Research Days

May 2nd, 11:30 AM - 1:30 PM

GASTROINTESTINAL FIBROMATOSIS: A CASE OF SUCCESSFUL ORAL TYROSINE KINASE INHIBITOR DELIVERY TO AN INFANT WITH PROXIMAL DUODENAL OBSTRUCTION

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Background:
Infantile myofibromatosis (IM) is a rare disorder characterized by the fibrous proliferation of the skin, bone, muscle, and viscera that usually presents at birth, or soon after. Although IM is a benign condition, significantly higher morbidity and mortality have been reported when the viscera is involved. This case report is of a 6-week-old female who presented with poor feeding along with subcutaneous nodules that were diagnosed as IM. Upper and lower endoscopy were performed for worsening feeding intolerance showing marked nodularity throughout the gastrointestinal (GI) tract, including partial obstruction of the proximal duodenum by biopsy-proven myofibromas, confirming visceral IM involvement. Oral imatinib was started; however, reliable drug delivery for this infant by mouth was proved difficult due the continuous gastric suctioning needed to prevent emesis and abdominal distension.

Objectives/Goal:
Optimize drug delivery with clinical pharmacology and GI physiology principles to achieve reliable drug delivery into the stomach, with adequate time for drug absorption leading to systemic imatinib levels within target therapeutic range.

Methods/Design:
Two potential approaches were implemented: (1) decreasing gastric secretions to increase time without continuous gastric suction to allow time for drug delivery past the partial gastric outlet obstruction, and (2) minimizing drug metabolism by inhibition/induction of relevant drug metabolizing pathways. Therapeutic drug monitoring for imatinib was used to measure response to intervention. To decrease stomach secretions and allow more time off suction after drug administration, her CYP3A4 inhibition agents were optimized, and IV octreotide was administered, which has also shown benefit in the treatment of gastrointestinal stromal tumors.

Results:
With these interventions, in 24 days, gastric suctioning could be held for 60 min after drug administration, with less frequent emesis, and the patient's imatinib level reached therapeutic range consistently.

Conclusions:
With the pharmacologic interventions implemented, her tumor burden gradually shrunk, enabling successful small bowel resection of distal myofibromas with subsequent reconnection and tolerance of nasogastric feeds, demonstrating marked clinical improvement and treatment success through optimization of gastric imatinib drug delivery despite the presence of proximal duodenal obstruction.