit Taneja

- Duru Shah
- Manoj Pandya
- Punita Hasija
- Shailaja Chandra
- Yukti Wadhawan

- Garima Kachhawa
- Mansi Kothari
- Pushpa Sethi
- Shakuntla Kumar
### Conference Day 2 – June 24th, 2018

#### Session VII: Round Tables with Experts

**08.00 - 09.00 am**

Convenors: Madhuri Patil, Rakhi Singh, Ashok Kumar  
(Each table limited to 10 participants)

<table>
<thead>
<tr>
<th>Experts</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maninder Ahuja, Nutan Agarwal</td>
<td>1. Luteal Support in infertility management in PCOS women</td>
</tr>
<tr>
<td>Togas Tulandi, Lakbir Dhaliwal</td>
<td>2. Letrozole v/s Clomiphene Citrate in ovulation induction in PCOS?</td>
</tr>
<tr>
<td>Anuja Dokras, Duru Shah</td>
<td>3. Gonadotropins for ovulation induction in PCOS?</td>
</tr>
<tr>
<td>Beena Bansal, S K Bakshi</td>
<td>4. Medical Treatment for Obesity</td>
</tr>
<tr>
<td>Kathleen Hoeger, Chandan Kachru</td>
<td>5. Role of Oral Contraceptive Pills in Adolescent PCOS</td>
</tr>
<tr>
<td>Rakhi Singh, Deep Dutta</td>
<td>6. Use of Metformin in obese and lean PCOS?</td>
</tr>
<tr>
<td>Nita Dalal, Sujata Sharma</td>
<td>7. Use of Inositols in the management of PCOS</td>
</tr>
<tr>
<td>Satish Koul, Savita Singhal</td>
<td>8. Vitamin D in PCOS</td>
</tr>
<tr>
<td>Pankaj Chaturvedi, Gulrez Tyebkhan</td>
<td>9. Acne in PCOS</td>
</tr>
<tr>
<td>Sudha Prasad, Anil Agarwal</td>
<td>10. Hirsutism in PCOS</td>
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</tbody>
</table>

#### 09.00 - 10.15 am

**Session VIII: Evidence based treatment for enhancing fertility**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00 am</td>
<td>Is PCOS an inflammatory process?</td>
<td>Madhuri Patil</td>
</tr>
<tr>
<td>9.20 am</td>
<td>Managing insulin resistance in infertility</td>
<td>Sonia Malik</td>
</tr>
<tr>
<td>9.40 am</td>
<td>Recent evidence on oral ovulogens</td>
<td>Kanthi Bansal</td>
</tr>
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#### 10.15 - 11.15 am

**Session IX: Panel Discussion**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.15 am</td>
<td>Increasing efficacy and safety with ART</td>
<td>Jaideep Malhotra, Nandita Palshetkar</td>
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</tbody>
</table>

#### 11.45 am - 12.45 pm

**Session X: Keynote Address**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.45 am</td>
<td>Consensus statement on the “Use of OCP in PCOS Women in India”</td>
<td>Duru Shah</td>
</tr>
<tr>
<td>12.15 pm</td>
<td>How does Ovarian Drilling fit in the treatment scheme, is this a safe procedure and why do we use it so infrequently?</td>
<td>Togas Tulandi</td>
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#### 12.45 - 01.45 pm

**Session XI: Adolescent PCOS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.45 pm</td>
<td>Diagnosis of adolescent PCOS – A difficult task</td>
<td>Neena Malhotra</td>
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<tr>
<td>01.00 pm</td>
<td>Role of Inositols in Adolescent PCOS</td>
<td>Manoj Pandya</td>
</tr>
<tr>
<td>01.15 pm</td>
<td>Abnormal Uterine Bleeding in Adolescent PCOS</td>
<td>Ragini Agrawal</td>
</tr>
<tr>
<td>01.30 pm</td>
<td>Discussion</td>
<td></td>
</tr>
</tbody>
</table>

#### 01.45 pm

PCOS Quiz - Live

#### 02.15 pm

Valedictory function and Awarding of Certificates  
Guest of Honour: Smita Mahale, Director, NIRRH

### Welcoming....

**Our New Patrons**

- Dr. Bharati Morey
- Dr. Gitanjali G.
- Dr. Milind Shah
- Dr. Rita Bakshi
- Dr. Shashi Lata Kabra Maheshwari
- Dr. Shefali D. Jain
- Dr. Sunil Kumar Choudhari
- Dr. Varuna Pathak

**Our New Life Members**

- Dr. Aarti Mahla
- Dr. Angeline Job
- Dr. Anita Mane
- Dr. Anjali Kumar
- Dr. Aparajita Gulati
- Dr. Asna Beg Ashraf
- Dr. B. Mohana Priya
- Dr. C. Jyothi
- Dr. Dinesh Jain
- Dr. Geetha Murudhara
- Dr. Gopal Chandra Dash
- Dr. Gorakh G. Mandrupkar
- Dr. Gouri Rai
- Dr. Indira Palo
- Dr. Jyoti Shah
- Dr. Kalpana M. Bhatt
- Dr. Kothaguddu Sinivas
- Dr. M. Lipka
- Dr. Mamta (Fogla)
- Bukalsaria
- Dr. Manisha M. Laddad
- Dr. Manu Lasshmi
- Dr. Mollina Niket Patel
- Dr. Monika
- Dr. Nairi Tandon
- Dr. Niket H. Patel
- Dr. Preety Aggarwal
- Dr. Rakesh Pandia
- Dr. Rana Mohammed Alzal
- Dr. Rashi Kapoor
- Dr. Rekha Rajendrakumar
- Dr. Ritu Chauhan
- Dr. Sadaram Ramya
- Dr. Sagarika Sarkar
- Dr. Sangeeta Surendra
- Dr. Seema Sehgal
- Dr. Shampa Kamal Khan
- Dr. Shivani
- Dr. Shobha Rani Rao
- Dr. Smita Moorthy
- Dr. Swetha S.
- Dr. Vanajakshi R.
- Dr. Vedhapriya S.
- Dr. Veena Surendra
- Dr. Versha Jain
- Dr. Yuvraj Singh D. Jadeja
Continued from page 11

Inositols in PCOS

Table 1: Intervention studies with MI, DCI & a combination of DCI and MI in women affected by PCOS.

<table>
<thead>
<tr>
<th>Reference</th>
<th>SD</th>
<th>Treatment</th>
<th>N°</th>
<th>BMI</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hormonal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A) MI 2g/twice a day</td>
<td>50</td>
<td>27.5 ± 2.9</td>
<td>Reduction of total T and Major increase of SHBG in group B compared to A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B) MI 550mg/twice a day plus DCI 13.8 mg/twice a day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minozzi et al., 2013</td>
<td>Cohort</td>
<td>MI 550 mg + DCI 13.8mg/twice a day No other treatment</td>
<td>20</td>
<td>33.7 ± 6.1</td>
<td>Improvement in LDL, HDL, and TG levels</td>
</tr>
<tr>
<td></td>
<td>RCT</td>
<td>A) MI 550mg/twice a day + DCI 13.8 mg/twice a day</td>
<td>100</td>
<td>&lt;28</td>
<td>Reduction in total rFSH units and in peak E2 levels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B) DCI 500 mg/twice a day COH</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, future studies based on large cohorts and testing a "tailored" dosage, calculated on the pretreatment conditions, are needed in order to clarify the pivotal role of inositol's isomers in addressing the hormonal and metabolic parameters toward homeostasis in PCOS patients.

References
Events and Updates

The PCOS Society (India) held a one-hour session at the 18th World Congress of "The International Society of Gynecological Endocrinology (ISGE)" in Italy.

The PCOS Society (India) conducted a panel discussion on "From Conception to Delivery in Indian PCOS". The session was moderated by Dr. Sujata Kar from Bhubaneshwar, and the panel included Dr. Nalini Mahajan from Delhi, Dr. Madhuri Patil from Bangalore, Dr. Ritu Joshi from Jaipur and Dr. Annita Soni from Mumbai. It was a case based interactive discussion. Four cases were discussed, which included Controlled Ovarian Stimulation in PCOS, Prevention of Ovarian Hyper Stimulation Syndrome and multiple pregnancies, Gestational Diabetes Mellitus in PCOS women and maternal and neonatal complications in PCOS women. The session was well attended and well appreciated with a lot of audience participation.

PCOS Online Certificate Course – 22nd and 29th April, 2018

The PCOS Online Certificate Course examination was held on the 22nd and 29th April, 2018. Dr. Duru Shah & Dr. Madhuri Patil were the Course Directors and the faculty included Drs. Piya Ballani Thakkar, Sujata Kar, Rekha Sheth, Uday Thanawala, Nikhil Bhagwat & Gaapa thi B.

Nearly 800 doctors took the exam and 469 passed it. The successful candidates will get a Certificate from the Society and the Top 3 scorers will get surprise gifts as well.
In PCOS

**NORMOZ**
Myo-inositol, D-Chiro-inositol, Chromium and Vitamin D₃ tablets

**Right Ratio (40:1) for Quicker Action in PCOS**

- Improves menstrual frequency in oligo & amenorrhoeic PCOS women
- Striking improvement in ovulatory function
- Improves oocyte quality in PCOS women undergoing ART
- Improves metabolic profile of obese PCOS women

Reference:
3. Arch Gynecol Obstet 2013; 288:1405-1411

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**From Preconception Pregnancy to Lactation**

**Shelcal-XT**
Carnitine 100mg, Vitamin D₃ 1000IU, Niacinamide 150mg, Calcium Carbonate 500mg, Magnesium 20mg
The High Potency Solution with Co-Enzyme Power of Vitamin B₂ & Amino Form of Vitamin B₃

**In Male & Female infertility**

**CARNISURE-500**
L-Carnitine 500 mg Tablets
The Metabolic Energizer

**In Vitamin D deficiency**

**D-360**
Vitamin D₃, Calcium & Vitamin K₂ 200mcg
Efficiency in Deficiency with Better Patient Compliance

**In Management of Perimenopausal Symptoms / PMO**

**Shelcal ISO**
Calcium Carbonate 1000mg, L-Carnitine 500mg, Folic Acid 5mg, Vitamin B₁₂, Vitamin K₂
The High Potency Isoflavones with Calcium and Calcitriol