

Autism Research in Japan (continued)

Cysts linked to autism

Brain cysts may have caused autism in six study subjects, according to Japanese researchers. All of the patients were male and had cysts affecting the temporal lobe of the brain, which is involved in speech, behavior and personality.

In two cases, shunt operations were performed to reduce the size of the cysts. Both of these children improved — showing slight gains in language, some decrease in hyperactivity, and a marked reduction in seizures — following this treatment.

“Autism with middle fossa arachnoid cyst,” Masaya Segawa, Yoshiko Nomura, Eiko Nagata, Keiko Hata and Sawako Saitoh; *The Study of Prevention and Treatment of Early Infantile Autism from the Standpoint of Developmental Neurobiology*, 1984, pp. 73-81. Address: Masaya Segawa, M.D., Segawa Neurological Clinic for Children, 2-8 Surugadai Kanda, Chiyoda-ku, Tokyo 101, Japan.

Loading tests indicate endocrine abnormalities

The hypothalamus, a tiny brain structure which regulates the release of hormones by the endocrine glands, and the pituitary gland — which plays an important “middle man” role in this process — appear to function abnormally in autistic individuals, according to two studies.

Researchers can test for endocrine disturbances by conducting “loading tests”; this involves administering substances which would normally cause a rise or drop in the body's production of certain metabolites, and then testing to see if this normal reaction occurs. In this study the researchers conducted “loading tests” with two hormones, TRH (thyrotropin releasing hormone) and LH-RH (luteinizing hormone releasing hormone), and found that endocrine secretion by the glands of autistic subjects in response to the tests were abnormal.

The researchers say their findings indicate autism may involve a disorder in the central nervous system's metabolism of neurotransmitters such as serotonin, which in turn leads to impaired functioning of the hypothalamus and pituitary gland.

The same researchers conducted a different loading test — this time with L-5HTP (a chemical the body uses to produce serotonin) — and studied the effect of the loading on the levels of serum serotonin, prolactin and human growth hormone. While normal levels of human growth hormone were found before and after testing, levels of serum serotonin and prolactin were abnormal before testing and both showed a suppressed response to the

test, again indicating a disturbance in the function of the hypothalamus and pituitary gland in autistic individuals.

“The TRH and LH-RH loading test in autistic children,” Yoshihiko Hoshino, Makoto Watanabe, Ryuichi Tachibana, Motohisa Kaneko and Hisashi Kumashiro; *Journal of Medical Science*, Vol. 31, No. 1, 1985; and, “The hypothalamo-pituitary function in autistic children: the change of serum 5HT, plasma human growth hormone, prolactin level after L-5HTP loading,” same authors, *Neurosciences*, Vol. 10, 1984, pp. 285-291. Address: Yoshihiko Hoshino, Department of Neuropsychiatry, Fukushima Medical College, Fukushima 960, Japan.

Japanese, U.K. tests: brainstem lesion?

A Japanese study of the electrical brain activity of autistic children in response to stimuli adds support to the theory that autism may be linked to a brainstem defect.

The researchers used a procedure called a “short latency somatosensory evoked potential” (SSEP) test. In this test, sleeping children are subjected to brief electrical pulses delivered through electrodes, and certain brainwave responses are measured.

The researchers found that autistic children had larger brainwave latencies than normal, brain-damaged or mentally

retarded children, indicating that messages generated by the test stimuli took an abnormally long time to be transmitted. They speculate that this delayed transmission time is caused by a defect in the brainstem, the area of the brain which transmits information from the spinal cord and cranial nerves to other areas of the brain.

A similar brainwave study by researchers in Belfast showed that most autistic children 15 years of age and older had abnormally long “central conduction” times; by contrast, test results for autistic children under 15 years of age were normal. In the older group, there was a strong correlation between the degree of brainwave abnormalities and scores on tests measuring social abilities.

“Short latency somatosensory evoked potentials in children with autism,” Toshiaki Hashimoto, Masanobu Tayama, and Masuhide Miyao; *Brain and Development*, Vol. 8, No. 4, 1986, pp. 428-432. Address: Toshiaki Hashimoto, Department of Pediatrics, Tokushima University School of Medicine, 2-chome Kuramoto, Tokushima, Japan.

— and —
“A neurophysiological study of autistic children,” R.J. McClelland, D. Eyre, D. Watson and J. Calvert; *Electroencephalography and Clinical Neurophysiology*, Vol. 61, Sept. 1985, p. 16. Address: R. J. McClelland, Whitley Medical Building, The Queen's University of Belfast, Belfast, U.K.

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