Long-term Outcome of Children with Recurrent Abdominal Pain

We report on long-term follow-up [mean (SD) duration, 44.7 (4.3) mo] of 48 out of 132 children with recurrent abdominal pain, who were a part of an earlier study at our hospital. 31 (64.5%) children still experienced pain; 26 (54.1%) reported their pain to be better than before, 4 children reported it to be same as before, and one child reported it worse than before. 17 out of 31 children had pain fitting into one of the categories of functional gastrointestinal disorders in the Rome III criteria; most commonly functional abdominal pain (n=6) and functional constipation (*n*=3). In majority of children with functional recurrent abdominal pain, pain may persist over the next 3-4 years, but shows slight improvement in frequency and severity.

Keywords: *Constipation, Functional abdominal pain, Outcome.*

Recurrent abdominal pain (RAP), especially functional abdominal pain, is one of the most common chronic pain conditions of childhood. There is a paucity of studies on the long-term outcomes of children with recurrent abdominal pain and its relationship with any treatment strategy during initial phase, especially from low- and middle-income country settings. The objective of our study was to evaluate long-term persistence and severity of gastrointestinal symptoms in children with recurrent abdominal pain of non-organic etiology, and to compare abdominal pain-related manifestations in children with recurrent abdominal pain who received drotaverine or placebo for a 4-week period about 3-4 years ago as a part of an earlier randomized placebo-controlled trial [1].

This follow-up study was carried out over a period of 8 months ending in May, 2017 in the Pediatric gastroenterology and hepatology clinic of a public tertiary-care hospital in India, catering mainly to urban poor population. The study was approved by the Institutional ethics committee (Human research) of the institute. Written informed consent was obtained from parents and assent was obtained from children aged ≥7 years.

All children who were part of an earlier randomized control trial comparing efficacy and safety of drotaverine hydrochloride in children with recurrent abdominal pain [1] were eligible to be enrolled in this follow-up study. Parents of such children were telephonically contacted and a date was fixed on which they had to report to the hospital. Children were evaluated by history and a detailed physical examination. In case of a complaint of abdominal pain, the Questionnaire on pediatric gastrointestinal symptoms – Rome III version (QPGS-RIII) [2] was completed. QPGS-RIII was answered by parents if the child was younger than 10 years of age. In case of children older than 10 years, it was filled up by the child with inputs from parents. A single interviewer assisted the parents/children in comprehending the questions. Any diagnosis of the abdominal pain as per Rome III criteria was recorded. Information about symptoms suggestive of any other functional gastro-intestinal disorder (FGID) was also recorded. Primary outcome measures included presence/absence of abdominal pain as per Apley criteria [3] and any FGID as per Rome III criteria [2]. Secondary outcome measures included pain status (as compared to previous enrolment), frequency of abdominal pain, number of pain-free days, and number of children missing school.

Descriptive analysis was done for primary outcome measure. The frequency of abdominal pain and missed school days in last 4 weeks, and severity of the most recent episode were compared between those who received drotaverine or placebo in earlier trial by Mann-Whitney test. Pain status (absent or better *vs*. same or worse) between these two groups was compared with chi-square test, and proportion of children missing school was compared with Fisher exact test.

Out of the 132 patients enrolled in the original study [1], we were able to contact only 48 children (22 boys). The mean (SD) age was 11.2 (2.53) years and the mean (SD) duration since enrolment in first study was 44.7 (4.3) months. Complaints of abdominal pain were still present in 31 (64.5%) children; however, 26, 1 and 4 children reported the pain to be better, worse or same, respectively in comparison to the previous study. Twenty-five children had abdominal pain that satisfied the Apley criteria [3]. Abdominal pain that satisfied the Rome III FGID criteria [2] was seen in 17 children; relevant categories being functional abdominal pain (*n*=6), functional constipation (*n*=3), functional dyspepsia (*n*=2), and functional abdominal pain syndrome and functional constipation (*n*=2). Functional abdominal pain and functional constipation, irritable bowel syndrome, abdominal migraine, and non-retentive fecal inconti-nence were seen in one child each.

Other gastrointestinal complaints (not satisfying

Rome III diagnostic categories) in these patients were: pain on defecation (10, 20.9%); vomiting/regurgitation (8, 16.6%); diarrhea (7, 14.6%); passing a lot of gases (6, 12.5%); repeated burping (6, 12.5%); abdominal distension (5, 10.4%); constipation (3, 6.3%); and retrosternal pain (2, 4.1%).

The median (IQR) pain score [4] was 5 (2-6). The median (IQR) episodes of abdominal pain in the last 4 weeks were 3 (1-8), with median (IQR) number of pain-free days in the last 4 weeks (at the time of enrolment into present study) was 26 (20, 27). Five children reported ≥1 day(s) of school absence in the last 4 weeks. Higher proportion (P=0.02) of children who received drotaverine in the previous study (25/25) in comparison to placebo (18/23) had pain that was absent or better than before. The median (IQR) number of pain episodes in last 4 weeks was also significantly less in the drotaverine group in comparison to placebo group (0 (0, 2.5) *vs.* 2 (0, 6); P=0.03) whereas the median (IQR) number of pain-free days was comparable in two groups (28 (25, 28) *vs.* 26 (24,28)*;* P=0.054). The number of children missing school due to abdominal pain in last 4 weeks were one and four, respectively in the drotaverine and placebo group (P=0.18).

In an earlier study [5], 60.1% of the children with abdominal pain experienced complete improvement and 39.1% of the patients experienced partial or no improvement over a mean follow-up period of 18.7 months. They also observed that patients in the partial improvement group developed new FGID with long term follow up. Another follow-up study [6] of 392 children with functional abdominal pain over an average of 9.2 years reported that 41% still met criteria for a FGID, which is comparable to proportion observed in our study.

Increased psychosocial stress can lead to excess autonomic discharge from the brain to the gut [7]. Increased stress also contributes to visceral hyperalgesia that contributes to the symptoms of FGID. Symptoms may lead to more stress that can further exacerbate the symptoms. It is possible that breaking this vicious cycle by use of a short course of antispasmodic agent resulted in long-term benefit in our study.

Our study had a major limitation of large follow-up loss due to frequent change of contact details. Another limitation was that the patients when enrolled into the earlier randomized controlled trial [1] were not given a diagnosis as per the Rome III criteria. Hence we could not carry out a direct comparison of their present Rome III diagnosis with their previous one.

This study suggests that though abdominal pain may persist over next 3-4 years in two-thirds of children with functional recurrent abdominal pain, it shows slight improvement in frequency and severity.

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