

Diabetes drug slows early-onset puberty in girls

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In young girls at risk of early puberty and insulin resistance, the diabetes drug metformin delayed the onset of menstruation and decreased the development of insulin resistance, a risk factor for type 2 diabetes, according to a new study. The results were presented Monday, June 16, at The Endocrine Society's 90th Annual Meeting in San Francisco.

"The findings indicate that we can slow down puberty," said the study's senior author, Lourdes Ibanez, MD, PhD, of the University of Barcelona in Spain. "This is important because when puberty is faster in girls, the appearance of menses occurs earlier, and this sequence of events may ultimately result in a shorter adult height."

Also, getting a first menstrual period before age 12 has been linked to an increased risk of breast cancer. Early puberty (breast development) is a risk factor for polycystic ovary syndrome (PCOS), especially if the girl is overweight, she said. PCOS is a common cause of infertility.

All 38 girls in the study had not yet reached puberty at the start of the study but had developed pubic hair abnormally early—before the age of 8 years. These girls typically start puberty earlier than their peers, Ibanez said.

The study patients had another risk factor for early puberty. All had been born small and experienced rapid catch-up growth during infancy, thus developing more fat than normal. This fat tends to be around the middle, which increases the risk of developing type 2 diabetes and heart disease in adulthood. Belly fat also is a marker of insulin resistance, in which the body needs more insulin than usual to clear glucose, or sugar, from the blood. Girls who are the most insulin resistant begin menstruating much earlier than their peers, Ibanez said.

Therefore, Ibanez and her co-workers studied

whether a low dose of metformin, a drug that improves insulin resistance, would slow the transition through puberty by decreasing insulin resistance and abdominal fat. The girls had an average age of nearly 8 when they started the study. They randomly received either no treatment (19 girls) or treatment with low-dose metformin once a day (19 girls) for 4 years.

The metformin-treated girls started puberty and menstruation later than the untreated girls, the authors found. After 4 years of treatment, they also gained about 50 percent less fat—especially abdominal fat—and became less insulin resistant, compared with girls who did not receive the drug, according to Ibanez. They also had fewer risk factors for future heart disease, including better cholesterol levels, she said.

Bone mineral density testing showed no harm to bone development in the treated girls. At 4 years, treated patients continued to grow taller, but most untreated girls had already stopped growing.

Use of metformin in this patient population is experimental. Metformin is approved for treatment of type 2 diabetes in people 10 years or older.

Source: The Endocrine Society

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