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## Polycystic Ovarian Syndrome

**Anita Mani\***

Director and Consultant IVF Specialist, Gyno Speciality Hospital, GIFT IVF Center, Cochin, Bangalore, India

\* **Corresponding author:** Anita Mani, Director and Consultant IVF Specialist, Gyno Speciality Hospital, GIFT IVF Center, Cochin, Bangalore, India, Tel: 8896523659; E-mail: anitadane@gmail.com

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### Introduction

The second world congress on poly cystic ovarian syndrome (PCOS) took place at Orlando, USA from 5th October 2016 to 7th October 2016. I was fortunate to participate in the presentation of several new scientific research papers. This congress was very exciting because as speakers we had professors, doctors, researchers, alternating medicine practitioners and even journalists from around the world give their best study results on PCOS. Hurricane Mathew hurling outside in full force could not stop the heated discussions on various new modalities on the management of PCOS. Following are some of the interesting research studies presented by some of the eminent scholars in the field.

### Letrozole versus Clomiphene

Letrozole has been in the market since a long time and we had been using this molecule in India till some years back for inducing ovulation in women with PCOS. Since there were some doubts about the teratogenicity of the medicine letrozole, it was banned for use as an ovarian stimulant in India since the last 4 years. Currently great many studies are being conducted in countries like US, UK and other European countries on letrozole. A very interesting paper was presented in this conference by Prof. Dr Gregory Christman, director of University of Florida in the Division of Reproductive Endocrinology and Infertility on the use of letrozole. He compared the usage of letrozol with Clomiphene for the induction of ovulation in women suffering from PCOS. This trial done in US shows that actually, letrozol is superior in action, because the ratio of ovulation, pregnancy and live birth in patients who were administered letrozol compared to Clomiphene was higher. So now we are taking a u turn back from the situation, where letrozol is banned in many countries to a probable situation where it will be used as the first drug of choice.

### Study on Effect Fenugreek Seed Extract on PCOS

Senior research person Dr. Debasis Bagchi, who is the head of various departments of pharmacology, health, nutrition, toxicology in US gave a very interesting and gripping

presentation on the use of fenugreek seed extract for the treatment of PCOS. Fenugreek is a seed commonly used in Asian countries like India for increasing the flavor of food. Ayurvedic medicine, which is considered more than three millennium old has been advocating that fenugreek has properties to improve insulin resistance in diabetic patients. Currently there are some Ayurvedic preparations of fenugreek in combination with other natural products for weight reduction and diabetes available in the market. Dr Debasis Bagchi has patented the use of fenugreek seed extract for the treatment of PCOS. The effect of fenugreek in the reduction of symptoms of PCOS and ovarian cysts was proved after a detailed study done on PCOS patients. Post administering the fenugreek extract in the form of capsules, they had improved in their symptoms, they started getting regular periods and some of the patients conceived naturally within the 3 months trial period, so they have extended the study to another six months. On a positive note, hopefully we will soon have fenugreek extracts in the market, which will be a natural product without any side effects or hormones for management of PCOS.

### Fertioscope

The level of male hormones found in women while performing laproscopic ovarian drilling /Fertioscope.

Dr. Alejandro Aldape from university of Barcelona, Spain presented the study in which he used a new endoscopic method called fertioscope to conduct ovarian drilling as a treatment for PCOS. He explained that the fertioscope was introduced not through abdominal wall, but through the posterior fornix via the vagina. During the course of our discussion, he described enthusiastically as to how he was able to do this procedure within just a couple of minutes and patient can go home in 3 to 4 hours. Usually the normal laproscopic procedure takes more time to complete, requires a small abdominal incision and the patient needs to stay full day in the hospital.

In this study he was looking at the level of hormones androstenedione and AMH during the surgery. He was hoping that there will be some variation in the levels of male hormone in PCOS patients intra operatively. There were some variations in the level, but he observed that it was there for all the patients who underwent anesthesia and laproscopy, not only for PCOS patients. But anyways it was an appealing fact that there is

another alternative to laproscopic ovarian drilling, which can reduce the time of procedure, patient's staying time at hospital and overall cost and which can as well avoid a scar on the abdomen. Fertiloscope sounded a good alternative to routine laproscopic ovarian drilling. He mentioned that the inclusion criteria for this procedure are very strict, as we do not want to have chances of a bowel injury during the entry. This procedure should not be performed on patients with retroverted (tilted) uterus, adhesions or endometriosis, previous surgical procedure history or any other suspected pelvic disease.

## Genetics and PCOS

We are often very comfortable in blaming genetics for most of the medical conditions that we suffer and we are always happy to find new locations on genetic mapping for most of the disorders. In a large epidemiological study by Dr. Felix day from the Cambridge university, they were able to find new locations for PCOS, so we do know that there is a genetic background for PCOS. It has always remained a very complex disorder and the scientists around the world working on PCOS has found it intriguing to find the actual cause. Now we know that there is a definite predilection to acquire this disease.

To contradict this, there was another lecture, from an excellent speaker, who made us change our perception about genetics. The doctor from Ireland presented a new concept. She offered a very good argument that the environmental factors do have a huge impact on how the problem of PCOS is expressed. According to her, the patient should be managed holistically and not just by the symptoms. Many allopathic doctors fail to apply this and the cause may be attributed to lack of time or unavailability of management tools in hand, but shockingly it still happens most of the time. She elucidated a study in which a cell could survive normally for six months even after the nucleus was removed from its centre, but it could not divide after six months, hence perished. And we were always thinking that nucleus is the centre which controls the cell function like a brain, but the fact is that it is the cell membrane or the covering of the cell, which interacts with the environment and receives all the signals through the receptors and control the function of the cell and not the nucleus as we thought earlier. The function of the nucleus is to actually provide genetic material for the cell to multiply. So if this is the case, even if humans have genetic predisposition to develop any disease including PCOS, we could control the outcome by changing the environment into a positive one.

## Holistic Treatment Methods of PCOS

A gynecologist by profession, Dr. Xiaomei Cai from china, had emigrated to US many years back. Currently, she works as a Chinese medicine specialist in US and she is extremely happy about her practice. She explained that in Chinese medicine, they take care of patient through a different perspective by taking into consideration their lifestyle, Work, stress, how sedentary they are, their dietary intake, type of personality, age etc. They perform a pulse reading to find out the type of pulse, then the person is managed with herbal medicines and in addition, lot of

time is spend with them for counseling to make changes in their life to reduce stress and changes in their diet which could be a causative factor in aggravating the symptoms. Needless to say, many of their patients are very happy with this kind of a holistic management. When she elucidated about pulses and the accupenture points the medical practitioners in the audience found it very complex, but it appeared that she was well versed with this complex phenomenon. It is high time that the allopathic doctors acknowledge the importance of alternative medical practices like Chinese, Ayurveda and Acupuncture in treatment. The goodness of all the systems should be recognized and integrated in the practice, so that the patient will benefit from not just one specialty, but a holistic approach.

## The Role of Exercise in the Long Term Management of PCOS

As PCOS is a chronic problem, there are no short cuts and it needs to be tackled in the long run. A major change in lifestyle could help these women in avoiding long term complications like obesity, sub fertility, diabetes mellitus, hyper lypidaemia, hypertension and cardiovascular diseases. Dr. Robert Tygenhof who is an exercise specialist working in integrated medical care offers patients regular and monitored training to control PCOS. He mentioned that just half an hour to one hour exercise at least five days in a week either in the form or aerobic exercise, resistant training or a mix of different form of exercises should be sufficient for women suffering from PCOS. This is a target which is not very difficult to achieve, but again the time spent in sedentary lifestyle has to be cut down which is the most difficult part. Living in the 21st century, we are forced to spend a considerable amount of our time sitting on the chair for long hours working on computers or doing office jobs.

## Microbiome and PCOS

Human microbiome project completed recently in 2012 has been ground-breaking and virtually opened the eyes of the scientists worldwide. This radical theory has revealed that humans cells make up only 10 % and we owe 90% of our genetic makeup to the around 10 trillion micronbiome living along with us in our body. We now know that there are a multitude of bacteria of divergent species living on various parts of our body. Surprisingly, all functions of human body are virtually assisted by these bacteria.

The repercussions are terrible, when the functions of these bacteria gets effected. When we take antibiotics, combined contraceptive pills and some other medications, these helpful bacteria are destroyed or altered. When we intake a diet comprised of unhealthy processed food which lacks enough fiber, we are starving these good bacteria. When we use bactericidal agents on a daily basis with products like hand wash, it is the death knell for these microbiome. This way we end up having many 21st century illnesses which was uncommon some decades back. Although currently we have less number of infectious diseases compared to the past, many new ailments have surfaced and some of the medical complaints which were rare have become commonplace now. These

includes allergic disorders like eczema, asthma, auto immune disorders like thyroid diseases and SLE, chronic inflammatory disease like inflammatory bowel disease, degenerative diseases like multiple sclerosis, problems like autism, obesity and even high incidence of malignancies. We know that PCOS is a disorder marked by its effects like chronic inflammation on various organs and obesity, so it won't be wrong to conclude that the altered microbiome destroyed by the new lifestyle could be a major causal factor in the rise in PCOS cases in the recent years.

Obesity is a major component of PCOS, generally 60 to 80% of women suffering from PCOS are found to be obese, similarly many obese women seem to get PCOS, so there is a clear connection between obesity and PCOS. The research done by Dr. Nirumdar shows that altered microbiome can result in obesity, especially an infection with adenovirus strain can cause obesity in humans. It is very important that we take this new information seriously and use this as an additional tool in the management of PCOS.

## How do we Improve the Microbiome

Microbiome count in our body should be improved in order to tackle symptoms of PCOS, obesity and chronic inflammation. Dr Felice Gersh is an integrative medicine specialist, (one of very few integrated specialists in US) who is also a gynecologist. She has extensive knowledge about the subject of microbiome, she

is a regular speaker in many international conferences and is conducting plenty of awareness programs on the importance of microbiome. She advocates simple solutions which can be practically implemented easily, in order to grow back the lost good bacteria in our gut. Her advice centers around changing of the lifestyle to reduce loss of microbiomes. Diet plays an integral role in maintaining a strong number of microbiomes. Feed them the precise food and they will thrive. Your diet should include healthy stuff like high fiber fruits and vegetables, fermented foods loaded with prebiotics like curd and pickles which can supply your gut with the essential good bacteria. Say no to processed food and minimize the sugar intake. It is difficult to believe, but not only your physical well being, but even your mental well being is directly related to the health of the microbiomes. Another step is to avoid over prescription and consumption of unnecessary antibiotics and contraceptive pills. Staying away from processed foods and products which are treated with antibiotics like poultry will help build these bacteria in the long run. There are quite a few fruit supplements which will also help in providing the nutrients which are often deficient in these women. This dietary change is neither expensive or with any side effects, she stressed the point that these good habits can be inculcated by all of us and should not pertain only to PCOS patients, as end of the day all of us want to have a hale and healthy life.