

Accelerated head growth can predict autism before behavioral symptoms start

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Children with autism have normal-size heads at birth but develop accelerated head growth between six and nine months of age, a period that precedes the onset of many behaviors that enable physicians to diagnose the developmental disorder, according to new research from the University of Washington's Autism Center.

The study also indicates that this aberrant growth is present in children who have the early onset form of autism as well as those later diagnosed with the regression type of the disorder, according to Sara Webb, who led the research.

“We know there are a number of risk factors for autism, and if we can pinpoint them we have better ways of identifying children at risk so we can get them into prevention or monitoring,” said Webb, a UW research assistant professor of psychiatry and behavioral sciences.

“This abnormal or accelerated rate of head circumference growth is a biological marker for autism. It occurs before the onset of behavioral symptoms at 12 months of age such as a child's failure to respond to their name, a preoccupation with certain objects, not pointing to things, a lack of interest in other people and the absence of babbling.

“By itself, head growth is not an indicator of autism,” she said, “because kids are going to be getting bigger and development is so variable. However, if you notice it and some of these other symptoms, it is a red flag to seek evaluation.”

She said it is important to understand that the data used in this study were based on three measurements made during the first three years of life, not from a single point in time. To do this, the researchers obtained the medical records of 28 boys who had been diagnosed with autism spectrum disorder between the ages of 3 and 4 at the UW Autism Center and eight boys with developmental delay. All of the boys were participating in a larger longitudinal study.

Infant head measurements are typically done on a regular basis by pediatricians through the first 18 months of life, but are not reliably done after that. Head circumference is calculated from the brow, or ridge above the eyes, around to the bony bump on the back of the skull and back around to the brow. Three measurements, including at birth, were required to chart the growth of each child and compare it with the range of normal development.

Webb said in most cases parents would have a difficult time detecting abnormal growth because there is a range of normal head sizes. Approximately 20 percent of children with autism have abnormally large head sizes, or what is called macrocephaly.

“Some of the children in our study started with a very small head size and later their growth accelerated. What we are looking for is disproportionate growth in children compared to the rest of their body. In this study nearly 60 percent of the autistic children had accelerated growth but only six of the children met the criteria for macrocephaly.”

Webb said she sees this information being used by pediatricians to screen children and refer them earlier rather than later for evaluation and intervention before other symptoms develop. The UW researchers plan to further explore the implications of abnormal head size as part of a larger autism prevention study of 200 infants at high risk for the disorder that has just started. These youngsters have older siblings already

diagnosed with autism and have a one in five chance of developing the disorder, which has a strong genetic component. The typical risk for autism is now believed to be one in 150.

Earlier research at the UW Autism Center by its founding director Geraldine Dawson showed that accelerated head growth in children with autism slows down in the second year of life and this deceleration coincides with a with a period of worsening symptoms of autism.

Source: University of Washington

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