Adolescent Obesity Linked to Midlife Nulliparity

BY KATE JOHNSON

Adolescent obesity is associated with midlife nulliparity and nulligravidity even after adjustment for adult weight, amenorrhea, and other reproductive problems according to an analysis of the Study of Women's Health Across the Nation (SWAN).

"While the data are overwhelming that obesity influences fertility, it should be noted that the precise mechanism remains to be elucidated," emphasized Dr. Alex J. Polotsky of Albert Einstein College of Medicine, New York, and colleagues (Fertil. Steril. 2010;93:2004-11).

Previous studies have shown that adult obesity is associated with anovulation, amenorrhea, and hyperandrogenism—all of which are directly linked to reproductive problems.

However, this study adjusted for adult body mass index (BMI) as well as many explanations for infertility. "Therefore our data point to influences on fertility that are weight-related yet are not necessarily linked with anovulation," the researchers said.

The study included 3,154 participants in the SWAN study who were aged 42-52 years, had at least one period and no hormone therapy in the prior 3 months, and had an intact uterus and at least one ovary.

Baseline weight and height were measured, and self-reported high school BMI was recorded. Race/ethnicity, education, and marital, smoking, and socioeconomic status were recorded.

The subjects were asked to report the number of times they had been pregnant and the outcome of each pregnancy. The number of induced and spontaneous abortions was recorded as well as any history of infertility, including self-reported use of fertility medications, history of eating disorders, and history of salpingitis. Questions about menstrual regularity and oral contraception were also asked, including details about any history of nongestational amenorrhea. Male factor infertility, decisions to remain childless, and preference for same-sex relationships were also recorded.

A total of 527 (16.7%) of the cohort reported childlessness, and increased high school BMI was associated with higher rates of nulliparity, despite no difference in the rate of induced or spontaneous abortions.

Among women who were underweight in high school (BMI less than 18.5 kg/m^2), 12.7% reported nulliparity, compared with 16.7% who were normal weight in high school (BMI 18.5-24.9 kg/m^2). Women who had been overweight in high school (25.0-29.9 kg/m^2) had a nulliparity rate of 19.2%, compared with 30.9% for those who had been obese in high school (BMI of or above 30.0 kg/m^2). Reported high school BMI was significantly correlated with adult BMI.

A total of 23% of participants reported a history of a period of infertility, and there were no significant differences in this rate across the weight categories. However, a history of amenorrhea was significantly more common among those with higher high school weights (13.2% and 15.4% in those reporting underweight and normal weight in adolescence, respectively, compared with 21.5% and 30.9% in those reporting overweight and obesity in adolescence).

There was also a higher number of women who never tried to get pregnant in the higher weight categories, and although this was statistically significant ($P = .2$), the difference was small.

"The findings were not affected by tubal or male factor infertility, use of fertility treatments, decisions to remain voluntarily childless, or preference for same-sex sexual relationship," wrote the authors. After adjustment for adult BMI, history of amenorrhea, marital status, ethnicity, study site, education, and socioeconomic status, adolescent obesity remained independently associated with lifetime nulliparity and nulligravidity (odds ratios 2.84 an 3.93, respectively), they concluded.

"The cross-sectional nature of our study implies that it should be hypothesis-generating: Does adolescent obesity result in diminished fertility?"

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