

Editorial

Dietary fibre and childhood constipation

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Dietary fibre is found in plant foods such as fruits, vegetables and grains. Whole-grain breads and cereals, apples, oranges, bananas, berries, prunes, pears, green peas, legumes artichokes and almonds are good sources of dietary fibre¹. A high-fibre food has 5g or more of fibre per serving and a good source of fibre is one that provides 2.5 - 4.9g per serving¹. Half a cup of cooked beans (6.2-9.6g), half a cup of cooked green peas (4.4g), 1 medium baked potato with skin (3.0g), one third cup of bran cereal (9.1g), 1 small apple with skin (3.6g), 1 medium orange (3.1g) and 1 medium banana (3.1g) are good sources of fibre².

A double-blind, randomized, crossover study evaluated the effect of glucomannan, a fibre gel polysaccharide from the tubers of the Japanese Konjac plant, and placebo in children with chronic functional constipation with and without encopresis². After initial evaluation, patients were disimpacted with phosphate enemas if a rectal impaction was felt. Patients continued with their pre-evaluation laxative. No enemas were given during each treatment period. Fibre and placebo were given as 100 mg/kg daily (maximum 5 g/day) with 50 ml fluid/500 mg for 4 weeks each. Parents were asked to keep a stool diary. Age, frequency of bowel movements, presence of abdominal pain, dietary fibre intake, medications, and presence of an abdominal and/or a rectal faecal mass were recorded at recruitment and 4 and 8 weeks later. Children were rated by the physician as successfully treated when they had 3 or more bowel movements/week and one or less soiling/ 3 weeks with no abdominal pain in the last 3 weeks of each 4-week treatment period². Of the 46 chronically constipated children recruited, 31 (67.4%) completed the study. Of the 31 children 18 had encopresis. Significantly fewer children complained of abdominal pain and 45% children were successfully treated while on fibre as compared with 13% on placebo treatment. The authors concluded that glucomannan was beneficial in the treatment of constipation with and without encopresis in children and that symptomatic children already on laxatives still benefited from the addition of fibre².

Using a parallel, randomized, double-blind, controlled trial, an interventional study was conducted to evaluate efficacy of a supplement of cocoa husk rich

in dietary fibre on intestinal transit time in children with constipation³. After screening, patients were randomly allocated to receive, for a period of 4 weeks, either a cocoa husk supplement or placebo plus standardized toilet training procedures. Total and segmental colonic transit times were determined and bowel movement habits and stool consistency evaluated using a diary. Main variable for verifying efficacy of treatment was the total colonic transit time³. Fifty-six children with chronic idiopathic constipation were randomly assigned to the study and 48 (85.7%) completed it. With respect to total, partial colon, and rectum transit time, there was a statistically non-significant trend toward faster transit times in the cocoa husk group than in the placebo group. When we analyzed the evolution of the intestinal transit time throughout the study of children whose total basal intestinal transit time was greater than the 50th percentile, the total transit time decreased by 45.4±38.4 hours in the cocoa husk group and by 8.7±28.9 hours in the placebo group. Children who received cocoa husk supplements tended to increase the number of bowel movements more than children of the placebo group. A reduction was observed in the percentage of patients who reported hard stools, and this reduction was significantly greater in the cocoa husk group. At the end of the intervention, 41.7% and 75.0% patients who received cocoa husk supplementation or placebo, respectively, reported having hard stools. The authors concluded that this study confirmed the benefits of a supplement of cocoa husk that is rich in dietary fibre on chronic idiopathic constipation in children and that these benefits seemed to be more evident in paediatric constipated patients with slow colonic transit time³.

A randomized, double-blind, prospective controlled study was carried out in patients receiving either a fibre mixture or lactulose in a yogurt drink⁴. After a baseline period of 1 week, patients were treated for 8 weeks followed by 4 weeks of weaning. Polyethylene glycol 3350 was added if no clinical improvement was observed after 3 weeks. Using a standardized bowel diary, parents recorded defaecation frequency during the treatment period. In addition, incontinence frequency, stool consistency, presence of abdominal pain and flatulence, necessity for step-up medication,

and dry weight of faeces were recorded⁴. Of the 135 participants, 65 were randomized to treatment with fibre mixture and 70 to treatment with lactulose. In all, 97 (71.9%) children completed study. No difference was found between the groups after the treatment period concerning defaecation frequency (P=0.481) and faecal incontinence frequency (P=0.084). However, consistency of stools was significantly softer in the lactulose group (P=0.01). Abdominal pain and flatulence scores were comparable (P=0.395 and P=0.739 respectively). The necessity of step-up medication during the treatment period was comparable (P=0.996). Authors concluded that the fluid fibre mixture and lactulose gave comparable results in the treatment of childhood constipation⁴.

A randomized prospective controlled study was carried out on 61 patients, 31 in the partially hydrolyzed guar gum group, and 30 in the lactulose group⁵. Patients were given lactulose or partially hydrolyzed guar gum for 4 weeks. Using a standardized bowel diary, defaecation frequency, stool consistency, presence of flatulence and abdominal pain were recorded. Bowel movement frequency per week and stool consistency improved significantly in both treatment groups (p<0.05). Percent of children with abdominal pain and stool withholding also decreased significantly in both groups (p<0.05). Weekly defaecation frequency increased from 4±0.7 to 6±1.06 and from 4±0.7 to 5±1.7 in the lactulose and partially hydrolyzed guar gum treated groups, respectively (p<0.05). The authors concluded that treatment with partially hydrolyzed guar gum is as effective as lactulose in relieving stool withholding and constipation-associated abdominal pain, and that its use improves stool consistency⁵.

Tabbers MM et al systematically reviewed non-pharmacologic treatments for childhood constipation⁶. They concluded that there is some evidence that fibre supplements are more effective than placebo but no evidence for any effect for fluid supplements, prebiotics, probiotics, or behavioural intervention⁶.

A meta-analysis of randomized controlled trials concluded that dietary fibre intake can significantly increase stool frequency in patients with constipation but does not significantly improve stool consistency⁷.

From the above studies it is evident that fibre supplements are more effective than placebo and as effective as lactulose in the care of children with constipation.

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