# Secretin: new studies reveal GI effects; which autistic children benefit

Five new studies of secretin confirm that a subset of autistic children may be particularly responsive to secretin therapy, and that treatment with the hormone is safe. Among the findings:

• R Sockolow et al. conducted a six-week study to assess the safety of secretin treatment. They report that no immediate serious side effects were seen in their 34 autistic subjects following treatment (each child received two secretin injections), and that no significant reactions were seen during the six-week follow-up period. In addition, they report that parents and medical professionals noted dramatic improvements in sociability in four of the 34 patients. All four of these subjects, the researchers note, had low baseline secretin levels and a positive anti-gliadin IgG. Sockolow et al. conclude that intravenous secretin is safe, and that a subset of children who are anti-gliadin IgG positive and have low secretin levels may be particularly likely to benefit from secretin treatment.

• In an open-label trial, J. R. Lightdale and colleagues evaluated the effects of a single dose of secretin on the gastrointestinal (GI) function of 20 young children with autism and a history of GI problems. Prior to treatment, 80 percent of the children had loose stools within a 24-hour observational period. Parents of 15 or the 20 children reported fewer and more normal stools during the five weeks following secretin treatment. While clinical testing did not reveal language changes in children given secretin, 83 percent of parents reported moderate to significant language improvement in their children following secretin treatment. Lightdale et al. conclude that a subset of autistic children may suffer from pancreatic dysfunction, and that the role of secretin in treating such children should be investigated.

• In a 12-week double-blind, placebo controlled study, C. Schneider et al. evaluated the effects of a single secretin treatment on 30 children with pervasive developmental disorders The children, ages 2 to 10, were randomly assigned to receive high dose (0.4 mg/kg) secretin, low dose (0.2 mg/kg) secretin, or a placebo. Psychological and language assessments and gastrointestinal histories were obtained at baseline and at 3, 6, and 12 weeks post-infusion. The researchers report that children with severe symptoms of autism exhibited greater improvement at 6 and 12 weeks if they received high-dose rather than low-dose secretin. In contrast, the single dose of secretin was generally ineffective in children with mild or moderate levels of autism.

• In a double-blind, placebo-controlled study, K. Horvath and colleagues examined the intestinal permeability of autistic children and measured changes in this permeability following a single secretin injection. Initially, the researchers report, 76 percent of the children exhibited abnormally elevated intestinal permeability. After a single injection of secretin, urine tests conducted on 20 subjects revealed a significant decrease in levels of intestinal permeability in 13 of them. Horvath et al. conclude that a significant percentage of autistic children have abnormal intestinal permeability, and that secretin may help correct this problem.

> The studies suggest that certain autistic children —for instance, those with severe symptoms, or certain immunological or metabolic abnormalities—may benefit most from secretin treatment.

• J Zhang et al. analyzed urine samples from 40 autistic children and 44 non-disabled children, and found that 47 percent of the autistic subjects showed no detectable levels of 7- methylxanthine in their urine. In their double-blind, placebo-controlled, crossover clinical study of 20 autistic children, the researchers compared the effects of secretin and a placebo on urinary metabolites, and report detecting a significant increase in urinary 7-methylxanthine following secretin which did not occur following placebo injections. They add that four autistic children who had near-zero levels of 7- methylxanthine at the beginning of the study showed an increase of greater than 100-fold following secretin. The researchers recommend additional studies to determine if a lack of urinary 7-methylxanthine defines a subset of autistic children who may be responsive to secretin.

Placebo-controlled clinical trials of three doses of secretin in young autistic children are currently underway at five sites in the United States. ARRI will report the results of these studies as they become available.

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"Secretin improves intestinal permeability in autistic children," K. Horvath, R. H. Zielke, R. M. Collins, A. Rabsztyn, L. A. Medeiros, and J. Perman, presentation to the World Congress of Pediatric Gastroenterology, August 2000. Address: K. Horvath, Department of Pediatrics, University of Maryland School of Medicine, Baltimore, MD 21201.

—and—

"Evaluation of gastrointestinal symptoms in autistic children before and following secretin infusion," J. R. Lightdale, C. Hayer, B. Siegel, G. R. Elliott, and M. B. Heyman, presentation to the World Congress of Pediatric Gastroenterology, August 2000. Address: J. R. Lightdale, Department of Gastroenterology and Nutrition, Children's Hospital, Boston, MA 02115.

—and—

"Synthetic human secretin in the treatment of pervasive developmental disorders," C. K. Schneider, R. D. Melmed, C. L. Martin, R. A. Fabes, and M. Balhorn, presentation to the World Congress of Pediatric Gastroenterology, August 2000. Address: Cindy Schneider, Southwest Autism Research Center, Phoenix, AZ 85006.

—and—

"Safe use of intravenous secretin in autistic children," R. Sockolow, D. Meckes, K. Hewitson, and V. Atluru, presentation to the World Congress of Pediatric Gastroenterology, August 2000. Address: R. Sockolow, Dept. of Pediatrics, Winthrop- University Hospital, Mineola, NY 11501.

—and—

"Analysis of compounds in the urine of autistic children with HPLC and mass spectrometry," J. Zhang, G. Rivers, J. Peyser, B. Zack, K. Horvath, and J. Rusche, presentation to the World Congress of Pediatric Gastroenterology, August 2000. Address: J. Zhang, Repligen Corporation, Needham, MA 02494.

## LETTERS TO THE EDITOR

***Casein-free diet***

To the Editor:

A note to ARRI readers whose children are on casein-free diets: due to a glitch in FDA regulations, casein is considered non-dairy. Thus, some soy cheeses may be listed as non-dairy, but contain casein. Soya-Kaas Mozzarella style is one of these. Read labels carefully, or look for products with the Hebrew word "pareve," meaning that they are neither milk nor meat. Rabbis are more careful than federal bureaucrats; as Hebrew National points out, they answer to a higher authority.

Also: an ingredient in some of the new dental gums, particularly Trident, is casein. [Manufacturers] were looking at a way to stabilize calcium and phosphate so they decided to do it the way milk does—with casein.

Sally Ramsey

**Editor's Note: Sally's excellent new cookbook, *The Cheerful Chemist's No***

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