

Associations of Different Types of Maternal Diabetes and Body Mass Index With Offspring Psychiatric Disorders.

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Abstract

IMPORTANCE:

Maternal obesity, pregestational type 1 and 2 diabetes, and gestational diabetes have been reported to increase the risk of autism spectrum disorder and attention-deficit/hyperactivity disorder in the mothers' offspring. However, the associations of maternal diabetes disorders and body mass index jointly with psychiatric disorders among offspring are less well documented, especially for type 2 diabetes.

OBJECTIVE:

To examine the associations of different types of maternal diabetes, separately and together with maternal obesity, with psychiatric disorders in the mothers' offspring.

DESIGN, SETTING, AND PARTICIPANTS:

This population-based cohort study used data from nationwide registries in Finland encompassing all 649 043 live births occurring between 2004 and 2014. The study and data analysis were conducted from January 1, 2019, to July 5, 2019.

EXPOSURES:

Maternal prepregnancy body mass index, insulin-treated pregestational diabetes, and pregestational type 2 diabetes and gestational diabetes without insulin treatment.

MAIN OUTCOMES AND MEASURES:

Psychiatric diagnoses and prescription of psychotropic drugs among the mothers' offspring. Cox proportional hazards models were adjusted for birth year, sex, mode of delivery, maternal age, number of fetuses, parity, mother's country of birth, mother's marital status, maternal smoking, maternal psychiatric disorder, and maternal systemic inflammatory disease.

RESULTS:

The mean (SD) age of mothers was 30.20 (5.37) years; 357 238 of 394 302 mothers (90.6%) were born in Finland. Of the 647 099 births studied, 4000 fetuses (0.62%) were exposed to maternal insulin-treated pregestational diabetes, 3724 (0.57%) were exposed to type 2 diabetes, and 98 242 (15.18%) were exposed to gestational diabetes; 34 892 offspring (5.39%) later received a diagnosis of a mild neurodevelopmental or psychiatric disorder. Non-insulin-treated type 2 diabetes in

severely obese mothers, compared with normal-weight mothers without diabetes, was associated with psychiatric disorders in the offspring (hazard ratio, 1.97; 95% CI, 1.64-2.37), although with a lower effect size than that for severely obese mothers with insulin-treated pregestational diabetes (hazard ratio, 2.71; 95% CI, 2.03-3.61). The largest effect sizes were found for mood disorders, attention-deficit/hyperactivity disorder and conduct disorders, and autism. Gestational diabetes in severely obese mothers had a lower overall effect size (hazard ratio, 1.61; 95% CI, 1.50-1.72). Diabetes in normal-weight mothers was not associated with psychopathologic disorders in the offspring.

CONCLUSIONS AND RELEVANCE:

Severe obesity in mothers with diabetes was associated with an increased overall risk for psychiatric disorders in their offspring. The risk was highest for those exposed to insulin-treated pregestational diabetes, followed by non-insulin-treated type 2 diabetes and gestational diabetes. These findings may have implications for managing pregnancies.