

Biomedical/Educational Update:

Naltrexone: give it time

Studies testing the drug naltrexone (Trexan) on autistic children have generally noted reductions in hyperactivity and restlessness, but little improvement in behavior or learning. Tonya White and Susan Schultz, however, report that naltrexone can be an effective treatment for self-injury, although physicians may need to continue the drug for an extended period to see its benefits.

White and Schultz administered naltrexone (12.5 mg/day) to a three-year-old self-injurious mentally retarded boy who initially responded by becoming even more violently self-injurious. Rather than discontinuing the drug, the researchers determined that the behavior might be an "extinction burst"—a phenomenon in which a behavior escalates dramatically before it starts to decrease—and opted to increase the dose of naltrexone to 25 mg and later to 37 mg. They report that the child's self-injury then dropped significantly, and has remained low for three years.

White and Schultz note that "the majority of studies of opioid blockers evaluated the change in self-injurious behavior over weeks rather than months or years [yet] two studies have shown that a subgroup of individuals continue to improve with long term treatment and these gains may continue once naltrexone has been discontinued."

"Naltrexone treatment for a 3-year-old boy with self-injurious behavior," Tonya White and Susan K. Schultz, *American Journal of Psychiatry*, Vol. 157, No. 10, October 2000, pp. 1574-1582. Address: Tonya White, Mental Health Clinical Research Center, 2911 JPP, University of Iowa Hospital and Clinics, 200 Hawkins Drive, Iowa City, IA 52241.

Turner's gene sheds light on autism's roots

Recent studies of girls with co-occurring Turner's syndrome and autism may shed light on the social deficiencies seen in autistic children, Shannon Donnelly et al. say.

Turner's syndrome is a genetic disorder in which females inherit only one X chromosome rather than two. Individuals with the disorder have normal IQs and verbal ability, but exhibit deficits in social and spatial skills.

Donnelly et al. conducted genetic tests on one girl with both autism and Turner's syndrome, and discovered that the X chromosome she had inherited was of maternal origin. They note that in three other cases of Turner's coexisting with autism, identified by Skuse et al. in 1997, all three girls also had maternally-derived X chromosomes.

The fact that all subjects identified in the scientific literature as having both Turner's

and autism have X chromosomes originating from their mothers, the researchers say, suggests that "an imprinted gene on the X chromosome that is not expressed when the chromosome is of maternal origin could reduce social cognition" and increase vulnerability to autistic spectrum disorders. (Imprinting is a phenomenon in which genes can be active or inactive depending on the parent of origin.)

Although girls with Turner syndrome have somewhat reduced social skills no matter which parent passes on their X chromosome, research shows that girls with a maternally inherited X chromosome have greater social deficits than those who inherit their X chromosome from their fathers. An imprinted gene on the X chromosome that is inactive when inherited from the mother may help explain, they say, why males—who inherit only one X chromosome of maternal origin—are four times more likely than females to be affected by autism.

"Female with autistic disorder and monosomy X (Turner syndrome): parent-of-origin effect of the X chromosome," Shannon L. Donnelly, Chantelle M. Wolpert, Marisa M. Menold, Meredith P. Bass, John R. Gilbert, Michael L. Cuccaro, G. Robert DeLong, and Margaret A. Pericak-Vance, *American Journal of Medical Genetics*, Vol. 96, 2000, pp. 312-316. Address: Margaret A. Pericak-Vance, Center for Human Genetics, Duke University Medical Center, Box 3445, Carl Building, Durham, NC 27710.

St. John's wort effective in treating OCD

The herb St. John's wort is highly effective in treating depression, and a recent study indicates that it can markedly decrease symptoms of obsessive-compulsive disorder (OCD) as well.

L. H. Taylor and K. A. Kobak treated 12 subjects suffering from OCD with 450 mg of 0.3% hypericin, an active ingredient of St. John's wort, given twice daily for 12 weeks. Tests showed that "significant change occurred at one week and continued to increase throughout the trial." By the end of the study, 5 of the subjects (42 percent) were rated as much or very much improved, 6 (50 percent) were rated as minimally improved, and only one (8 percent) was rated as unchanged. Side effects were minor and included diarrhea and restless sleep.

"An open-label trial of St. John's wort (*Hypericum perforatum*) in obsessive-compulsive disorder," L. H. Taylor and K. A. Kobak, *Journal of Clinical Psychiatry*, Volume 61, No. 8, August 2000, pp. 575-578. Address: L. H. Taylor, Dean Foundation for Health Research and Education, Middleton, WI 53562.

Positive practice overcorrection: more may not be better

"Positive practice overcorrection" (PPOC) is a commonly used behavior modification technique in which an individual who commits an inappropriate act is required to intensively perform a related but more appropriate behavior. (For instance, an individual who flaps his hands may be required to practice appropriate hand movements for several minutes after each hand-flapping incident.) While it is commonly believed that PPOC interventions must be fairly lengthy, a recent study suggests that short interventions are as effective as longer ones.

Gregory Cole et al. conducted three separate experiments, each involving two developmentally disabled subjects with stereotyped hand behaviors, to compare the effectiveness of different intervention lengths during PPOC interventions. In the first two experiments, the researchers compared the effectiveness of 30-second, 2-minute, and 8-minute interventions. In the third, 30-second interventions were compared to 8-minute interventions.

Although the three experiments used different designs and different subjects, all three revealed that the PPOC interventions were effective in reducing stereotyped behaviors (although improvements did not generalize to other settings). Moreover, Cole et al. say, the length of the intervention made no significant difference. The researchers say their data may indicate that the effectiveness of PPOC depends more on the fact that it interrupts or distracts from a behavior than on its punishing effects.

If additional studies show that short-term PPOC interventions are effective, the researchers say, PPOC could become a much more useful and practical behavior modification approach. However, they caution that they studied a limited sample, and their results may not be valid for individuals who are more severely disabled than their study subjects.

"Parametric analysis of overcorrection duration effects," Gregory A. Cole, Robert W. Montgomery, Keith M. Wilson, and Michael A. Milan, *Behavior Modification*, Vol. 24, No. 3, July 2000, pp. 359-378. Address: Michael A. Milan, Psychology Department, Georgia State University, Atlanta, GA 30303, mmilan@gsu.edu.

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