Biomedical Update:

Green tea for allergies?

Autistic children and adults are often prone to allergies, and new research from Japan indicates that green tea may be highly beneficial for these individuals.

Laboratory tests by Hirofumi Tachibana and colleagues reveal that EGCG (epigallocatechin gallate), a powerful antioxidant found in green tea, also is a potent inhibitor of allergic reactions. The researchers say that EGCG works by blocking the production of histamine and immunoglobulin E (IgE). *(Editor's note: levels of IgE are often elevated in autistic individuals.)* Tachibana et al. found that a methylated form of EGCG can block the IgE receptor, the key receptor involved in an allergic response.

The researchers' study, which involved analyzing the response of human basophils (blood cells that release histamine) to EGCG, supports earlier research showing that orally-administered EGCG reduces allergic reactions in rodents.

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"Green tea may fight allergies," press release, American Chemical Society, September 18, 2002. Address: Hirofumi Tachibana, Department of Bioscience and Biotechnology, Kyushu University, Fukuoka, Japan.

More evidence reported for Hypericum benefits

Autism is often treated with antidepressants. However, an Austrian study provides evidence that Hypericum, the active ingredient in St. John's wort, also is effective in reducing core symptoms of depression.

S. Kasper and A. Dienel conducted a meta-analysis of the data from three double-blind multicenter trials in which 544 subjects with mild to moderate depression were given Hypericum extract (300 mg 3 times per day). The researchers analyzed the findings to determine if Hypericum actively addresses the core symptoms of depression, or merely treats ancillary symptoms such as insomnia and anxiety.

The researchers report that Hypericum effectively reduced both core symptoms and depression-related ancillary symptoms, adding, "However, the herbal drug was particularly effective in the core symptoms of the disorder."

They conclude, "The results indicate that Hypericum extract accelerated the recovery from depression in a rather general manner, by influencing all investigated signs and symptoms of the disease." The supplement's effects, they say, are "similar to the profile of selective serotonin reuptake inhibitors."

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"Cluster analysis of symptoms during antidepressant treatment with Hypericum extract in mildly to moderately depressed out-patients. A meta-analysis of data from three randomized, placebo-controlled trials," S. Kasper and A. Dienel, *Psychopharmacology* (Berlin), Vol. 164, No. 3, November 2002, 301-8. Address: S. Kasper, Department of General Psychiatry, University of Vienna, Wahringer Gurtel 18-20, A-1090 Wein, Austria, SK@akh-wien.ac.at.

Oxytocin reduces repetitive behaviors in autistic adults

Giving autistic individuals the hormone oxytocin may reduce their abnormal repetitive behaviors, according to a new study.

In a randomized, double-blind, placebo-controlled study, Eric Hollander and colleagues administered oxytocin infusions to 15 adults with autism or Asperger syndrome. They report that subjects receiving oxytocin exhibited a significant reduction in repetitive behaviors when compared to those receiving the placebo infusion. The researchers conclude, "Repetitive behavior in autism spectrum disorders may be related to abnormalities in the oxytocin system, and may be partially ameliorated by synthetic oxytocin infusion."

Animal research has shown that oxytocin plays a powerful role in socialization and bonding. One study (see ARRI 15/1) found that mice genetically engineered to lack the gene for oxytocin appear to have severe deficits in "social memory," failing to recognize mice to which they had previously been exposed. Earlier research by Hollander et al. appeared to implicate the use of pitocin (a form of synthetic oxytocin) during delivery as a factor in autism.

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"Oxytocin infusion reduces repetitive behaviors in adults with autistic and Asperger's disorders," E. Hollander, S. Novotny, M. Hanratty, R. Yaffe, C. M. DeCaria, B. R. Aronowitz, and S. Mosovich, *Neuropsychopharmacology*, Vol. 28, No. 1, January 2003, 193-8. Address: Eric Hollander, Mt. Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029.

Galantamine moderately effective in reducing aberrant behaviors

The natural substance galantamine (sold both as a nutritional supplement and as a drug under the name Reminyl) is somewhat effective in reducing the behavior problems of autistic children, according to a new study.

Galantamine, an extract of certain flowers, increases concentrations of the neurotransmitter acetylcholine by blocking the effects of acetylcholinesterase, an enzyme involved in breaking down acetylcholine. The substance is currently being tested as a treatment for Alzheimer's disease, and appears to be as effective as synthetic drugs used to treat Alzheimer's.

European researchers recently tested the effects of galantamine on 20 autistic boys who had been treated without success with a variety of psychotropic drugs. All subjects in the placebo-controlled, double-blind crossover randomized trial were drug-free at the time of the study.

The researchers report that when they combined parent and teacher ratings of behavior, the children's mean scores were slightly lower during treatment with galantamine than during treatment with placebo for irritability, hyperactivity, inadequate eye contact, and inappropriate speech. Clinicians' ratings, however, showed no significant differences between galantamine and placebo.

No subjects reported side effects from galantamine treatment. However, possible side effects listed by the manufacturers of Reminyl include nausea, vomiting, diarrhea, loss of appetite, and weight loss.

The researchers conclude, "Galantamine seems to be not only effective in treating Alzheimer's disease but may also be moderately effective in the short term treatment of irritability in children with autistic disorder."

(Editor's note: the researchers' letter detailing their results, published in the* British Medical Journal, *did not specify the length of the trial. It also did not specify the dosage of galantamine administered, but dosages administered in Alzheimer's studies are typically 24 to 32 mg per day.)

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"Galantamine may be effective in treating autistic disorder," Helmut Niederhofer, W. Staffen, and A. Mair, *British Medical Journal*, Vol. 325, December 14, 2002, 1422. Address: Helmut Niederhofer, Regional Hospital of Bolzano, Department of Paediatrics, Via L. Boehler, 5, I-39100 Bolzano, Italy. (See also: "Progress in clinical neurosciences: Treatment of Alzheimer's disease and other dementias," D. B. Hogan and C. Patterson, *Canadian Journal of Neurological Sciences*, Vol. 29, No. 4, November 2002, 306-14.)