

Biomedical/Education Update:

Hyperlexia traced to overactive brain region

Hyperlexia—a highly advanced ability to read fluently, although usually without understanding, sometimes by 18 months of age—appears to stem from over-activation of a specific brain region, according to a new study.

Peter Turkeltaub and colleagues used functional magnetic resonance imaging (fMRI) to study the neurological anomalies associated with hyperlexia in a nine-year-old boy who could read dictionaries at the age of two, but could not speak conversationally until he was three and a half years old. The researchers compared the boy's brain activity while performing reading tests to that of typical readers matched for either chronological or reading-skill age. Compared with both groups of controls, the boy showed greater activity in the left inferior frontal and superior temporal cortex than children in either group of controls. In addition, he exhibited greater activity in the right inferior temporal sulcus, a part of the visual system.

Says Turkeltaub, the left superior temporal cortex "is like a dial. When the dial is turned up, you find accelerated readers or hyperlexics. When the dial is turned down, as has been shown for dyslexic children, you find inefficient readers."

"The neural basis of hyperlexic reading. An fMRI case study," P. E. Turkeltaub, D. L. Flowers, A. Verbalis, M. Miranda, L. Gareau, and G. F. Eden, *Neuron*, Vol. 41, No. 1, January 8, 2004, 11-25. Address: G. F. Eden, Georgetown University Medical Center, 4000 Reservoir Rd., Building D, Suite 150, Washington, DC 20057.

—and—

"Using fMRI technology to understand hyperlexia," news release, Georgetown University Medical Center, January 7, 2004.

Warning about danger of SSRI-diuretic combo

Individuals taking both thiazide diuretics and selective serotonin reuptake inhibitors (SSRIs) are at increased risk of developing hyponatremia, according to a new report.

Hyponatremia, or an abnormally low concentration of sodium in the blood, can cause various symptoms including nausea, vomiting, confusion, headache, bloating, and muscle weakness. In extreme cases, the condition can be fatal.

Thiazide diuretics, used to lower blood pressure, are a known risk factor for hyponatremia because they cause the body to excrete sodium. More than a dozen reports over the past few years also link hyponatre-

mia in elderly patients to SSRI drugs including paroxetine (Paxil), fluoxetine (Prozac), fluvoxamine (Luvox), and sertraline (Zoloft). SSRI drugs appear to cause hyponatremia by promoting the inappropriate release of antidiuretic hormone, leading to water retention and excess dilution of salt in the body.

A new case report suggests that the combination of SSRIs and thiazide diuretics may be especially dangerous. M. H. Rosner reports seeing two severe cases of hyponatremia stemming from this combination of drugs, and says that evidence suggests "a synergistic effect" of the medications. He cautions that doctors should carefully monitor patients taking both SSRIs and thiazide diuretics, noting that older women seem to be at highest risk for hyponatremia.

"Severe hyponatremia associated with the combined use of thiazide diuretics and selective serotonin reuptake inhibitors," M. H. Rosner, *American Journal of Medical Sciences*, Vol. 327, No. 2, February 2004, 109-11. Address not listed.

First US autism registry created in West Virginia

The number of West Virginia schoolchildren diagnosed as autistic has increased fivefold over the past five years, paralleling a nationwide rise in autism rates. In an effort to better understand this phenomenon, West Virginia is establishing the first state registry of individuals diagnosed with autism.

Marshall University's Autism Training Center will collect data for the registry. Physicians, including out-of-state physicians who diagnose West Virginia residents, will be required to report cases. The database, its sponsors say, will allow researchers to track trends, such as autism "clusters" or differences in autism rates among various ethnic or socioeconomic groups.

—Raise funds for ARI—

If you or your group plans to raise funds for autism research, via a walk, a run, a golf tournament, or other event, do it for the Autism Research Institute.

Since 1967, ARI has conducted and funded "Research That Makes a Difference." Other organizations spend millions of dollars on "pie in the sky" projects that may help children who will be born 5, 10, or 15 years from now. Our efforts, in contrast, are bringing major improvement, and even recovery (yes, recovery!) to thousands of *today's* autistic children (see letters, p. 7). Please help if you can.

Asperger siblings show subtle deficits

A significant percentage of siblings of children with Asperger's syndrome (AS) show subtle impairment in "theory of mind," according to a recent study by Liam Dorris and colleagues.

"Theory of mind" is the ability to understand that other people have their own thoughts and emotions. Many studies show that individuals with autism spectrum disorders are significantly impaired in this ability. In addition, research by Simon Baron-Cohen et al. reveals that parents of children with AS score lower than controls on the "Eyes Test," a theory-of-mind test measuring the ability to select an emotion that describes what a person in a photo is thinking or feeling.

In their new study, Dorris et al. compared the performance of 27 siblings of children with AS to the performance of 27 control children on an age-adjusted version of the Eyes Test. The children were matched for sex, age, and verbal comprehension.

The researchers report that the AS group performed significantly more poorly than controls on the test, providing evidence that "first-degree relatives of AS children are affected by a milder variant of the neuro-cognitive profile associated with AS/autism." In addition, they say, "males were significantly poorer on the test than females, both within and between groups." This finding, they say, is consistent with the theory of Baron-Cohen that autism may stem in part from an "extreme male brain."

Female siblings showed more impairment on the Eyes Test in comparison to female controls than male siblings did in comparison to male controls. Dorris et al. say this supports the theory that autism spectrum disorders in females are associated with greater familial loading for genes associated with "male brain state."

"Mind-reading difficulties in the siblings of people with Asperger's syndrome: evidence for a genetic influence in the abnormal development of a specific cognitive domain," L. Dorris, C. A. E. Espie, F. Knott, and J. Salt, *Journal of Child Psychology and Psychiatry*, Vol. 45, No. 2, 2004, 412-18. Address: Liam Dorris, Department of Psychological Medicine, University of Glasgow, Academic Centre, Gartnavel Royal Hospital, Glasgow, Scotland G12 OXH, l.dorris@clinmed.gla.ac.uk.

SCHOOLS AND SERVICES: The Autism Research Institute maintains a list of schools and services for autistic individuals. If your facility should be included on our list, and you believe it may not be, please send a self-addressed, stamped envelope to receive our referral list questionnaire.