

Childhood Abuse Linked to Type 2 Diabetes in Women

BY KERRI WACHTER

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Physical and sexual abuse in childhood and adolescence appear to increase the risk of type 2 diabetes in adult women in a dose-response fashion, based on the results of an epidemiologic study involving almost 70,000 women.

Moderate and severe physical abuse in childhood and adolescence was associated with 26%-54% higher risk of diabetes in women. Those who had experienced forced sex once had a 34% higher risk of diabetes than were women who were not sexually abused as girls and a 69% higher risk when sexual abuse occurred more frequently.

Even after accounting for adult body mass index, there remained a 10%-30% increased risk of diabetes among women who had experienced moderate physical abuse or the most severe forms of physical or sexual abuse (Am. J. Prev. Med. [doi:10.1016/j.amepre.2010.09.007]).

"The PAR [population attributable risk] percent derived from this model indicates that child/adolescent abuse accounted for 14% (7%-21%) of type 2 diabetes in this cohort. Applying the hazard ratio from this study to the 43% prevalence of any child or adolescent abuse reported by women in the National Violence Against Women Survey, an estimated 9% of diabetes in U.S. women may be attributed to early abuse," wrote Janet W. Rich-Edwards, Sc.D., and her colleagues.

An association consistently has been reported between child abuse and adult obesity. Studies indicate "that early trauma may cause lasting dysregulated responsiveness, which may link child abuse with diabetes through physiologic pathways independent of adiposity," wrote Dr. Rich-Edwards, director of developmental epidemiology at the Connors Center for Women's Health and Gender Biology at Brigham and Women's Hospital, Boston, and her colleagues.

However, the association between childhood abuse and adult diabetes has not been studied before in a large population.

The new findings highlight the importance of recognizing abuse in children and adolescents and asking adults about a history of abuse, according to Dr. Lawrence S. Phillips, a professor of endocrinology at Emory University, Atlanta.

Physicians need to be aware that "there are not only emotional and behavioral consequences of abuse in childhood and adolescence; there are physical

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Major Finding: Moderate and severe physical abuse in childhood and adolescence was associated with 26%-54% higher risk of diabetes in women. Women who had experienced forced sex once or repeatedly before adulthood had 34%-69% higher risk of diabetes than did women who were not sexually abused as girls.

Data Source: Epidemiologic analysis of data from a cohort of 68,376 women.

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consequences as well," he said in an interview. "We need to be much more sensitive to issues of abuse and in the history, because they demonstrably now have mental and physical downstream impacts."

For this study, the researchers used data from the Nurses Health Study II (NHSII), a cohort of 116,430 registered nurses, who were aged 25-42 years when the cohort was established in 1989. The cohort has been followed by biennial mailed questionnaires, which inquire about risk factors and disease incidence.

In 2001, a violence questionnaire was added to this large longitudinal cohort study of women. Participants returned 68,376 violence questionnaires; 67,853 were included in this analysis.

A total of 2,074 cases of type 2 diabetes were accrued from 1989 to 2005, and 759 incident cases occurred after the

violence questionnaire was administered in 2001. All of the cases (2,833) were included in the analysis to maximize power. Data were analyzed in 2009, after diagnoses of diabetes reported on the 2005 questionnaire were reviewed and coded.

The Violence Questionnaire covers three periods: childhood (up to age 11 years), adolescence (11-17 years), and adulthood. Childhood and adolescent physical abuse was assessed through an adaptation of the Revised Conflict Tactics Scale. Physical abuse during childhood was categorized into four groups:

no physical abuse (none); being "pushed, grabbed, or shoved" at any frequency or being "kicked, bitten, or punched" once or "hit with something" once (mild); being "hit with something" more than once or "physically attacked" once (moderate); being "kicked, bitten, or punched" or "physically attacked" more than once or ever "choked or burned" (severe). Spanking was not included.

Child and adolescent sexual abuse was measured by questions about unwanted sexual touching and forced sexual activity. Exposure was categorized into four groups: no sexual abuse; unwanted sexual touching only; forced sexual activity once; and forced sexual activity more than once. Adult experiences of abuse were measured on the violence questionnaire with questions adapted from the McFarlane Abuse Assessment Screen.

In this cohort, 65% of participants reported any degree of physical or sexual abuse in childhood or adolescence, which was associated with a 24% increased risk of type 2 diabetes in adulthood, even after adjustment for age, race/ethnicity, body type at 5 years, and maternal/paternal education and history of diabetes.

A dose-response association was found between physical abuse and risk of dia-

betes. However, this was somewhat attenuated by adjustment for race, maternal and paternal education, maternal and paternal diabetes, and somatotype at age 5.

Physical and sexual abuse interacted on an additive scale but not on a multiplicative scale, indicating that the absolute risk of diabetes was greater among women who had experienced both forms of abuse than would be expected from the risk of sexual or physical abuse alone, according to Dr. Rich-Edwards and her coauthors.

At age 5 years, little difference was found between the somatotypes of girls who did and did not report later abuse. By the age of 18 years, however, the BMI trajectories of abused girls had begun to diverge.

By ages 25-42 years, a marked trend was found of increasing BMI with more severe abuse history.

Adjustment for adult smoking, alcohol use, and BMI weakened, but did not eliminate, the dose-response associations of child and teen abuse with risk of adult diabetes. The attenuation was attributable almost entirely to adjustment for adult BMI, which accounted for 60% and 64% of the associations of physical and sexual abuse, respectively, with diabetes.

Despite adjustment, moderate physical abuse, severe physical abuse, and repeated forced sex remained independently associated with significantly increased risks of diabetes of 12%, 21%, and 28%, respectively.

Moderate and severe physical abuse were associated with 26%-54% higher risks of diabetes in maturity. Unwanted sexual touching was associated with 16% higher risk of diabetes, and forced sexual activity before adulthood carried a 34% greater risk when it occurred once and a 69% greater risk when it occurred more frequently. Child and teen abuse predicted later diabetes even among women who reported no adult physical or sexual abuse. ■

Type 2 Diabetes Linked to Risk for Colorectal Adenomas

BY HEIDI SPLETE

FROM THE ANNUAL MEETING OF THE AMERICAN COLLEGE OF GASTROENTEROLOGY

SAN ANTONIO – Colorectal adenomas were significantly more common in adults with type 2 diabetes, compared with the general adult population, based on a study of 860 patients who underwent screening colonoscopy.

"Colonic adenomas and advanced adenomas were independently predicted by diabetes," Dr. Nisheet Waghay of MetroHealth Medical Center, Cleveland, and colleagues wrote in a poster at the meeting.

Previous studies have shown a 30%-40% increase in colorectal cancer risk in adults with type 2 diabetes, but the association between type 2 diabetes and the risk of colorectal adenomas has not been well studied, the investigators said.

The researchers reviewed colonoscopy data from 269 adults with type 2 diabetes and 591 adults without diabetes who were screened at a single medical center between January 2007 and January 2010.

All of the following findings – three or more adenomas, adenomas larger than 1 cm, a prox-

imal location of advanced adenomas, and a higher mean number of polyps – were significantly more common in the

The findings suggest that type 2 diabetes influences not only the number of adenomatous polyps, but also their location within the colon.

diabetes patients than in the nondiabetics.

The percentage of patients with three or more adenomas was 14% in those with diabetes vs. 10% in the general population, and the rate of adenomas

larger than 1 cm was 9.7% and 4.7%, respectively. The average number of polyps in patients with diabetes vs. those without diabetes was 4.9 vs. 2.5. In addition, 68% of advanced adenomas in the diabetes patients were proximal, compared with 31% of those in the general population.

The average age of the patients with diabetes was 57 years, vs. 61 years in the general population, but this difference was not significant. There were no significant differences between the two groups in terms of body mass index, family history of colo-

rectal cancer, or patient use of alcohol, tobacco, or non-steroidal anti-inflammatory drugs. Approximately 60% of the patients in both groups were black.

The findings suggest that type 2 diabetes influences not only the number of adenomatous polyps, but also their location within the colon. More research is needed to confirm the results, but this study "adds plausibility that diabetes may play a role in the adenoma-carcinoma sequence," Dr. Waghay and colleagues noted.

The researchers said that they had no financial conflicts to disclose. ■