

## **Octreotide – a promising fight against chronic intestinal pseudo-obstruction**

Chronic intestinal pseudo-obstruction (CIPO) is a rare disorder that affects the intestinal tract of children and adults. It is a chronic and devastating disease that has significant morbidity and mortality. CIPO is characterized by severe and disabling recurrent episodes of intestinal blockage. Patients have the classic signs and symptoms of intestinal obstruction in the absence of an actual lesion causing the intestinal blockage. Primary diseases of the intestinal nerves and muscles cause CIPO. Secondary causes that affect the intestinal nerves and muscles include systemic, metabolic, mitochondrial, neurological and connective tissue diseases. Approximately three fourths of children with CIPO are diagnosed within the first year of life. The clinical history and the presentation are used to diagnose CIPO. Antroduodenal manometry (ADM) is used to measure the intestinal contractions can serve as an adjunct in the diagnosis. During ADM a specialized catheter is introduced into the stomach and small intestine and the catheter then detects the pressures generated by the contraction of the lumen.

Infants with CIPO commonly have abdominal distention, abdominal pain, changes in stooling, vomiting, and most notably feeding intolerance that leads to weight loss and severe malnutrition. Many are unable to tolerate feeding by mouth and require feeds directly into the stomach (gastric tube) or the small intestine (jejunal tube). Approximately two-thirds do not tolerate intestinal feeds and require central line placement for parenteral nutrition (PN) and a quarter become dependent on PN. Unfortunately, children on PN can have serious life threatening complications such as liver disease, liver failure, central line infections, blood infections, and clotting of their blood vessels. Therefore, it is critical to improve intestinal tolerance of feeds and wean off of the PN. However, at this time there is a lack of effective therapeutic options available to increase intestinal tolerance of feeds in children with CIPO.

Octreotide, a somatostatin analogue, is used during ADM to induce small intestinal contractions also known as Phase III migrating motor complex (MMCs). Octreotide has been shown to have successful outcomes primarily in adult patients who have CIPO from systemic scleroderma. Its use in children has been reported in a single case report. We investigated the safety and efficacy of Octreotide in improving intestinal tolerance of feeds in sixteen children with CIPO who were dependent on PN. All children had a clinical diagnosis of CIPO and had undergone AMD and colonic manometry studies. Octreotide, dose range of 0.2-1 µg/kg/day, was administered twice a day via the central line for a median of 10 weeks. We defined a successful response to Octreotide to be an increase in intestinal feeds by greater than 10 cc/kg/day. Eleven out of sixteen (69%) had an overall increase in their tolerance of intestinal feeds where 7 out of 16 (44%) were considered responders to Octreotide. Three out of the seven were able to discontinue the PN and the other four had appropriate adjustments to their PN. Four patients had side effects of which two discontinued Octreotide; one developed hyperglycemia and the other an allergic reaction. Notably we were able to demonstrate an association between the presence of intestinal contractions (Phase III MMCs) and the patient's response to Octreotide. This is promising and may allow us to predict which patients are likely to respond to Octreotide administration.

We believe our study has important implications in the treatment of children with CIPO. These children have very limited therapeutic options and suffer from significant morbidity and mortality. Octreotide is an important therapeutic intervention that can increase the intestinal tolerance of feeds and help decrease central line PN dependence.

*Lusine Ambartsumyan*<sup>1</sup>, *Leonel Rodriguez*<sup>2</sup>

<sup>1</sup>*Division of Gastroenterology, Seattle Children's Hospital, Seattle WA, USA*

<sup>2</sup>*Division of Gastroenterology, Department of Medicine, Center for Motility and Functional Gastrointestinal Disorders, Children's Hospital Boston, Harvard Medical School, Boston, MA, USA*

## **Publication**

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