Depo Provera May Raise Insulin in Obese Teens

BY DIANA MAHONEY
New England Bureau

BOSTON — The use of medroxyprogesterone may impair insulin and glucose metabolism in obese adolescents, thus increasing the long-term health risks of young women in an already vulnerable population, Dr. Nancy E. Fritz said at the annual meeting of the Society for Adolescent Medicine.

In a small retrospective study, Dr. Fritz and colleagues in the Cook County Bureau of Health Services' division of adolescent medicine in Chicago collected information on height, weight, laboratory values, contraceptive use, and obstetric history from the charts of 56 adolescent girls (mean age 17 years) from three urban school-based health centers who were participating in an obesity management program. With the exception of two Hispanic girls, all participants were African American.

All participants had a body mass index (BMI) of at least the 95th percentile for their age and all had at least one additional risk factor for type 2 diabetes mellitus. As part of the obesity management program, all of the young women had undergone screening for fasting glucose, lipids, and insulin levels.

The study participants were sorted into one of three groups based on contraceptive use: 22 medroxyprogesterone (Depo Provera) users, 13 oral contraceptive users, and 21 women who did not use hormonal contraception, Dr. Fritz reported in a poster presentation. The groups did not differ significantly by age, BMI, glucose, cholesterol, triglyceride, HDL cholesterol, or LDL cholesterol levels.

The medroxyprogesterone group was more likely to have gained weight before the time of blood work than were the other two groups, "which is consistent with data from previous studies showing an association between medroxyprogesterone use and weight gain," Dr. Fritz noted. The results also showed significantly higher mean insulin levels in the medroxyprogesterone group, compared with both the oral contraceptive and nonhormone groups.

The insulin increases do not appear to be a function of weight gain in this population, as the insulin levels among oral contraceptive users and nonusers who were gaining weight were not significantly different from those who were losing weight, Dr. Fritz said. However, the association between insulin increases and weight gain and loss could not be reliably calculated for the medroxyprogesterone users because, she noted, "only three of this group did not gain weight."

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The association between medroxyprogesterone use and both increasing weight and increased insulin levels independent of BMI in obese at-risk adolescents raises the possibility that the contraceptive also may increase risks for metabolic syndrome and/or diabetes in this subgroup, Dr. Fritz said.

Although enlightening, the data from this study are "too preliminary, too retrospective, and too small" to make a definitive statement about how to address this issue clinically, she said. "We need a larger prospective study looking at this in teenagers of various weights, ethnicities, and other risks. For now we need to keep an open mind."

Studies already have shown that medroxyprogesterone makes heavy teens heavier, "and that alone probably increases their risks for all of the bad things, so we can tell our patients that," Dr. Fritz said. "If it also messes with insulin levels and glucose metabolism above and beyond the weight issue, which our work suggests, things get more complicated, as they do when you consider the fact that African American kids, who are already at higher risk for diabetes, are probably the ones most likely to use [medroxyprogesterone] these days, and therefore the ones most likely to get pregnant if we steer them away from it."

The challenge, she added, "is figuring out how to factor all of those ethical decisions into a discussion with a concrete teenager. Which is worse, teenage pregnancy or increased diabetes mellitus risks? I would say the latter, but not everyone would agree with me." ■