Biomedical update:

Ear infections frequent in autistic children

Autistic children have significantly more ear infections than normal children, according to a recent study (Konstantareas and Homatidis).

The study also found that autistic children with many ear problems (ear infections, hearing loss, ears draining through tubes, etc.) had more severe symptoms of autism than those with few ear problems; and that earlier onset of ear infections correlated with lower cognitive functioning in the autistic group.

In addition, the researchers found that autistic children with low-set ears were more likely to have ear infections than other autistic children.

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"Brief report: ear infections in autistic and normal children," M. Mary Konstantareas and Soula Homatidis, *Journal of Autism and Developmental Disorders*, Vol. 17, No. 4, 1987, pp. 585-594. Address: M. Mary Konstantareas, Clarke Institute of Psychiatry, Toronto, Ontario, Canada, M5T 1R8.

Rett Syndrome autopsy reveals abnormalities

An autopsy on an 11-year-old girl with Rett Syndrome has revealed significantly reduced levels of the chemical messengers dopamine, noradrenaline and serotonin in most brain areas studied. Levels of adrenaline also were low in two regions of the brain.

The researchers (Brucke et al.) found high levels of certain substances formed by the breakdown of dopamine and serotonin. Low melanin content was found in two areas of the brain, the substantia nigra (an area involved in Parkinson's disease) and the locus coeruleus.

The researchers say their findings provide "evidence of a retardation in the maturation of these neurons [in the substantia nigra and locus coeruleus] which possibly leads to a decreased synthesis rate of dopamine and a compensatory enhancement in its turnover rate" as evidenced by the high levels of dopamine and serotonin metabolites.

The girl's undernourishment (a common condition in Rett Syndrome) does not appear to be a cause of the unusual brain chemical levels, as the abnormalities did not coincide with those seen in the brains of normal individuals who are under-nourished.

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"Reduced concentrations and increased metabolism of biogenic amines in a single case of Rett Syndrome," T. Brucke, E. Sofic, W. Killian, A. Rett and P. Riederer, *Journal of Neural Transmission*, No. 68, 1987, pp. 315-324. Address: T. Brucke, Neurologische Universitatsklinik, Lazarettgasse 14, A-1090, Wien, Austria.

Early, late onset autism: are they different?

Children whose autistic characteristics are present from birth may fare better than those whose autism develops after a period of apparently normal development, according to a new study.

Researchers in Japan and at Yale studied 80 autistic children – 39 with "acquired" autism (symptoms appearing around 21-22 months), and 41 whose symptoms were present shortly after birth. They found that:

– Children with late-onset autism were more likely to have seizures. These children also were likely to have experienced some form of prenatal, birth, or post-delivery physical trauma.

– Speech, social ability and other developmental skills were significantly lower in the late-onset children than in the other group.

– Children with late-onset autism had more severe behavior problems such as self-injury, hyperactivity, and stereotypic behavior (hand-flapping, etc.) than children with early-onset autism.

– More than 90 percent of the "acquired" autism group were hospitalized or going to schools or institutions for mentally handicapped children, while more than 60 percent of the early-onset autistic children were going to "ordinary" schools.

– In many late-onset cases, there were ostensible "precipitating psychological events" such as the parents' divorce or a move, prior to onset. However, there was no evidence that these events had any connection to the onset of autism.

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"Clinical features of autistic children with setback course in their infancy," Yoshihiko Hoshino, Motohisa Kaneko, Yuki Yashima, Hisashi Kumashiro, Fred R. Volkmar, and Donald J. Cohen; The *Japanese Journal of Psychiatry and Neurology*, Vol. 41, No. 2, 1987, pp. 237-246. Address: Yoshihiko Hoshino, Department of Neuropsychiatry, Fukushima Medical College, Hikarigaoka 1, Fukushima-shi 960, Japan.

Prenatal factors studied

Researchers studying 181 autistic children to determine prenatal, birth and post-natal factors possibly associated with autism have found that bleeding, flu-like symptoms, induced labor and the taking of medications during pregnancy were more common among mothers with one autistic child (75 cases) than among mothers having two or more autistic children (106 cases).

The findings indicate that in some cases genetic defects may be primarily responsible for autism, while in other cases maternal illness, birth complications or other factors may play a role.

However, the survey "failed to identify events uniquely associated with autism," according to the researchers, who concluded that "pre-, peri- and post-natal events may be, at best, only indirectly linked" to the development of autism.

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"Pre-, peri-, and postnatal factors in 181 autistic patients from single and multiple incidence families," Anne Mason-Brothers, Edward R. Ritvo, Barry Guze, Amy Mo, B. J. Freeman, Steven J. Funderburk, and Phillip C. Schroth; *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 26, 1987, pp. 39-42. Address: Anne Mason-Brothers, UCLA School of Medicine, Neuropsychiatric Institute, 760 Westwood Plaza, Los Angeles, CA 90024.

PET scans normal

PET scans performed on ten autistic men showed no significant abnormalities, according to a team of researchers.

The PET (Positron Emission Tomography) scan is a computerized radiology technique which can show the metabolic activity of brain tissue. The test is frequently used to detect brain disorders.

In this study on resting subjects, the researchers found normal to elevated rates of whole brain glucose utilization in the autistic group. No brain regions showed lowered rates, and no localized metabolic abnormalities were found in the group as a whole. A number of autistic subjects did have brain regions with high metabolic rates in comparison to overall brain rates.

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"Brain metabolism in autism," Judith Rumsey, Judith Rapoport, Ranjan Duara, Cheryl Grady, Stanley Rapoport, Neal Cutler, and Richard Margolin; *Arch. of Gen. Psychiatry*, Vol. 42, May 1985, pp. 448-455. Address: Judith Rumsey, Child Psych. Branch, NIMH, Bldg. 10, Rm. 6N-240, 9000 Rockville Pike, Bethesda, MD 20205.