

Biomedical Update:

Possible marker for genetic risk?

The risk of having more than one autistic child is very low, particularly in families without known genetic defects such as Fragile X. However, a small but significant number of families with no known genetic defects do have several children with autism; and a larger number have one autistic child and other children with speech problems or learning disorders.

A preliminary study by Joseph Piven and colleagues hints at a link between these cases of familial autism or autistic-like symptoms and the high levels of serotonin seen in about 30% of autistic children. Serotonin is one of the substances that transmit messages between cells in the brain.

Piven et al. tested blood samples from:

- five autistic subjects with siblings affected by either autism or pervasive developmental disorder (similar to autism, but with milder symptoms);
- 23 autistic individuals without autistic siblings; and,
- 10 nondisabled control subjects.

Even after adjusting the results for sex, age, and IQ, Piven et al. found that the autistic children with affected siblings had higher levels of serotonin in their blood platelets than autistic individuals without autistic siblings. The autistic group without affected siblings, in turn, had higher levels than the nondisabled controls.

Piven and colleagues say their data "suggest that [serotonin] level in autistic subjects may be associated with genetic liability to autism," and add that measurement of serotonin levels "may eventually play a role in genetic counseling in autism." However, the researchers emphasize that their results are preliminary and are based on a small sample of autistic children from multiple-incidence families.

"Platelet serotonin, a possible marker for familial autism," Joseph Piven, Guochuan Tsai, Eileen Nehme, Joseph Coyle, Gary Chase, and Susan Folstein; *Journal of Autism and Developmental Disorders*, Vol. 21, No. 1, March 1991, pp. 51-59. Address: Joseph Piven, University of Iowa Hospital and Clinics, Room 1875, Pappjohn Pavillion, Child Psychiatry, 650 Newton Road, Iowa 52246.

MRIs: no pattern seen

Martha Ann Nowell and colleagues report that magnetic resonance imaging (MRI) scans of 53 autistic children and adults "did not present a single pattern capable of predicting the presence or severity of autism."

Eric Courchesne et al. reported in 1988 that a high percentage of autistic individuals showed under-development of vermal lobules six and seven of the cerebellum (an area of the brain located at the base of the

skull). In the study by Nowell et al., however, only five subjects (7.6%) showed any evidence of similar cerebellar defects.

Noting that their tests were done prior to MRI upgrades which permit better imaging, Nowell et al. say that the cerebellar defect found by Courchesne may too subtle to be seen with their imaging techniques, or may be a phenomenon unrelated to autism.

The subjects in this new study were younger than Courchesne's, and Nowell also speculates that seizures, drugs, or the effects of aging may lead to changes in older autistic individuals' brains.

"Varied MR appearance of autism: fifty-three pediatric patients having the full autistic syndrome," Martha Ann Nowell, David B. Hackney, Alan S. Muraki, and Mary Coleman; *Magnetic Resonance Imaging*, Vol. 8, pp. 811-816, 1990. Address: Martha Ann Nowell, Radiology Diagnostic Centers at MR Imaging of P.G. County, 7525 Greenway Center Drive, Greenbelt, MD 20770.

Controversial drug stops hair-pulling

Trichotillomania — the overwhelming urge to pull out one's own hair — is a surprisingly common compulsion, affecting as many as eight million Americans. Ghada Hamdan-Allen reports that she successfully treated trichotillomania in an autistic teenager, using the drug fluoxetine.

The 18-year-old boy, who had been pulling out his hair since he was 13, had not responded to behavior modification interventions such as self-monitoring and relaxation training, or to the drug imipramine. In addition to pulling out his scalp hair, he also pulled out his eyebrows and eyelashes. His hair-pulling increased during times of stress or depression.

Hamdan-Allen reports that when fluoxetine was started, "the clinical response was dramatic." At an eight-month follow-up, the boy's hair had grown back, his depression had ceased, and his stereotyped behavior was reduced. The drug did not affect his other autistic symptoms.

Fluoxetine, commonly known by the brand name Prozac, is a controversial drug used to treat depression and other mental disorders. The drug has dramatically reduced the symptoms of many individuals, but has been blamed for causing aggression and suicidal behavior among a number of users.

"Brief report: trichotillomania in an autistic male," Ghada Hamdan-Allen; *Journal of Autism and Developmental Disorders*, Vol. 21, No. 1, March 1991, pp. 79-82. Address not available.

A National Conference on Behavior Management, sponsored by the NIDRR Research and Training Center on Community-Referenced Nonaversive Behavior Management, will be held Sept. 20 and 21 at the UC San Diego. For information contact Robert Koegel, (805) 893-2049, or write to him at the Psychology Clinic, Graduate School of Education, UC Santa Barbara, CA 93106.

More Rett boys — and two generations of Rett

Researchers in Kuwait and the U.S. appear one step closer to confirming that some males do have Rett syndrome, a disorder formerly thought to only affect females.

Rett Syndrome is a progressive disorder with numerous symptoms including normal early development followed by regression; loss of language and motor skills; autistic-like withdrawal which may improve as other symptoms worsen; repetitive "hand-washing" or hand-wringing motions, or other hand motions at the mid-line of the body, with loss of purposeful use of the hands; seizures; and loss of mobility.

Orvar Eeg-Olofsson and colleagues at the Farwanya Hospital in Kuwait report on a 13-year-old boy who has all of the core symptoms of Rett's. In addition, they say, a muscle biopsy revealed that the boy's cells have numerous swollen, dumbbell-shaped mitochondria—an abnormality previously reported in girls with Rett's. (Mitochondria are small, thread-like structures within cells that are the source of cell energy.)

In the U.S., Mary Coleman reports on a six-year-old boy who meets most of the criteria for Rett syndrome. He appeared normal during his first 11 months, but later lost his ability to grasp, developed mid-line hand motions and autistic-like behaviors such as head-banging and biting, did not learn to speak, and remains thin even though he consumes large amounts of food.

Meanwhile, Swedish researcher Maria Anvret and colleagues report "the first family in which Rett syndrome appeared in two consecutive generations" — a 12-year-old girl and her 44-year old maternal aunt.

While no other family members have Rett syndrome, Anvret et al. say, there is a family history of other disorders including lactose intolerance, depression, Crohn's disease and schizoaffective psychosis.

Genetic testing of the affected individuals and other family members indicated that the X chromosome from the girl's maternal grandfather (the aunt's father) was present in both affected individuals, but not in the healthy half-sisters of the 12-year-old girl. No obvious deletions or other chromosome abnormalities were seen in either of the two females with Rett's.

"A boy with the Rett syndrome?," Orvar Eeg-Olofsson, Ali GH Al-Zuhair, Ahmad Teebi, Mohammed Zaki, and Azhar Daoud; *Brain & Development*, Vol. 12, No. 5, 1990, pp. 529-532. Address: Orvar Eeg-Olofsson, Dept. of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden.

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"Is classical Rett syndrome ever present in males?," Mary Coleman; *Brain & Development*, 12/1, 1990, pp. 31-32.

—and—

"Segregation analysis of the X chromosome in a family with Rett syndrome in two generations," Maria Anvret, Jan Wahlstrom, Per Skogsborg, and Bengt Hagberg; *American Journal of Medical Genetics*, 37, 1990, pp. 31-35. Address: Jan Wahlstrom, Department of Clinical Genetics, East Hospital, S-416 85 Gothenburg, Sweden.