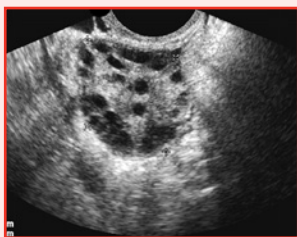


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The Complexities of Polycystic Ovarian Syndrome

In December 2012, the National Institutes of Health convened an Evidence-based Methodology Workshop on Polycystic Ovary Syndrome (PCOS) in an effort to assess the available scientific evidence to better understand this common hormonal disorder and identify future research priorities.

“Polycystic ovarian syndrome is probably the most common endocrine-related disorder in reproductive age women,” says Roger A. Lobo, MD, a specialist in reproductive endocrinology and infertility at NewYork-Presbyterian/Columbia University Medical Center and a member of the NIH workshop steering committee.

Apparently, PCOS is also one of the most misunderstood – so much so that the independent workshop panel recommended assigning a new name that more accurately reflects the disorder. According to the panel’s report, the name “causes confusion and is a barrier to research progress and effective patient care. The current name focuses on a criterion – ovarian cysts – which is neither necessary nor sufficient to diagnose the syndrome.” First, however, the panel urges further research, including that which will advance the understanding of the causes of the syndrome, how it alters ovarian and metabolic

function, and to identify optimal treatment for its various symptoms.

“You take 100 women of childbearing age and five will have PCOS,” notes Dr. Lobo. “Many women either don’t know they have the condition or are misdiagnosed. It’s also a very broad diagnosis. The name has been misinterpreted somehow, with the focus on the ovary. These women have very characteristic appearing ovaries that are enlarged and cystic. But these findings are also common in women who may be vulnerable to the syndrome, but don’t necessarily have it.”

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Robotic Single Incision Laparoscopic Surgery: A New Approach for GYN Procedures

In the next step in the evolution of minimally invasive surgery, NewYork-Presbyterian/Weill Cornell Medical Center is now one of only 60 sites in the nation offering robotic single incision laparoscopic surgery (RSILS) for specific gynecological procedures. The recently developed minimally invasive robotic technique enables the surgeon to operate through a single entry point, typically the patient’s navel, and unlike the traditional multiport laparoscopic approach, RSILS leaves only a single small scar. “This is a new platform that I’m really excited about,” says Kevin Holcomb, MD, Director of Gynecologic Oncology and Minimally Invasive Gynecologic Surgery at NewYork-Presbyterian/Weill Cornell. “RSILS is currently approved only for benign surgeries, including hysterectomy and removal of the fallopian tubes and ovaries. Intuitive Surgical, the company that produces the surgical robot, is doing a slow rollout of this technology and, in fact, we were fortunate to be the only site in the New York metropolitan area approved to perform it.”

According to Dr. Holcomb, RSILS was already in use for cholecystectomy, and traditional single incision laparoscopic

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Dr. Kevin Holcomb

The Complexities of Polycystic Ovarian Syndrome (continued from page 1)

The Challenge of Diagnosis

According to Dr. Lobo, polycystic ovarian syndrome is by and large a clinical disorder diagnosed by symptoms. Some women may present with an isolated complaint; others may have several indications. Symptoms run the gamut from infertility and irregular or no periods for women of reproductive age to ovarian cysts, metabolic problems, weight gain and difficulty with weight loss, acne, excessive hair growth, and thinning scalp hair. The diagnosis also carries a risk for heart disease, diabetes, or cancer of the uterus, which studies suggest could become more prevalent as women with PCOS age – especially if a missed diagnosis precludes these risks from being addressed.

“For the NIH workshop, we invited experts from around the world in maternal and child health, obstetrics and gynecology, cardiology, endocrinology, diabetes, metabolism, and nutrition to begin to develop a consensus about what PCOS is, how it should be diagnosed, and where the gaps in knowledge really are,” says Dr. Lobo. “It became very clear that the diagnosis remains very confusing for a lot of people.”

Currently there are three classification systems used for PCOS: the NIH Criteria, the Rotterdam Criteria, and the Androgen Excess and PCOS Society (AE-PCOS) Criteria. The NIH Criteria was developed at the first NIH consensus meeting on PCOS in 1990 in which Dr. Lobo also participated. That conference established a working definition of the disorder and diagnostic criteria, which served as a standard for researchers and clinicians for more than a decade. In 2003, a consensus workshop held in Rotterdam, the Netherlands, developed new diagnostic guidelines, the Rotterdam Criteria, which

NIH 2012 Workshop on PCOS – Panel Recommendations on Diagnosis

Following the workshop, an independent panel prepared a summary report, including a recommendation to maintain the broad, inclusionary diagnostic criteria of Rotterdam, which includes the NIH and AE-PCOS criteria, while specifically identifying the phenotype:

- Androgen Excess + Ovulatory Dysfunction
- Androgen Excess + Polycystic Ovarian Morphology
- Ovulatory Dysfunction + Polycystic Ovarian Morphology
- Androgen Excess + Ovulatory Dysfunction + Polycystic Ovarian Morphology

formed the center of discussion at the more recent NIH workshop. The third classification – Androgen Excess and PCOS Society Criteria – basically accepts the criteria of the other two with the added tenet that PCOS should first be considered a disorder of androgen excess or hyperandrogenism.

The Rotterdam Criteria, which offers the broadest definition, incorporates clinical symptoms and ultrasound of the ovaries. “A diagnosis using the Rotterdam Criteria requires two of three components – polycystic ovaries and evidence of irregular menstrual cycles, which is the most common of all symptoms,” says Dr. Lobo. “The third symptom is some evidence of a hormonal imbalance favoring androgens such as testosterone. Lab tests may help somewhat, but do not clinch the diagnosis.”

A Focus on Treating Symptoms

“Although no one knows the cause of the syndrome, scientific studies show that having too much insulin can be one of the reasons,” says Dr. Lobo. “In fact, almost every

overweight woman with PCOS has been found to have high insulin levels. If you can improve insulin sensitivity through weight loss then a lot of the other symptoms will go away. There are medications, such as Metformin, used for diabetes, that have had reasonable success helping with this process, but they also have side effects that some women are unable to tolerate.”

Dr. Lobo points out that some natural substances have been shown to reduce insulin resistance, and has studied the benefits of cinnamon in an FDA-approved double blind clinical trial. “This spice has a history of being able to control blood sugar levels in patients with diabetes,” says Dr. Lobo. “When we gave cinnamon extract to women with PCOS, along with a placebo, our study showed that using cinnamon every day for six months decreased insulin resistance and was able to restore menstrual cyclicality.”

Dr. Lobo is particularly interested in the issue of fertility. “Women with PCOS who have irregular cycles don’t ovulate so becoming pregnant is a major concern,” notes Dr. Lobo. “Most women with PCOS can have routine ovulation induction with a good prognosis for pregnancy. However, some are very challenging to treat, requiring an expert with experience in PCOS who can weave through all the symptoms to diagnose them correctly and treat them effectively.”

Reference Article

Final Report: National Institutes of Health Evidence-Based Methodology Workshop on Polycystic Ovary Syndrome. December 3-5, 2012. http://prevention.nih.gov/workshops/2012/pcos/docs/PCOS_Final_Statement.pdf

For More Information

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| DIAGNOSTIC CRITERIA FOR PCOS | | |
|--|---|--|
| 1990 – NIH Criteria | 2003 – Rotterdam Criteria | 2006 – AE-PCOS Society Criteria |
| Chronic anovulation | Oligo- and/or anovulation | Clinical and/or biochemical signs of hyperandrogenism |
| Clinical and/or biochemical signs of hyperandrogenism (excluding other etiologies) | Clinical and/or biochemical signs of hyperandrogenism | Ovarian dysfunction - oligo-anovulation and/or polycystic ovarian morphology |
| | Polycystic ovaries | |
| <i>Both criteria needed</i> | <i>Two of three criteria needed</i> | <i>Both criteria needed</i> |

Robotic Single Incision Laparoscopic Surgery *(continued from page 1)*



surgery (SILS) has been available since the early 1990s. Despite its availability, the adoption of SILS for hysterectomy has been limited. “The number of cases being done with SILS is extremely low because it’s difficult and challenging, even for the experienced laparoscopic surgeon.

“The robotic platform offers you wristed instruments with a greater degree of dexterity, precision, and control, as well as a three-dimensional view and a single

port access,” explains Dr. Holcomb. “The robotic platform makes it easy enough to potentially be reproducible on a much larger scale than traditional SILS.”

Says Dr. Holcomb, “There are valid concerns regarding the evolving role of robotic surgery in benign gynecology, but I think this technology adds a new level of complexity to the argument. Will women consider it a value-add to have one relatively hidden incision instead of three to five incisions? From a cosmetic and postoperative pain control standpoint, I believe it offers a lot of potential.”

As with any new technology, Dr. Holcomb agrees that there is a valid learning curve and potential for complications. “We’re just getting started with this particular type of single site surgery,” he says. “The hope is to compare approaches with regard to pain and

recovery. These are questions that have not been studied because this application has only recently been approved.”

Dr. Holcomb presents his patients with each of the surgical options available to them. “I’m honest with my patients when I tell them that I’m just starting to do this,” he says. “When I say that I’ve done 500 robotic cases, it gives them a level of comfort.”

“I think there will be a great uptake of RSILS technology going forward and I think it will be driven by patient demand.”

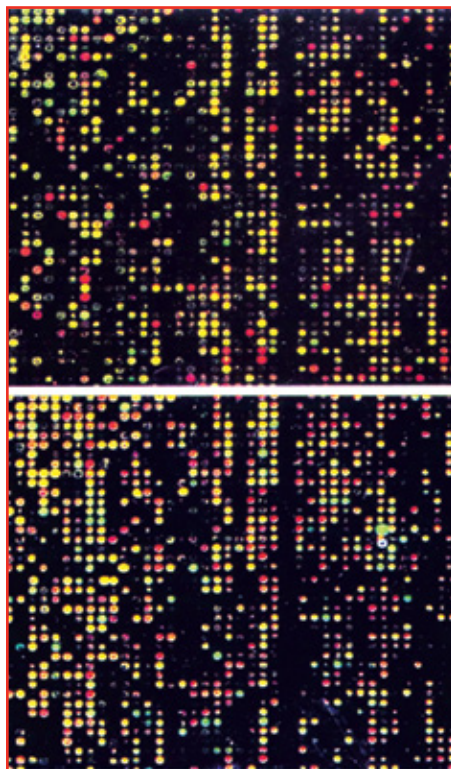
— Dr. Kevin Holcomb

Dr. Holcomb has observed that, in general, patients want minimally invasive surgery. “Patients have become very savvy. They want someone who is going to get them back on their feet as quickly as possible. And once patients know they can have their hysterectomy with a single incision, in the same way that they ran from laparotomy to laparoscopy, I think they’re going to run from multiport surgery to single site,” he says. “Increasingly women are walking in the door requesting robotic surgery, but they are asking very good questions.”

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New Prenatal Gene Test Proposed as Standard of Care



A laser scan of patient DNA to the microarray chip. Intensities of color dots indicate quantity of the DNA.

A new technology – chromosomal microarray analysis – has joined karyotyping as a method for detecting chromosomal abnormalities, demonstrating that it is even more sensitive for identifying small genomic deletions and duplications that are not routinely seen with standard prenatal testing.

The findings – published in *The New England Journal of Medicine* – are the result of a multicenter study of 4,450 women over a four-year period, led by Ronald J. Wapner, MD, Vice Chairman for Research in Obstetrics and Gynecology and Director of Reproductive Genetics for NewYork-Presbyterian/Columbia University Medical Center.

Participants in the study were undergoing either chorionic villus sampling or amniocentesis for indications including advanced maternal age, a positive aneuploidy screening result, and structural anomalies detected on ultrasonography. According to Dr. Wapner, chromosomal microarray analysis was equivalent to standard karyotype analysis for the prenatal diagnosis of common aneuploidies. In addition, it provided clinically relevant information not seen on the karyotype in 1.7 percent of pregnancies with standard indications for prenatal diagnosis and in 6 percent of cases with an anomaly on ultrasonography.

“Based on our findings, we believe that microarray will and should replace karyotyping as the standard for evaluating chromosomal abnormalities in fetuses,” says Dr. Wapner. “The chromosomal micro-deletions and duplications found with microarray are often associated with significant clinical problems.”

Reference Article

Wapner RJ, et al. Chromosomal microarray versus karyotyping for prenatal diagnosis. *The New England Journal of Medicine*. 2012 Dec 6;367(23):2175-84.

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