

Polycystic Ovary Syndrome

A Little-Known Complaint Affecting Many Women

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Since her early teens, Jane had been plagued by several annoying but seemingly unrelated problems -- acne, irregular menstrual periods, weight gain, and excessive hair growth on her face, arms and legs. Following her doctors' advice, she had coped with these problems individually, using medication for her acne, oral contraceptives to regulate her periods, electrolysis to zap the unwanted hair and various diets to lose weight.

Years later when she was having trouble conceiving, Jane started taking fertility drugs. After several rounds of treatments proved unsuccessful, she visited a new gynecologist who finally put all the pieces of the puzzle together and diagnosed her condition as polycystic ovary syndrome. Much to her surprise, Jane discovered that many of her problems probably stemmed from a single underlying defect: her body's resistance to insulin, the hormone that helps cells absorb sugar from the bloodstream.

Jane learned that the syndrome, believed to be the leading cause of infertility in women, also placed her at risk for high blood pressure, heart disease, diabetes and uterine cancer. Although the news was disturbing, it also carried a message of hope: Lowering insulin levels might reduce her future disease risk and alleviate many of her existing problems.

She also learned that drug therapy isn't the only answer for women with this syndrome. Alternative approaches, such as specific diets, exercise, acupuncture and herbal therapy, also have much to offer.

Insulin: The Prime Culprit?

Women with polycystic ovary syndrome overproduce androgens, or male hormones, including testosterone. All women produce some testosterone, but excessive amounts can prevent the egg from being expelled from the ovary, disrupting the menstrual cycle and leading to infertility.

The retained eggs form small cysts that encircle the ovary, giving the syndrome its name. The high testosterone levels also account for the weight gain, acne, excessive body hair and male-pattern hair thinning often seen in affected women.

Exactly what causes the high testosterone levels is still not completely clear, but one clue emerged in 1980 when researchers identified insulin resistance as a key feature of the syndrome. When the body fails to use insulin properly, the pancreas releases more and more insulin. In affected women, this insulin surplus apparently triggers the ovaries to boost their androgen production.

Dr. Andrea Dunaif, chief of the division of women's health at Brigham and Women's Hospital in Boston, believes that "multiple genes may contribute to polycystic ovary syndrome." She notes that her research is picking up strong evidence that a marker near the insulin receptor may be associated with the disorder.

1 in 10 Women?

Some 5 percent to 10 percent of women of reproductive age -- perhaps as many as 5 million women in the United States -- have polycystic ovary syndrome. Left untreated, the condition can lead to life-threatening illnesses. For example, affected women have a sevenfold increased risk for adult-onset diabetes, and they are also more likely to develop hypertension and abnormal lipid levels, both of which increase their risk for cardiovascular disease. Also, because women with polycystic ovaries do not menstruate regularly, they are at higher risk for uterine cancer.

Drug Therapy

Many researchers now believe that for many women, lowering insulin resistance may help restore fertility and alleviate problems caused by excessive androgens. Even more important, this approach offers hope for reducing the risk of serious future disease.

Measures for improving insulin sensitivity include weight loss, dietary changes, increased physical activity, and the use of insulin-sensitizing medications such as metformin (Glucophage), rosiglitazone (Avandia), and pioglitazone (Actos).

Several recent studies with insulin-sensitizing drugs showed that lowering insulin resistance can, in fact, correct the hormonal imbalances. In one controlled study, metformin induced ovulation either when given alone or together with the fertility drug clomiphene in 89% of affected women who had previously failed to respond to clomiphene alone (New England Journal of Medicine, 6/25/98). The insulin-lowering agent troglitazone produced similar results in women resistant to clomiphene (Human Reproduction, 11/99). (Troglitazone, however, was withdrawn from the market in March 2000 because of life-threatening side effects. Rosiglitazone and pioglitazone, which are members of the same class of drugs as troglitazone, appear to be safer alternatives.)

Some experts say a natural carbohydrate found in fruits and vegetables called D-chiro-inositol may also be effective for lowering insulin. In a recent small study, six to eight weeks of therapy with this compound restored ovulation in 86 percent of affected women, compared with only 27 percent of those in the control group (New England Journal of Medicine, April 29, 1999). The treatment also improved insulin, triglyceride and testosterone levels, while lowering blood pressure. There were no apparent side effects in this study, but larger clinical trials are needed to establish its effectiveness and safety.

Thus, reducing insulin levels may decrease male hormone levels and the associated symptoms of androgen excess. Although the available insulin-sensitizing drugs appear effective for many women, they are not free of side effects. For instance, metformin can cause diarrhea, nausea and bloating, while troglitazone may produce liver toxicity and requires regular monitoring with liver function tests.