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Research Article

Recurrent abdominal pain in children attending paediatrics OPD

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Abstract: ***Background:*** Abdominal pain is pain felt anywhere in the area between the bottom of the ribs and the pelvis. It is very common in babies, infants and children under 12 years. There are many different causes of abdominal pain in children, including trapped wind, constipation, gastroenteritis ('gastro' or stomach bug) and appendicitis. ***Material and Methods:*** This is prospective, descriptive and observational study conducted at Tertiary Care Teaching Hospital over a period of 1 year among 90 children with RAP. Patients of age group of 4 to 14 years attending the paediatric OPD of tertiary care teaching hospital was included in the study. Children with age less than 4 years and more than 14 years not meeting the criteria of RAP were excluded from the study. Children with organic causes of RAP have been treated according to corresponding reason. ***Results:*** Occurrence of abdominal pain every day in ORAP was 10 and 32 NORAP children, and once per week in organic ORAP was 3 and 14 NORAP children. Duration of a pain episodes most of the day in ORAP was 11 and 21 NORAP children. Severe pain can see in 9 ORAP and 24 NORAP, and mild pain in 2 ORAP and 19 NORAP. Whereas, site of pain especially in periumbilical region in ORAP was 5 and 28 NORAP children and lower abdomen pain in organic ORAP was 4 and 23 NORAP children. Moreover, 2 months duration of disease in ORAP was 17 and 3 NORAP children. In addition, presence of bloating in ORAP was 6 and 22 NORAP children, and absence of bloating in ORAP was 11 and 51 NORAP children. Presence of early satiety in in ORAP was 8 and 19 NORAP children, and absence of satiety in ORAP was 9 and 54 NORAP children. ***Conclusions:*** Recurrent abdominal pain (RAP) in children with careful history and examination, clear explanation and follow-up and a commitment from parent and child to stop the condition limiting normal activities, good results are obtained for children without referral, drugs or extensive testing.

Keywords: Recurrent abdominal pain, Organic pain, Functional pain.

INTRODUCTION

Abdominal pain is pain felt anywhere in the area between the bottom of the ribs and the pelvis. It is very common in babies, infants and children under 12 years. [1] There are many different causes of abdominal pain in children, including trapped wind, constipation, gastroenteritis ('gastro' or stomach bug) and appendicitis. Most episodes in children are not serious and will get better without treatment in hours or days. But, if the pain is severe, does not go away, or child seems generally unwell, take them to the doctor or hospital emergency department. [2]

Symptoms of abdominal pain may come on quickly or they may have been present for a while. The pain may be steady, worsening, or it may come and go, and it can be either mild or severe. Noticing the pattern and the location of the pain can help doctor with making a diagnosis. Abdominal pain in children may be accompanied by other symptoms, such as wind, burping, passing gas (farting), vomiting, diarrhoea, constipation or fever. [3]

Children may notice pain these include crying, curling up in a ball, wanting to stay still because of the pain, not wanting to play, refusing food or drinks, becoming fussy or grumpy, and facial expressions. Abdominal pain in children is common and can have many causes. Usually, abdominal pain goes away without treatment. In some cases, the pain has an underlying cause and will need specialized treatment. [4]

Abdominal pain can occur anywhere between the chest and the groin. A child may feel localized pain in one area, a more generalized in a larger area, or cramp-like pain. Abdominal pain is common in babies, infants, and children under the age of 12, and it can have many causes. [5]

The diagnosis of functional abdominal pain is often based on the report of symptoms and normal

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physical examination. It is also quite possible that the doctor may obtain some tests. The reason for these tests is to look for signs of any serious disease. These screening tests may initially include blood and stool tests. The results of screening tests often guide the doctor in deciding whether further tests are needed or whether a trial of diet changes, stress management or medication may be started.

MATERIAL AND METHODS

This is prospective, descriptive and observational study conducted at Tertiary Care Teaching Hospital over a period of 1 year among 90 **c**hildren with RAP attending the paediatric OPD of tertiary care teaching hospital.

Inclusion criteria:
Patients of age group of 4 to 14 years of either gender study with RAP.

Exclusion criteria:
Children with age less than 4 years and more than 14 years not meeting the criteria of RAP were excluded from the study. Children with organic causes of RAP have been treated according to corresponding reason. Organic RAP was said to be present when;

- There was an organic cause documented
- There was both clinical and laboratory improvement with treatment and
- There was sustained clinical remission for at least three months after therapy.

The patients who did not satisfy the above criteria were considered to have Non-organic RAP and were compared with an equal number of age and sex-matched controls that comprised of children attending the Paediatric Outpatient Department

A detailed history and clinical examinations, complete haemogram, urine for routine analysis as well as culture and stool examination were done in all cases. Other investigations like chest X-ray, ultrasonography performed where ever necessary.

Statistical Analysis:
All the data obtained were presented in percentages using Microsoft excel.

RESULTS

Out of 90 patients of RAP, sex distribution is unequal with male predominance (67.7%) and less female (32.3%).

Table 1: Distribution of the Gender

Gender	N=90 (Percentage of cases)
Male	61 (67.7%)
Female	29 (32.3%)

Table 2: Distribution of Age group

Age group (in years)	N=90 (Percentage of cases)
4-6	43 (47.7%)
7-10	28 (31.1%)
11-14	19 (21.1%)

Although in this study, age group was in the following order by decreasing 4-6 years old (47.7%), followed by 7-10 years old (31.1%) and 11-14 years old (21.1%).

Table 3: Characteristics: Organic RAP Versus Non-organic RAP

Parameters	Organic RAP n=17 (%)	Non-organic RAP n=73 (%)
Occurrence abdominal pain		
Once per week	3 (17.6%)	14 (19.1%)
Several times per week	4 (23.5%)	27 (36.9%)
Everyday	10 (58.8%)	32 (44.3%)
Duration of a pain episodes		
Less than 1 hour	1 (5.8%)	24 (32.8%)
1-2 hours	2 (11.7%)	21 (28.7%)
3- 4 hours	3 (17.6%)	7 (9.5%)
Most of the day	11 (64.7%)	21 (28.7%)
Severity of pain		
Mild	2 (11.7%)	19 (26.0%)
Moderate	6 (35.2%)	30 (41.0%)
Severe	9 (52.9%)	24 (32.8%)
Site of pain		
Upper abdomen	2 (11.7%)	5 (6.8%)
Periumbilical	5 (29.4%)	28 (38.3%)

Lower abdomen	4 (23.5%)	23 (31.5%)
Other	6 (35.2%)	17 (21.9%)
Duration of the disease		
2 months	17 (100%)	3 (4.1%)
3 months	0	5 (6.8%)
4-11 months	0	3 (4.1%)
More than 12 months	0	62 (84.9%)
Bloating		
Yes	6 (35.7%)	22 (32.0%)
No	11 (64.2%)	51 (69.8%)
Early satiety		
Yes	8 (47.0%)	19 (26.0%)
No	9 (52.9%)	54 (73.9%)
Anorexia		
Yes	11 (64.2%)	52 (71.2%)
No	6 (35.7%)	21 (28.7%)
Nausea		
Yes	6 (35.7%)	14 (19.1%)
No	11 (64.2%)	59 (80.8%)
Vomiting		
Yes	6 (35.7%)	16 (21.9%)
No	11 (64.2%)	57 (78.0%)
Constipation		
Yes	5 (29.4%)	52 (71.2%)
No	12 (70.5%)	21 (28.7%)
Loose stools		
Yes	9 (52.9%)	14 (19.1%)
No	8 (47.0%)	59 (80.8%)
Interference with sleep		
Yes	12 (71.4%)	29 (39.7%)
No	5 (28.5%)	44 (60.2%)
Disturbance in daily activities		
Yes	13 (76.4%)	33 (45.2%)
No	4 (23.5%)	40 (54.7%)
Headache		
Yes	6 (35.2%)	16 (21.9%)
No	11 (64.7%)	57 (78.0%)
School absenteeism		
Yes	12 (71.4%)	29 (39.7%)
No	5 (28.5%)	44 (60.2%)
Photophobia		
Yes	13 (76.4%)	59 (80.8%)
No	4 (23.5%)	14 (19.1%)
Pallor		
Yes	4 (23.5%)	14 (19.1%)
No	13 (76.4%)	59 (80.8%)

In table no. 3 in our study, Occurrence of abdominal pain every day in ORAP was 10 and 32 NORAP children, and once per week in organic ORAP was 3 and 14 NORAP children. Duration of a pain episodes most of the day in ORAP was 11 and 21 NORAP children. Severe pain can see in 9 ORAP and 24 NORAP, and mild pain in 2 ORAP and 19 NORAP. Whereas, site of pain especially in periumbilical region in ORAP was 5 and 28 NORAP children and lower abdomen pain in organic ORAP was 4 and 23 NORAP children. Moreover, 2 months duration of disease in ORAP was 17 and 3 NORAP children. In addition, presence of bloating in ORAP was 6 and 22 NORAP children, and absence of bloating in ORAP was 11 and 51 NORAP children. Presence of early satiety in in ORAP was 8 and 19 NORAP children, and absence of satiety in ORAP was 9 and 54 NORAP children.

Furthermore, in our results loss of appetite in ORAP was 11 and 52 NORAP children. Presence of nausea in ORAP was 6 and 14 NORAP children. Presence of vomiting in ORAP was 6 and 16 NORAP

children. Defecation of loose stools in ORAP was 9 and 14 NORAP children. Interference with sleep in ORAP was 12 and 29 NORAP children, and non-interference with sleep in ORAP was 5 and 44 NORAP children. Headache in ORAP was 6 and 16 NORAP children. School absenteeism in ORAP was 12 and 29 NORAP children. Photophobia was seen in ORAP was 13 and 59 NORAP children. Finally, pallor was seen in ORAP was 4 and 14 NORAP children.

DISCUSSION

Abdominal pain that cannot be explained by any visible or detectable abnormality, after a thorough physical examination and appropriate further testing if needed, is known as functional abdominal pain. Functional abdominal pain can be intermittent (recurrent abdominal pain or RAP) or continuous. [6] Although the exact cause is not known, nerve signals or chemicals secreted by the gut or brain, may cause the gut to be more sensitive to triggers that normally do not cause significant pain (such as stretching or gas bloating). Because of this change in bowel function, this type of abdominal pain is often referred to as "functional abdominal pain." [7]

The pathophysiology involves a dysregulation of visceral nerve pathways, leading to visceral hyperalgesia. Infective, inflammatory or psychological triggers may initiate this sensitisation. [7,8] The onset of paediatric IBS frequently follows an episode of acute gastrointestinal inflammation (infectious or non-infectious). [9] RAP is additionally affected by temperament and by family and school environments (the bio-psychosocial model). Less effective mechanisms of coping with stress may contribute to pain and to associated anxiety and depression [10] Poor diet, poor fluid intake and lack of exercise can contribute to RAP.

The trigger for functional abdominal pain varies from one patient to another, and may transform over time even in the same patient. The exact triggers may not be easily identified but may remain moving targets for treatment. [8] Nerve signals or chemicals secreted by the gut or brain, may cause the gut to be more sensitive to triggers that normally do not cause significant pain (such as stretching or gas bloating). Because of this change in bowel function, this type of abdominal pain is often referred to as "functional abdominal pain." [9]

Most young children will point to the umbilicus (belly button) when asked to describe the location of abdominal pain. However, pain centered around the belly button could be due to a number of causes that should be considered when evaluating a child with chronic abdominal pain. Some of those causes are not very serious while other causes require close and long term care. [10] Possible causes that should be considered based on the history, physical examination and testing, are acid reflux, constipation, lactose intolerance, parasitic infections of the small and large intestines, infections of the stomach with a germ called *Helicobacter pylori* (that is associated with ulcers in the first portion of the small bowel), inflammatory bowel diseases (IBD) such as Crohn's disease and ulcerative colitis, celiac disease which is a sensitivity to cereal grains, food allergies, inflammation of the liver (hepatitis), gall bladder problems, an inflamed pancreas, an intestinal obstruction (blockage), appendicitis, and many more rare disorders. [11]

If a specific cause for abdominal pain is discovered during the evaluation, the physician will discuss specific management of conditions like constipation, lactose intolerance, infections, IBD, celiac disease, and food allergies. [12] If no specific cause is found and functional abdominal pain is suspected, the child needs to be reassured that his or her abdominal pain is accepted as a real disorder and not something that is "just in the head". The goal of managing functional abdominal pain is to provide a satisfactory quality of life through support, education, medicines and better coping skills. [13]

Reassurance about the good outcome of functional abdominal pain and the positive aspects of the child's health are crucial. Addressing the parents' and child's concerns and fears and identifying emotional or psychological stressors are also important. [14] As noted before, some tests may be needed during the evaluation of functional abdominal pain, but it is also important for parents and children to know that doing too many unnecessary tests may be frustrating to the family and child. [15] If functional abdominal pain is strongly suspected as the likely diagnosis, testing should be limited to the most useful, simple and relatively non-invasive tests. [16]

CONCLUSIONS

The main aim of management of children with RAP is to teach the child to cope with the pain and to improve the child's quality of life. A multidisciplinary team approach is the most ideal in dealing with this type of complex problem. Medical treatment with GI prokinetic or antispasmodic medications has been proven to be disappointing. Both the child and the parents should be counselled on stress coping strategies and provided with ample reassurance that there is no serious organic disease.

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