

## TREATMENT OF FUNCTIONAL ABDOMINAL PAIN

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### RESUMEN

Este artículo resume algunos aspectos claves del manejo de los trastornos funcionales digestivos en los niños y la evidencia actual para el tratamiento de éstas patologías. Tanto al niño como a la familia se les debe explicar de la naturaleza benigna de éstas condiciones. El manejo debe iniciarse pensando en que el médico crea que los síntomas son reales y no imaginarios. El papel del cerebro digestivo y los eventos desencadenantes en la fisiopatología de los síntomas deben ser explicados a los pacientes. Debido a la naturaleza crónica de éstas condiciones, el establecimiento de una adecuada relación médico-paciente-familia es importante en orden de tener adherencia terapéutica. Los médicos deben evitar laboratorios e investigaciones innecesarias y prolongadas teniendo en cuenta que las condiciones funcionales no están asociadas a marcadores biológicos y no hay una prueba estándar de oro para el diagnóstico de un desorden funcional. El éxito del tratamiento es aliviar el dolor y restablecer la rutina diaria normal para el niño y la familia.

*Palabras claves: Dolor abdominal funcional, Tratamiento, Niños*

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### SUMMARY

This article summarizes some key aspects of the management of the functional digestive disorders in the children and the current evidence for the treatment of these entities. Both to the child and to the family it is necessary to them to explain of the benign nature of these conditions. The management must begin thinking that the doctor believes that the symptoms are real and not imaginary. The role of the digestive brain and the trigger events in the fisiopathology of the symptoms must be explained to the patients. Due to the chronic nature of these conditions, the establishment of a suitable relation doctor - patient-family is important in order to have therapeutic adherence. The doctors must avoid laboratories and unnecessary and long researches bearing in mind that the functional conditions are not associated with biological scoreboards and there is no a gold standard proof for the diagnosis of a functional disorder. The success of the treatment is to relieve the pain and the family.

*Key words: Functional abdominal pain, Management, Children*

### INTRODUCTION

This article summarizes some key aspects of the management of functional gastrointestinal disorders (FGIDs) in children and the available evidence for the treatment of these conditions. Some of the most basic aspects of the management of FGIDs are reassurance and proper education. The patient and the family should be explained about the chronic though benign nature of these conditions. An extensive explanation about the nature of the disorder should be provided making sure that the physician shows empathy and understanding and validates the symptoms. It

should be stated that the physician believes that the symptoms are 'real' and 'not in your head'. At the same time the physician should explain that the resolution of the condition will not be achieved without the cooperation of the patient and family and that it is very important that the patient takes responsibility of the process of healing. The role of the brain gut axis and the stressors in the pathophysiology of the symptoms should be explained to the patients. Individualizing the condition, in the way that the patient understands, is necessary. Due to the chronic nature of these conditions, establishing an adequate physician-patient-family relationship is important in order to achieve adherence to the treatment. The physician should always encourage the patient and the family to ask questions, in order to educate, avoid misconceptions and to build confidence in the family. The physician should avoid unnecessary and extensive laboratory investigations as these are functional conditions in which no biologic markers will be found and no testing will lead to the diagnosis of a disorder of function. The physician should help the child to fight against the disease and cope up with the condition. The goals of the treatment should be addressed at the time of the first consultation. The goals of treatment are to alleviate the pain and to re-establish the normal routine life for the patient and the family and not necessarily to abolish the pain. Setting realistic expectations will avoid losing confidence if the patient improves the symptoms without becoming totally asymptomatic. Parents should be discouraged from reinforcing the pain symptoms by allowing secondary gains. Also, if children have missed school or have been avoiding daily activities because of pain, it is important that they resume their functional status attending school and other extracurricular activities. Children in school gets diverted and less focused on pain, and distraction has been shown to be an important tool in the treatment of functional conditions. Adequate social

interaction helps in healing. The treatment should be tailored to individual cases by combining different strategies. Some families may be keen on accepting complementary and alternative therapies while others may completely reject this approach.

## **EVIDENCED BASED MANAGEMENT**

There is lack of evidence based therapies for treatment of FGIDs in children. A technical review by North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) and American Academy of Pediatrics (AAP) has little evidence to recommend the treatments that are currently used<sup>1</sup>. A meta analysis by the Cochrane's group on the various treatments currently used arrived at the same conclusions<sup>2</sup>.

## **PEPPERMINT OIL**

Studies suggest that it may have beneficial effects by relieving colonic spasm<sup>3-6</sup>, dyspepsia and flatulence<sup>7</sup>. Peppermint oil (*Mentha Piperita*) is an old spasmolytic agent that acts as a calcium channel blocker relaxing the gastrointestinal smooth muscle<sup>8,9</sup>. A pediatric study by Kline has shown that 76% of children receiving peppermint oil had reduction of abdominal pain without any adverse effects in comparison to 19% of children with placebo<sup>10</sup>. In the USA, prescribing enteric coated peppermint oil is expensive, difficult to obtain in pharmacies and not covered by the insurance companies. It is important to prescribe an enteric-coated capsule as the menthol component of the peppermint oil in non-enteric coated preparations may lead to esophagitis and mild rectal burning. A review of the literature by a subcommittee of AAP and NASPGHAN reported that there was quality B evidence to use peppermint oil for the treatment of chronic abdominal pain. In line with these recommendations, the Cochrane group found that there was not enough evidence to recommend its use.

## **H<sub>2</sub> RECEPTOR ANTAGONISTS**

A double blind, placebo controlled crossover trial suggested that famotidine given at a dose of 0.5 mg/kg/dose twice daily was superior to placebo in relieving pain and dyspepsia<sup>11</sup>. After reviewing this study, AAP and NASPGHAN reported that H<sub>2</sub> receptor antagonists could be effective in reducing dyspeptic symptoms but found a quality B evidence to use it for the treatment of chronic abdominal pain.

## **CYPROHEPTADINE**

A double blind placebo controlled trial was conducted in 29 children of 4-12 years of age. This study found that 86% of children receiving cyproheptadine had improvement of abdominal pain as compared to 36% in placebo group<sup>12</sup>.

## **SELECTIVE SEROTONIN REUPTAKE INHIBITORS (SSRIS)**

Serotonin is a key neurotransmitter not only at the central nervous system level but also in the enteric nervous system. In fact, there is more serotonin in the enteric nervous system than in the central nervous system. This and other findings make serotonin an attractive "target" for the treatment of FGIDs. Selective Serotonin Reuptake Inhibitors (SSRIs) have been found to increase small intestinal motility and benefit IBS patients with constipation. A 12 week flexible dose trial was given to 25 children of 7-18 years of age with recurrent abdominal pain<sup>13</sup>. In this study, children were given an initial daily dose of 10 mg which was progressively increased to 40 mg in 4 weeks if no response was observed. At the end of the study nearly 68% of children received 40 mg/day of citalopram. Nearly 50% of children, at week 12, reported improvement in pain and also in comorbid anxiety and depression. However due to the lack of placebo group, randomiza-

tion and blinding of both, subjects and clinicians the use of citalopram in treatment of recurrent abdominal pain in children is less conclusive.

## **TRICYCLIC ANTIDEPRESSANTS**

Tricyclic antidepressants (TCAs) such as amitriptyline have been frequently used in small doses (0.2-0.4 mg/kg per day, 5-50 mg/day) in the treatment of chronic pain (headaches, joint pain, gastrointestinal). Adult studies have shown that various tricyclic antidepressants are beneficial in treatment of IBS<sup>17</sup>. A randomized double blinded placebo controlled clinical trial conducted in a single center in California found amitriptyline to be beneficial in improving quality of life in adolescents with IBS<sup>18</sup>. Few months later, a larger multicenter randomized double blinded placebo controlled trial found a dissimilar result. This study including three times the sample size of the previous study found that both the amitriptyline group and the placebo group had equal beneficial effects in improving disability, global health status, pain, depression, somatization and coping<sup>19</sup>. The study found an unusually high placebo effect. Children in the placebo group had 75% beneficial effect in per protocol analysis. The study based the conclusion in intention to treat analysis but also analyzed the primary outcomes in terms of per protocol analysis. Differently than in a large TCAs adult study by Drossman<sup>20</sup> the conclusions of the intention to treat analysis were not modified by the per protocol analysis. Children in amitriptyline group had 59% improvement in intention to treat analysis. Patients on amitriptyline may develop constipation and lethargy as side effects making this drug an attractive alternative for patients with IBS-diarrhea form and difficulty sleeping. Antidiarrheal preparations such as loperamide (1-2mg once or twice a day) are sometimes used in the treatment of children with IBS-diarrhea form. While loperamide decrea-

ses stool frequency and urgency and improves stool consistency, adult studies show that it has no effect in decreasing abdominal pain<sup>21,22</sup>. No studies have been conducted in children with FGIDs. Anticholinergic medications such as hyoscyamine and dicyclomine are frequently use to relieve pain and bloating. These are smooth muscle relaxants that act by modifying intestinal tone and motility. No studies have been published on their efficacy for symptom relief in children with FGIDs. Anticholinergic medications such as hyoscyamine and dicyclomine are frequently use to relieve pain and bloating. These are smooth muscle relaxants that act by modifying intestinal tone and motility. No studies have been published on their efficacy for symptom relief in children with FGIDs.

## ALTERNATIVE AND COMPLEMENTARY THERAPIES

Studies have shown the beneficial effect of alternative and complementary therapies in treatment of FGIDs in children.

**Hypnotherapy:** A small case series showed benefit of hypnotherapy in 4 children with chronic abdominal pain<sup>23</sup>. A more recent clinical trial showed that hypnotherapy is superior to a course of standard therapy (nutrition guidelines, education and proton pump inhibitors) in treatment of FAP in children. Hypnotherapy significantly reduced the intensity and frequency of pain as compared to the control group during the treatment period and at least nine months after the therapy ended<sup>24</sup>. AAP and NASPGHAN reported that cognitive behavioral therapy may also be useful in treatment of FAP in children<sup>1</sup>.

**Probiotics:** They are live microbial food supplements that benefit the host by improving intestinal microbial balance, antibacterial and mucosal barrier and immune modulation. It has been proposed that probiotics may benefit the

IBS patients. Studies have shown improvement in bloating and pain symptoms with probiotics administration<sup>25-27</sup>. However, the results of the efficacies of probiotics in children with IBS are less conclusive. A study suggested that use of lactobacillus in children with IBS relieved abdominal distention but had no positive effect in abdominal pain<sup>28</sup>. However, a more recent randomized, double-blind, placebo-controlled, cross-over trial only published in abstract form reported beneficial effect of VSL#3 in children and adolescents with IBS<sup>29</sup>.

## DIET

IBS patients commonly link the onset of symptoms to the ingestion of dairy products but there is no evidence that lactose free diet or other dietary modifications decreases pain related symptoms in children with FAP. The Cochrane's Report concluded that there was a lack of high quality evidence on the effectiveness of any dietary intervention including fiber supplements, lactose free diets or probiotics supplementation<sup>2</sup>

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