Biomedical update:

Vitamin C enhances haloperidol effect

Haloperidol (the substance in the medication Haldol), a powerful drug, is often used to dampen severe behavioral symptoms in autistic patients. Unfortunately, like many similar drugs, haloperidol may produce serious long-term adverse effects.

Research at Indiana University (Rebec et al.) indicates that giving Vitamin C (ascorbic acid) along with haloperidol may enhance the drug's action upon the central nervous system. While this research was done with rats, the researchers note that "because humans lack the liver enzyme necessary to synthesize ascorbic acid, treatments that increase ascorbic acid concentration may be effective in [increasing] the clinical response to haloperidol and related antipsychotic drugs."

The researchers note that "megavitamin therapy, which includes pharmacological doses of ascorbic acid, has been successful in treating certain forms of schizophrenia."

In this study, Rebec et al. found that a combination of ascorbic acid and haloperidol was more effective in reducing drug-induced behavioral symptoms in rats than was haloperidol alone. The two substances combined also caused a more marked cataleptic response (similar to the muscle rigidity seen in humans). Ascorbic acid alone did not have a greater effect on the rats than did a placebo dose of saline.

Editor's note: This is an encouraging report, and should lead to more research to determine if giving vitamin C along with Haldol could allow doctors to reduce Haldol dosages to safer levels.

—

"Ascorbic acid and the behavioral response to haloperidol: implications for the action of antipsychotic drugs," George V. Rebec, Josephine M. Centore, Laura K. White and Kevin D. Alloway; *Science*, Vol. 227, Jan. 1985, pp. 438-440. Address: George V. Rebec, Dept. of Psychology, Indiana Univ. Bloomington, IN 47405.

Bromocriptine may be effective; is it safe?

All six autistic children in a French study improved when given bromocriptine, a medication affecting the dopamine-using areas of the brain (Simon-Soret and Borenstein).

The study subjects, whose average age was 4-1/2, showed improvement on tests of autistic symptoms and developmental abilities. Communication skills and motor reactions also improved following administration of the drug, and no adverse effects were seen.

This was an open clinical trial, and no control groups were used. Treatment periods ranged from 6 to 36 months.

An Italian study by Michele Zappella and Andrea Genazzani (see ARRI Vol. 1, Issue 2) found that bromocriptine caused improvement in seven girls with Rett Syndrome. Patients in this study became more relaxed, aware, social and affectionate when taking bromocriptine; in addition, their motor skills improved, their "hand-washing" stereotypies diminished, and they slept better.

(*Note: Bromocriptine, which also is used to treat Parkinson's and to suppress lactation, has recently been linked to four deaths. If current investigations prove a direct connection, the drug may be regulated more tightly or even removed from the market.*)

—

"A study on bromocriptine in the treatment of infantile autism," C. Simon-Soret and P. Borenstein; *La Presse Medicale*, Vol. 16, No. 26, 1987. Address: C. Simon-Soret, Intersecteur de Pedopsychiatrie du Loiret, 17, rue Gambetta, F 45200 Montargis, France.

—and—

"Antilactation drug under investigation," *Insight*, August 1, 1988.

Japanese study: pneumonia, autism link?

Japanese researchers report that the prevalence of autism in a Tokyo suburb fluctuated in four-year cycles which "were closely correlated with the number of children admitted with pneumonia and bronchiolitis in that area."

Noting that autism has previously been linked to rubella, cytomegalovirus and herpes simplex encephalitis, the researchers (Tanoue et al.) speculate that lower respiratory tract diseases may also play a role in causing the disorder.

The researchers studied 132 autistic children, and found that the prevalence of autism in children born between 1972 and 1978 was 13.9 per thousand children. In addition, the researchers found that children born in the second quarter of the year had a higher rate of autism than those born at other times.

—

"Epidemiology of infantile autism in Southern Ibaraki, Japan: Differences in prevalence rates in birth cohorts," Yoko Tanoue, Susumu Oda, Fusao Asano, and Kazuko Kawashima; *Journal of Autism and Developmental Disorders*, Vol. 18, No. 2, June 1988, pp. 155-166. Address: Yoko Tanoue, Yuhara Hospital, Wakaguri Ami-cho, Ibaraki, Japan.

Problems seen in high-IQ autism

Even very high-functioning autistic people have "striking cognitive deficits and uneven patterns of ability," according to a 1988 study by Judith Rumsey and Susan Hamburger.

The researchers administered a number of psychological tests to 10 autistic men, ages 18 to 39, and 10 matched normal controls. Although the autistic men were not retarded – in fact, three tested as "bright normal" – the tests showed they had significant problems with both verbal and nonverbal problem-solving.

Autistic subjects performed poorly on a verbal comprehension test and a picture arrangement test, both of which required social knowledge and conceptual thinking, but they did well on block design and digit span tests requiring rote skills. The researchers theorize that "this profile, taken together with results on the other measures, suggests that impairments in conceptual or inferential levels of processing may represent a core deficit in autism, one which transcends the wide range of language and general intellectual functioning associated with it."

The autistic men's uneven Wechsler IQ test score profiles resembled those of lower functioning autistic subjects. Language tests revealed mild limitations, while visuoperceptual and memory functions were normal. No major deficits were seen in sensory-perceptual and motor tests, or in lateralization.

Rumsey and Hamburger say their findings are not consistent with theories that autism may involve damage to the left hemisphere of the brain, but rather are "compatible with frontal-system dysfunction or with more widespread pathology."

The researchers conclude that "even [autistic individuals] who are relatively high-functioning continue to show social skill deficits which . . . are most often accompanied by significant cognitive deficits. To what extent these deficits precede or result from the social isolation is unclear. What is becoming increasingly clear is that this disorder [affects] cognitive functioning in a differential manner with conceptual, integrative functions most affected."

—

"Neuropsychological findings in high-functioning men with infantile autism, residual state," Judith M. Rumsey and Susan D. Hamburger; *Journal of Clinical and Experimental Neuropsychology*, Vol. 10, No. 2, 1988, pp. 201-221. Address: Judith M. Rumsey, Child Psychiatry Branch, National Institute of Mental Health, Building 10, Room 6N-240, Bethesda, Maryland 20892.