MRI study: Does the amygdala shrink in autistic individuals with severe social deficits?

The amygdala, a brain region involved in fear recognition, may shrink in severely-affected autistic individuals, according to a new study.

Richard Davidson and colleagues used magnetic resonance imaging (MRI) and eye-tracking technology to study 28 males with autism spectrum disorders (ASD), ranging in age from 8 to 25, and 26 controls. The researchers asked participants to identify happy, angry, or sad facial expressions in pictures of faces.

The finding is highly relevant to autism because research increasingly implicates reduced levels of glutathione as a factor in autism spectrum disorders. Glutathione helps to protect against oxidative stress (damage caused to cells by free radicals), a process strongly linked to autism.

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In a study published separately, the researchers measured levels of active and inactive glutathione in the treated children. The researchers found that after pycnogenol administration, levels of active glutathione increased markedly and the ratio of reduced (active) to oxidized (inactive) glutathione improved. Total antioxidant status was initially low in the ADHD group but normalized in those taking pycnogenol.


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The effect of polyphenolic extract from pine bark, Pycnogenol, on the level of glutathione in children suffering from attention deficit hyperactivity disorder (ADHD),” M. Dvorakova, M. Sivonova, J. Trebacha, I. Skodacek, I. Wasziulakova, J. Muchova, and Z. Duraechoke, Redox Report, Vol. 11, No. 4, 2006, 161-72. Address: M. Dvorakova, Department of Medical Chemistry, Biochemistry and Clinical Biochemistry, Faculty of Medicine, Comenius University, Bratislava, Slovakia.


Galantamine reduces autistic children’s behavior problems

Galantamine, a substance extracted from a flowering plant called the snowdrop (and marketed both as a nutrient and as a drug under the name Reminyl), can significantly reduce symptoms of autism, according to a new study.

Rob Nicolson and colleagues administered galantamine for 12 weeks to 13 autistic children in an open-label trial. Parents rated the children monthly using two behavioral scales, and a physician rated them using two different scales.

The researchers report, “Patients showed a significant reduction in parent-rated irritability and social withdrawal on the Aberrant Behavior Checklist as well as significant improvements in emotional lability and inattention on the Conners’ Parent Rating Scale-Revised. Similarly, clinician ratings showed reductions in the anger subscale of the Children’s Psychiatric Rating Scale.” Eight of the children were judged to be responders on the Clinical Global Impressions scale.

The researchers suggest that galantamine may be particularly beneficial for autistic children who exhibit aggression, out-of-control behavior, and inattention. They note that while galantamine’s effects in this study were more modest than the effects of risperidone (one of the most common drug treatments for autism), galantamine—unlike risperidone—appears to have few significant side effects. In the current study, only two children experienced side effects (headaches in one case, and digestive upset in another).

The findings are consistent with those of an earlier study by Helmut Niederhofer et al. (see ARR 16/4), which found that galantamine was at least moderately effective in reducing the behavior problems of autistic children who did not respond to other medications.