



ORIGINAL ARTICLE

Colonic transit in children and adolescents with chronic constipation ☆,☆☆



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KEYWORDS

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Abstract

Objective: The aim of this study was to assess clinical features and colonic transit patterns in Brazilian children with refractory constipation.

Methods: From 2010 to 2013, 79 constipated patients received follow-up care in a tertiary hospital. Of these patients, 28 (aged 8–14 years) were refractory to conventional therapy and underwent a simplified visual method of nuclear colonic transit study, by ingestion of a liquid meal containing 9.25 MBq/kg of ^{99m}Tc-phytate. Abdominal static images were taken immediately and at two, six, 24, 30, and 48 h after ingestion for qualitative analysis of the radio marker progression through the colon.

Results: Two patterns of colonic transit were found: slow colonic transit (SCT, $n=14$), when images at 48 h showed a larger part of the tracer remained in proximal and transverse colon, and distal retention (DR, $n=14$), when after 30 h, the radio isotope passed the transverse colon and was retained in the rectosigmoid up to 48 h. The SCT and DR group included, respectively, nine and ten males; median ages in the nuclear study of 11 and 10 years, $p=0.207$; median duration of constipation of seven and six years, $p=0.599$. Constipation appearing during first year age ($p=0.04$) and report of soft stools ($p=0.02$) were more common in SCT patients. Palpable abdominal fecal impaction was found only in DR group. Appendicostomy for antegrade continence enema was successful in 4/12 (30%) of SCT patients (median follow-up: 2.4 years).

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☆☆ Study conducted at Hospital de Clínicas, Faculdade de Ciências Médicas, Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil.

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PALAVRAS-CHAVE

Crianças;
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Conclusion: Nuclear transit study distinguished two colonic dysmotility patterns and was useful for guiding refractory patients to specific therapies.

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Trânsito intestinal em crianças e adolescentes com constipação crônica**Resumo**

Objetivo: O objetivo deste estudo foi avaliar as características clínicas e os padrões de trânsito colônico em crianças brasileiras com constipação refratária.

Métodos: De 2010 a 2013, 79 pacientes constipados receberam acompanhamento em um hospital terciário. Desses pacientes, 28 (com idade entre 8–14 anos) foram identificados como e realizaram estudo nuclear do trânsito colônico por método visual simplificado, com ingestão de uma refeição líquida contendo 9.25 MBq/Kg de fitato ^{99m}Tc . Imagens estáticas abdominais foram tomadas imediatamente e em 2, 6, 24, 30 e 48 horas após a ingestão para uma análise qualitativa da progressão do marcador radioativo pelo cólon.

Resultados: Foram encontrados dois padrões de trânsito intestinal: trânsito intestinal lento (STC, $N=14$), quando as imagens de 48 horas mostraram que grande parte do marcador permaneceu no cólon proximal e transversal, e retenção distal (DR, $N=14$), quando, após 30 horas, o radioisótopo havia passado o cólon transversal e permaneceu retido no retossigmoide até 48 horas. O grupo STC e o grupo DR incluíram, respectivamente, 9 e 10 meninos; idade média no momento do: 11 e 10 anos, $p=0.207$; duração média de constipação: 7 e 6 anos, $p=0.599$. Sintomas de constipação durante o primeiro ano de vida ($p=0.04$) e relatos de fezes ($p=0.02$) foram mais comuns em pacientes com STC. Observou-se impação fecal palpável no abdome apenas no grupo DR. A apendicostomia para enema anterógrado foi bem-sucedida em 4/12 (30%) pacientes com STC (acompanhamento médio: 2.4 anos).

Conclusão: O estudo nuclear do trânsito colônico diferenciou dois padrões de dismotilidade e foi útil para orientar terapias específicas para pacientes refratários.

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Introduction

Constipation is a common complaint in children and improvement is seen in the majority of patients who adhere to treatment recommended by consensus guidelines, including osmotic laxatives and intake of a fiber-rich diet.¹ However, in approximately one-third of children, symptoms are more intense and there is refractoriness to regular enemas and maximum doses of laxatives.² The constipation may be severe enough to result in complete cessation of spontaneous bowel motions.³ To explain such a clinical course, the main hypothesis is colonic transit dysfunction. Studies of colonic motor function in pediatric patients with refractory constipation have recorded dysfunctional patterns of colonic transit.⁴ Recent studies suggest that severe chronic constipation in children may be due to slowed colonic transit; different patterns of delayed transit have been described^{4–6} and specific therapies have been successfully proposed.⁷

There is a lack of data on role of colonic transit studies in clinical practice, mainly concerning its reproducibility in different populations, standardization of technical procedures, and purpose for investigating refractory constipation. The aim of the current study was to group refractory constipated patients according colonic transit pattern, using a simplified method of nuclear transit study (NTS).

Case study and methods

From September 2010 to December 2013, 79 patients diagnosed with functional constipation according to Roma III criteria⁸ received tertiary outpatient follow-up care in a pediatric gastroenterology unit at the University of Campinas Medical School Hospital in São Paulo, Brazil. Of these, 28 patients (aged 8–14 years; ages at the time of NTS) were identified as refractory to conventional therapy, after a prospective follow-up of 2.8 ± 1.7 years (mean \pm SD). This group participated in a colonic transit study, after written informed consent term was obtained from the parents/legal guardians and patients. The main demographic characteristics of 28 children with clinical refractoriness included male gender ($n=19$) and median duration of symptoms longer than five years (ranging from 2 to 12 years).

Refractory constipation was considered when patient had presented severe chronic constipation resistant to therapy for at least two years, maintained fecal retention, and require regular cleansing enemas, despite adherence to maximum laxative dosage (when osmotic effects are intolerable). Subjects in the study were prescribed to doses of magnesium hydroxide or lactulose equal to or higher than 2 mL/kg/day, or macrogol 3350 with electrolytes 1.4 g/kg/day; exhibited symptoms of excessive laxatives, such as colicky abdominal pain, flatulence, vomiting, and

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