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Pathway to Parenthood

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POLYCYSTIC OVARY SYNDROME (PCOS)

Introduction: PCOS is a relatively common disorder encountered in the practice of Reproductive Medicine, affecting up to 15% of women of reproductive age. It was initially recognized in the mid 1930's by two physicians (Stein and Leventhal) and in fact bore their name (Stein Leventhal Syndrome). They recognized a syndrome in women and noted that these individuals were obese, hirsuit (excessively hairy) and had menstrual irregularities. Over the years, we have come to understand that this is a complex constellation of disorders and not all the abnormalities are present in the same person. For example, we commonly make this diagnosis in thin women without hirsutism. We now understand there are a wide variety of symptoms related to PCOS. For example, one subset of this condition became known as **HAIR-AN** syndrome (**H**yper**A**ndrogenism, **I**nsulin **R**esistance and **A**canthosis **N**igricans).

At a fundamental level, we have come to understand that PCOS is primarily a metabolic condition, and depending upon how the metabolic pathways function, the symptoms encountered may be markedly different from one patient to the next. In this regard, it is useful to consider the colors of the rainbow. We all recognize that the colors of the rainbow **always** appear in the same sequence (Violet, Indigo, Blue, Green, Yellow, Orange and Red). While there may be only slight discernible differences between Violet and Indigo, there is a relatively large difference between Violet and Red. So it is with PCOS: On the one end of the spectrum a patient may be obese, have acne, hirsutism and menstrual disorders. The next patient may have all of the above without the acne. However at the opposite end of the spectrum, a patient may be thin, with no acne and no hirsutism and yet have menstrual irregularities. They may all be given a clinical diagnosis of PCOS. The important question however is whether they in fact have the same disease.

As indicated above, to a large extent PCOS is a metabolic disorder. There is evidence of insulin resistance, hyperandrogenism and very frequently there is associated obesity. The cells in the fat compartment are certainly not inert. Besides being storage compartments for a host of hormones, it is a well known fact that obese individuals have a tendency to develop insulin resistance. Ultimately, this can evolve into pre-diabetes and eventually full blown diabetes mellitus. In fact, the constellation of disorders known as Metabolic Syndrome has a strong link to PCOS. In this regard, weight reduction is one of the most important and fundamental aspects of the management of any obese PCOS patient.

As far as we know, the cause of PCOS is unknown, and there is no cure for PCOS. Patients are advised to consider this to be life-long condition. Accordingly, the needs of the patient will be different at different times in her life. For example, as a teenager, acne and hirsuitism may be the main issues of concern. Later it may be menstrual irregularities, and later still it may be fertility. Weight control should always be factored in to the management of any patient with this condition, since weight reduction can result in marked amelioration of the situation. Weight is best managed with a combination of nutrition counseling

and exercise. At the outset, it is advisable to work with trained professionals in these disciplines, to help educate on caloric needs, food requirements, food purchasing, food preparation, and most certainly to develop a realistic work-out regimen where attainable goals are set. It is helpful that the work out program be something the individual enjoys. For example, if someone enjoys dancing, they should seek an appropriate dance class rather than have someone lecture them on the merits of running or swimming. The exercise program needs to be life-long and should therefore be tailored to the likes and dislikes of the patient.

For those people not interested in fertility, birth control pills are useful in the management of the PCOS patient. They will serve to keep the progressive nature of the disorder in control such that when attempts at conception do become important, the condition is less severe than it might otherwise have been had the person not taken birth control pills. Besides regulating the menstrual cycle, the birth control pills raise levels of endogenous Sex Hormone Binding Globulin (SHBG) and hence the binding capacity of androgens (male hormones). Consequently, levels of free androgens fall and the tendency to hirsuitism and acne is significantly less than it might be with no treatment. Adjuvant treatments such as spironolactone can be prescribed for recalcitrant cases of hirsuitism and acne. Careful monitoring of electrolytes and concurrent contraception is important in such circumstances.

Careful attention needs to be paid to levels of lipids, triglycerides and cholesterol, and these have a tendency to become progressively abnormal in patients with PCOS. When indicated, treatment of these problems should be undertaken. As an individual with PCOS gets older their major health risk involves cardiovascular diseases. Therefore cardiovascular risk should be carefully monitored and managed especially with advancing age.

The Ovulation Orchestra:

The process of ovulation involves a complex series of interactions amongst various organs in the body. These organs include: the hypothalamus and pituitary gland in the brain, the thyroid gland in the neck, the adrenal glands adjacent to the kidneys, the fatty tissue (generalized through the body), and the ovaries in the pelvis. These organs "communicate" with one another by hormonal signals. The hormones are produced in one location, enter the blood stream and travel to remote locations to have a target effect at that organ. There are a complex series of interactions, feedback loops (local and generalized), up and down regulation of hormone receptors and so forth. Textbooks are written on the subject of ovulation and the control mechanisms associated with normal ovulation. These biological phenomena are extremely intricate and complex. To a significant degree, PCOS involves abnormalities in these hormonal communications amongst the various organs involved in the process. Therefore the approach with respect to ovulation induction, involves fine tuning of the various stimulatory and/or inhibitory signals, with the ultimate objective being to cause regular ovulation. A very useful analogy to describe the situation in PCOS involves the symphony orchestra. Just as the symphony orchestra has a conductor, pianist, violinist, drummer, guitarist, base player and so forth, we may consider each of these instruments to be a different organ in the ovulation orchestra – e.g. hypothalamus, pituitary, thyroid, adrenals, ovaries, and fat compartment. While the orchestra players communicate with one another by means of the conductor, the written music they read and the sounds made by the various instrument players, the organs in the ovulation "orchestra" communicate with one another by hormonal signals – hormones made remotely in a different location in the body, yet giving signals to organs in different locations. When all the organs are working harmoniously and synchronously, we have ovulation, which is akin to "symphony music." However, if

the adrenal glands are putting out too much male hormone, this gives an erroneous signal to the pituitary gland, which in turn gives erroneous signals to the thyroid and the ovaries and so forth. The net result is "hormonal noise" in much the same way as if the pianist was not playing in tune – the noise created thereby, serves to interfere with the trumpeter's ability to focus and in effect we now have the pianist and trumpeter playing "off key," which creates an additive disruptive sound and an ever increasing/escalating situation creating noise rather than music. So it is with PCOS and the generation of hormonal "noise." The goal and challenge in the management of the patient with PCOS is to create music from noise. Several therapeutic agents are used for this, alone or in combination, including clomiphene citrate, gonadotropins, parlodel, dexamethasone and metformin. If conventional ovulation induction is not successful, In Vitro Fertilization can be extremely useful in the management of the patient with this condition.

Surgery in the management of PCOS:

In the past, surgery used to be frequently performed in patients with PCOS. The ovarian wedge resection was used to try to remove a wedge shaped segment of the ovary and hopefully improve the ovulation. We now understand this approach does not work well; in fact, it may be disadvantageous in that the surgery frequently causes ovarian adhesions. Another surgical approach was with laser drilling of the ovaries. The theory is that the thickened ovarian capsule would be penetrated by the drilling and hence the eggs could ovulate easier. This was based on the erroneous assumption that the cysts beneath the capsule of the ovary were due to the follicles being unable to rupture (ovulate) because of the thickened capsule. In reality, it was due to abnormalities in the hormonal microenvironment of the developing follicle, due to "hormonal noise." Therefore, nowadays, surgery for the management of PCOS is a treatment of last resort and not first line treatment. One of the important surgical interventions that the patient with PCOS should consider, and only if they are obese, is bariatric or lap band surgery; this can result in dramatic weight reduction. Besides significantly reducing the cardiovascular risks associated with obesity, weight reduction would significantly facilitate ovulation induction.

The following is a Blog transmitted by the American Fertility Association, which has some useful information and may be helpful.

An Alternative Solution - Herbs and PCOS - How to use them to improve your fertility.

Posted: 29 Mar 2011 03:34 PM PDT

By **Stacey Roberts, BSPT, Q Herbalist, Natural Fertility**

Rachel came to me after trying to have a baby for 4 years. She was at her wits end. She tried IVF but had **hyperstimulated** and was unsure of whether to try again.

She had not had a menstrual cycle in 3.5 years no matter what medication she was on. Rachel used a variety of medications to try to get her ovulating but nothing helped.

After six months on an herb formula, Rachel began to spot. She called me, very excited. I was actually getting a little despondent myself after six months and nothing happening. I asked her to send in her charts so we could see what was going on and lo and behold, she wasn't going to have a period. She was pregnant! Rachel has now had 2 beautiful little girls while utilizing the herbs.

What happened? How did Rachel conceive when she was told it couldn't happen? Afterall, she wasn't even having a period.

When a woman is dealing with **Polycystic Ovaries** it is important to remember that this syndrome is a symptom of an imbalance in the system. Polycystic ovaries commonly occur when a woman is experiencing insulin resistance, a precursor to diabetes. So the very first step in addressing this syndrome naturally is through the diet.

Step 1: Optimize your Eating Plan

- Remove white flour products and other **high glycemic** foods.
- Choose carbohydrates that are low glycemic
- With each meal make sure you have a protein and or a good fat to slow dose the glucose response in the blood. This helps to take stress off the system.
- ELIMINATE sugar. Sugar and sweeteners are major enemies of women with Polycystic Ovaries so get them out your diet.
- Eliminate empty calories from soft drinks and alcohol that also disrupt your sugar levels.

Step 2: Optimize a Supplementation Program

- Use a broadspectrum of antioxidants and minerals to help improve cellular health and address the underlying issue with glucose and insulin.
- Besides Vitamins A, B, C, D3, E and folic acid (a type of vitamin B) it is also important for women to have appropriate amounts of selenium, zinc, chromium, and iodine in their diet and supplementation program to improve their situation.
- Herbs such as Gymnena (not to be taken with drugs that are used for resistance eg. Metformin and others) and Cinnamon have been shown to help support optimal glucose metabolism.
- With Rachel it was also helpful to take herbs that support her thyroid such as Withania and Bacopa.
- Other herbs to support ovulation are Peony and Agnus Castus (Chaste Tree).

- When dealing with herbs always consult a qualifed herbalist to assess your situation otherwise you may be taking too much or too little of the necessary herbs. And the supplementation program including herbs must only supplement the diet. With PCOS, diet is number 1!

Step 3: Minimize Toxins

- Exposure to voluntary toxins from smoking and excessive alcohol consumption, and chemically laden skin care products, improper use of plastics (i.e. heating food in plastic containers, etc) and even air fresheners and cleaning products can impair your fertility according to various studies.

- Always use "green" products when you can and avoid products whose ingredient list is full of scientific names you cannot pronounce.

- Herbs such as St. Mary's Thistle (Milk Thistle), Schisandra, and even Bladderwrack are herbs that can be used to help the body properly remove toxins from the system

Step 4: Appropriate Exercise Program

- A balanced exercise program including cardiovascular fitness and resistance training can help make the body more insulin sensitive and along with an optimal diet can reverse insulin resistance in some individuals. Polycystic Ovaries have been reversed when hormone balance returns to normal.

- Seek out a qualified personal trainer or physical therapist to help you set up the best program for you.

Step 5: Support the Mind Body Connection

- Several studies show that addressing stress and the mind body connection has helped women with ovulation disorders such as Polycystic Ovaries. In a study performed at Emory University, 80% of patients who previously were not ovulating spontaneous ovulated after hypnosis sessions.

Rachel knows the importance of addressing all of these steps at one time versus trying one thing for a while and moving on to the next without appropriate guidance. But now after addressing her situation by following the five steps above perhaps Rachel can help her little girls avoid the difficulties that she experienced trying to conceive as well as the other negative consequences that women with Polycystic Ovaries can face, i.e. high blood pressure, diabetes, thyroid issues, and autoimmune diseases.

It is important to note that all treatments should be done under the auspices of a trained professional.

Stacey Roberts, PT, MH, Phd-C is a leading herbalist and internationally recognized expert on complementary medicines. She is the owner of Sharkey's Healing Centre and resides in Melbourne, Australia. She is a guest contributor to The American Fertility Association's online library, directory, and blog.

Summary: This is merely a brief synopsis about a very complex condition PCOS. Each one of the aspects discussed in this summary, could itself be the subject of a full discussion. It is important that the patient understand that PCOS is a condition for life. At times, it may be more severe while at other times it may be less severe. Also, at different ages a person will have different desires. Nowadays, there are many successful treatment options. When ovulation induction is not successful, in vitro fertilization plays an important role in the management of the patient with PCOS. Weight reduction is very important as this will facilitate any treatment intervention that is undertaken.

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