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Electronic medical data could help verify link between maternal obesity and diabetes to autism

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Scientists show they can use electronic medical records and birth information to verify and strengthen an already suspected link between autistic children and pregnant mothers with obesity and diabetes.

The findings from researchers at Cincinnati Children's Hospital Medical Center are reported in a study posted online ahead of publication by the journal *Autism Research*. An estimated one out of 45 children is affected by autism spectrum disorder (ASD). Both genetics, environment and the interaction of both are suspected. The increasing prevalence of ASD also happens to mirror increases in obesity and diabetes, the authors note.

"Although previous studies report a link between maternal obesity and diabetes during pregnancy to autism, we demonstrate that electronic medical data can verify and establish the extent of this link across large populations," said Katherine Bowers, PhD, MPH, study senior author and a member of the Division of Biostatistics and Epidemiology at Cincinnati Children's.

"Without placing any burden on study participants or the costs of developing an epidemiologic study from scratch, we can use the vast amounts of data already collected for clinical purposes to conduct broad population-based studies on this link to autism. We are very excited about the future studies we can do with this ability," she added.

According to study data, pregnant mothers with obesity or gestational diabetes were 1.5 times more likely to have a child with ASD compared to mothers of children without developmental disorders. The increased risk of ASD for pregnant mothers with both obesity and gestational diabetes was two-fold. The findings fit well into an increasing body of evidence that obesity and gestational diabetes may be associated with the development of autism.

Including collaborators in the Division of Biomedical Informatics at Cincinnati Children's, Bowers and her colleagues analyzed a variety of medical record and birth data from patients and mothers to help identify risk factors. Using birth records from Southwest Ohio (part of the Cincinnati Children's primary service area) the researchers compared mothers who had a child diagnosed with ASD to mothers of children with a non-autism developmental disorder. They also included in their comparison mothers with children having no developmental disorders.

The authors said they were fortunate to have access to a large number of electronic medical records from the Cincinnati Children's Kelly O'Leary Center for Autism Spectrum Disorders, a leading autism diagnosis and treatment center with a rigorous, uniform, and multidisciplinary autism assessment process. Unlike prior studies, the researchers were able to use novel language processing techniques to analyze free text medical notes and confirm autism diagnoses expressed as a numerical code.

Among study participants, 487 mothers had a child with ASD, 1,495 had a child with another type of developmental disorder, and 35,734 mothers of children without ASD or a developmental disorder were included for control. The average age of mothers having children with ASD was 28.6 years, and 27.4 years for both mothers of children with a developmental disorder and for controls.

Given the increased prevalence of children with autism spectrum disorders, they stress the importance of using their findings collaboratively to conduct much larger multi-institutional studies.

Source:

Cincinnati Children's Hospital Medical Center
