MedicalXpress

Study showing evidence of a major environmental trigger for autism

November 10 2008

The American Medical Association journal *Archives of Pediatrics & Adolescent Medicine* has published a new study by researchers at Cornell University indicating evidence of an environmental trigger for autism among genetically vulnerable children. It is the first peer-reviewed study to positively associate the prevalence of autism to a factor related to the levels of precipitation in the areas in which children live.

"This analysis is an important first step towards identifying a specific environmental trigger, or triggers, for autism," said lead author Michael Waldman of the Johnson Graduate School of Management at Cornell.

While many autism experts believe that the disorder is triggered by the combination of an environmental trigger and a genetic predisposition (experts have identified genes related to the condition but do not have a full understanding of the full set of related genes), previous literature provides few clues concerning what the important environmental triggers might be. "Our hope is that this study will spur those in the medical community to investigate what the specific trigger might be that is driving our findings, so that countless children can be spared an Autism Spectrum Disorder diagnosis," said Waldman, a professor of management and economics.

Co-author Associate Professor Sean Nicholson of the College of Human Ecology at Cornell added, "We looked at the hypothesis using three different statistical approaches and in each case we found strong evidence consistent with the hypothesis."

Dr. John Williams of the Department of Child and Adolescent Psychiatry at the Children's Hospital of Pennsylvania also contributed to the study. About the team's findings, he said: "These are provocative data that will generate a lot of discussion in the clinician and patient communities. Clearly, further study is required, especially given that many of the possible environmental triggers discussed may be avoidable or correctable."

The researchers discuss several possible environmental triggers related to higher levels of precipitation, including increased rates of early childhood television and video viewing, increased rates of vitamin D deficiency, and an increased exposure to chemicals used in household cleaners that children who spend more time indoors would likely experience. The research team plans to conduct further statistical studies aimed at identifying which of these possibilities are actual triggers for autism.

The study involved analyzing data from counties in the states of California, Oregon and Washington, and it found that county-level, school-age autism prevalence rates and autism prevalence counts are positively associated with a county's average annual precipitation. Additionally, analysis showed that within a county, autism prevalence rates and autism prevalence counts were higher for age groups that were exposed to more precipitation prior to the age of 3. The findings – based on a statistical estimate of how many autistic children in the sample were diagnosed with autism due to the added or incremental exposure to the possible environmental triggers related to precipitation – suggest that as many as 30 percent or more of autism diagnoses may be due to an environmental trigger or triggers related to levels of precipitation where the children live.

The study refines previous research on autism conducted by this team. Their latest report considers a specific hypothesis – that there exists an

important environmental trigger for autism among genetically predisposed children that is positively associated with levels of precipitation – and solidifies the need for further research focused on identifying what the exact environmental trigger might be.

Source: Cornell University