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Stress in pregnancy hikes risk of autism, U.S. research finds

BY COLETTE BOUCHEZ

A woman who experiences major stressful events between the 24th and 28th weeks of pregnancy has a dramatically increased risk of giving birth to a child with autism, new research says.

"These are major stressors we are talking about, like the death of a loved one, the loss of a job or something extremely traumatic that occurs specifically during these weeks of the pregnancy," said lead study author David Beversdorf, assistant professor of neurology at Ohio State University Medical Center.

Could the terrorist attacks of Sept. 11 be among such major stressors? Dr. Beversdorf says yes, but not for every woman.

"It depends on how each individual woman reacts to stress during her pregnancy, what her level of stress was prior to becoming pregnant, what it was during the pregnancy and what upsets her personally the most," he said.

Michael Paidas, director of the maternal-fetal medicine program at New York University Medical Center, said the study is significant but that most women, even in New York, should not be frightened – or stressed – by the finding.

"There is so much human biologic variability that occurs that to be able to say that we are going to see some structural change [in the baby] and then say that this is related exactly to autism is going to be a stretch," Dr. Paidas said.

However, he called the findings important and said they mesh with others showing that stress can affect pregnancy, for example by increasing the risk of premature delivery.

Dr. Beversdorf said one link may be hormone-related, specifically hormones such as cortisol which increase in the mother's body in direct response to extremely stressful events. He said a biochemical chain reaction may occur during a specific time in the pregnancy and may interfere with the development of the cerebellum, a part of the brain that is structurally different in children with autism.

This idea is supported by animal data suggesting that stress at a specific time in a pregnancy causes structural changes in the brain of the developing offspring similar to those seen in autistic children.

"It's clear that there is a definite genetic component to autism, but the condition is such that genes alone cannot explain away the whole reason why autism exists," Dr. Beversdorf said. Maternal stress may be one of the missing links.

Autism is a neurological disorder that can dramatically affect behaviour patterns and the ability to communicate.

Dr. Beversdorf's study used questionnaires that asked mothers to document extremely stressful events during their pregnancies. Researchers say they defined "extremely stressful" as any life-altering event, such as the death of a loved one, a divorce or a job loss.

The study included 188 women who had given birth to autistic children, 212 women who had healthy children and 92 women who had given birth to babies with Down syndrome.

"The first result: The numbers of women who experienced major stress during any four-week period of their pregnancies were pretty much the same among both the mothers of healthy babies and the mothers of Down-syndrome babies. However, the stress levels for the mothers of autistic children were nearly twice that of the other women in the study.

"First we thought that a woman who had an autistic child may simply be more likely to remember stressful events more readily than a woman who gave birth to [a healthy child]," Dr. Beversdorf said. But continued analysis proved more than just chance was involved.

The second result: The stressful events happened between the 24th and 28th weeks of pregnancy.

"It was clear there was something going on here. The stressors were all taking place during specific times in the pregnancy, and this time coincides with the development of an area of the brain that has already been linked to autism, so it was hard not to see the links," Dr. Beversdorf said.

The findings were presented at last month's annual meeting of the Society for Neuroscience in San Diego.

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