

Polycystic Ovary Syndrome: Current Treatment Concepts for A Complex Condition

As many as 5 million women in the U.S. may be affected by polycystic ovary syndrome, a hormonal imbalance in which the ovaries make more androgen than normal.

PCOS can occur in girls as young as 11 years old and may lead to acne, excessive hair growth, weight gain, high blood pressure, pelvic pain, and problems with menstrual cycles and fertility.

The cause of PCOS is not known, but some have linked the condition to overproduction of insulin.

Tania Burgert, MD is here to discuss the Polycystic Ovary Syndrome Clinic at Children's Mercy and how they're focused exclusively on identifying and treating PCOS in adolescent girls.



Featured Speaker:

Tania Burgert, MD

Dr. Burgert is a pediatric endocrinologist specializing in polycystic ovary syndrome, menstrual disturbances, and disorders of puberty. She received her medical degree from Westfaeliche-Wilhelms University Medical School in Muenster, Germany. She completed a residency in Pediatrics and a fellowship in Pediatric Endocrinology at Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, NY. She is board certified in Pediatrics and Pediatric Endocrinology. Dr. Burgert is chair of the Education Committee- Androgen Excess and PCOCS Society.

[Learn more about Dr. Burgert](#)

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Transcription:

Dr. Michael Smith (Host): Welcome to *Transformational Pediatrics*. I'm Dr. Michael Smith and our topic is polycystic ovary syndrome. My Guest is Dr. Tania Burgert. Dr. Burgert is a pediatric endocrinologist specializing in polycystic ovary syndrome, menstrual disturbances and disorders of puberty. Dr. Burgert, welcome to the show.

Dr. Tania Burgert (Guest): Thank you. Thank you for having me.

Dr. Smith: So, defining this condition can be a little tricky, so let's start there. How do you define PCOS?

Dr. Burgert: Yes, indeed, it is a little tricky. Polycystic ovary syndrome is really a misnomer because it doesn't really have anything to do with cysts in the ovary. It is more genetic predisposition that increases the sensitivity of the hypothalamic pituitary axis and the ovaries to circulating insulin levels. So, you can think of it terms of if you have a strong genetic disposition, you don't need very high insulin

levels or insulin resistance to have ovarian sensitivity and ovarian dysfunction. And, conversely, if you have a low genetic predisposition and you have lots of insulin resistance, you can potentially have symptoms of ovarian dysfunction. So, basically, it's a relationship of ovarian dysfunction to insulin resistance that is genetically determined. Basically, what happens is instead of having a normal androgen production in response to circulating insulin levels, the ovaries will overproduce androgen and that leads to a hormonal imbalance, disrupting feedback loops and, therefore, ovulation is disrupted. When ovulation is disrupted, you have not one follicle that goes for ovulation, you have follicular arrest and small little follicles that develop and that then are seen in the ovary. So, it is really like the ovary turns polyfollicular as opposed to polycystic. That is really because of anovulation, not because it has some abnormal cysts in there. It's really a consequence of the anovulation which is triggered by the hormonal imbalance, which is triggered by a sensitivity to insulin levels. So, it gets a little tricky.

Dr. Smith: No, I think that you were a very clear. How common is this in the pediatric population and what are the risks for it?

Dr. Burgert: Because it is a genetic predisposition, it really is as common in pediatrics as it would be in adult women because if you're predisposed, you're going to develop it. It's just that until recently we haven't really been so aware of it in younger patients. It's never really been a diagnoses. But, when you think of it in terms of predisposition, so puberty is the actually the first time that the body becomes naturally insulin resistant. So, it's a natural state of insulin resistance and so that's also a time when the hypothalamic pituitary and ovarian axis turns on. So, that's the first time this system is put to the test. So, during this time, a genetically predisposed girl will react with exaggerated androgen when there's insulin resistance and hyperinsulinemia. So, they will have exaggerated androgens. They will have the typical symptoms of PCOS which is anovulation with irregular menses, signs of acne and hirsutism. The problem is that it's really hard to differentiate those symptoms from just regular adolescence where the hypothalamic pituitary axis is just waking up and there is some irregularity. They do tend to have hormonal imbalances to some degree, have some acne and so with the overlap of symptoms, it's very difficult to differentiate between the two but it doesn't mean that it is not present at that time. So, it's just as common in adolescents as it would be in adult women, it's just the overlap of symptoms makes it harder to diagnose.

Dr. Smith: Well, because of the rise in Type II Diabetes in younger and younger kids, are we seeing a rise in this?

Dr. Burgert: In the beginning, we talked about that being a phenotype with a low and high genetic predisposition. So, maybe 20 years ago when we had a different nutritional environment, only those girls with very strong genetic predispositions to circulating insulin levels, would have the symptoms of hyperandrogenism and irregular periods because the circulating insulin levels weren't that high.

Dr. Smith: Right.

Dr. Burgert: Now, a child that's not so genetically predisposed when the lifestyle is conducive to extremely high insulin levels, they will also have some of those symptoms, because, yes, they will need a higher stimulus, but then they will have the same symptoms. There are some women who do not have PCOS no matter how overweight and how much insulin resistance they have.

Dr. Smith: So, it is very complex, obviously, so how do you actually diagnose PCOS?

Dr. Burgert: So, the diagnosis in adults is clear and it gets a little bit more, you know, difficult in adolescents. But, in general, you have to have some clinical form of hyperandrogenism--clinical or biochemical. So, you either have to have hirsutism or strong acne or high testosterone levels. So, something showing that the ovaries are overproducing androgen and then you have to have the menstrual dysfunction that goes along with it--either irregular menses or amenorrhea, and the combination of these symptoms, of course, are diagnoses of exclusion, because it is a syndrome so, you have to exclude other conditions such as CAH, hypercortisolism, thyroid dysfunction--all other conditions that might have similar symptoms. Hyperglycemia.

Dr. Smith: Sure.

Dr. Burgert: So, those first need to be excluded and then, if you're left with hyperandrogenism, clinical or biochemical, and irregular menses or other menstrual dysfunctions, you can call that PCOS. The reason why insulin resistance, even though it's a big part of this equation, is not part of this definition is because you can, in theory, be very insulin resistant and have really high insulin levels but never develop PCOS. It's really the sensitivity to the insulin that makes you have PCOS and that's why even though it's very closely linked, it's not part of the definition.

Dr. Smith: So, how do you treat PCOS in adolescent girls?

Dr. Burgert: So, that also is controversial. So, you can do symptomatic treatment. The Endocrine Society recommends, in sexually active girls, to treat symptomatically with oral contraceptive pills because that will automatically lower your androgens, increase your sex hormone binding globulin and relieve some of those androgenic symptoms and make you menstruate more regularly so you have a healthier uterine environment. Because, as you know, if you have chronic anovulation, you have chronic unopposed estrogens and, therefore, it puts you at risk for endometrial cancer later on in life so, therefore, we want to reduce that. So, OCPs are one treatment option. However, in the overweight child or the adolescent that has hypertension, OCPs may not be the ideal treatment. Lots of studies have shown that if you reduce that stimulus of insulin on the ovary, you can reduce the androgen production. In those girls that also have the tendency to increase their weight and if it was blood pressure, this might be a better option. Newer studies are currently being performed, looking at adding anti-androgen to that regimen, because there's a whole vicious cycle between insulin resistance and androgen production. Once those androgens are elevated in the system, they increase insulin resistance and lead to hyperinsulinemia which then affects the ovary, leading to more androgens and more insulin resistance. Unless you break that vicious cycle, you really won't get to the root of the problem. So, even though OCPs are currently recommended for symptomatic treatment, there's a lot of research going on in terms of maybe treating with Metformin, an insulin sensitizer, and anti-androgens.

Dr. Smith: Right. Well, Dr. Burgert, it definitely is very complex and I thank you for all the work that you are doing and I thank you for coming on this show. You're listening to *Transformational Pediatrics* with Children's Mercy Kansas City. For more information you can go to ChildrensMercy.org. That's ChildrensMercy.org. I'm Dr. Michael Smith. Have a great day.

