Novel hormonal therapy for pediatric short bowel syndrome

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Short bowel syndrome (SBS) is an important problem in pediatric surgical practice. At present therapy is primarily supportive, consisting of maximising enteral feeds in order to stimulate the process of spontaneous adaptation. Adaptation up regulates the nutrient transport capacity of the remaining bowel. Recently two new hormonal pathways have been proposed as being useful in modifying this process in human patients.

The first is glucagon like peptide 2 (GLP-2). GLP-2 is trophic to the entire gastrointestinal tract. Recent studies from our lab have shown that GLP-2 levels in SBS are correlated with adaptation and that exogenous GLP-2 alone will stimulate classical intestinal adaptation. We have confirmed these findings in human infants with SBS. Interestingly the infant colon does not appear to be capable of producing GLP-2 whereas adult colon is. This ontogeny may explain the difficulties infants have in adapting following intestinal resection. Studies with GLP-2 analogues in adults with SBS are underway.

The second system which may be useful for SBS therapy is epidermal growth factor (EGF). EGF is constitutively produced in salivary glands and the duodenum. It maintains baseline nutrient absorption, and is important in repairing damaged mucosa. In experimental models we have shown an improvement in nutrient absorption with enteral EGF. We have completed a pilot clinical study, confirming improvement in carbohydrate absorption and enteral feeds in human patients over a three-month treatment period.

Further studies are indicated to investigate the therapeutic potential of both these compounds, as well as the specific indications in which they might be most useful.