

Pediatric Pain Letter

Commentaries on pain in infants, children, and adolescents

April 2006

Vol. 8 No. 1

www.pediatric-pain.ca/ppl

Editor: Carl L. von Baeyer, carl.vonbaeyer@usask.ca

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Commentary

Intervention for recurrent abdominal pain

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Medically unexplained recurrent abdominal pain (RAP) is one of the most frequent chronic conditions in childhood and adolescence with a significant comorbidity of anxiety and depression and with a considerable disabling potential in children's everyday life. Empirical support for treatments of RAP is growing very slowly. A review of the literature on intervention for RAP demonstrates a persistent paucity of randomized controlled trials (RCT). Although there is ample descriptive research, both clinicians and researchers seem to hesitate about treating these patients.

Recently pediatric patients with RAP have been followed up in two retrospective studies to identify predictors of outcome. Both studies corroborate the importance of the families' illness concepts. Whether parents consider psychological causes of their child's abdominal pain has been found to be correlated with children's recovery from severe chronic abdominal pain (Crushell et al., 2003). On the other hand, refusal to utilize psychological services, unwillingness to acknowledge psychosocial influences on symptoms and frequent utilization of the health care system were described as risk factors for continued pain and failure to normalize in daily functioning (Lindley et al., 2005). These results demonstrate the need to focus on the patients' and their caregivers' illness concepts in intervention planning. The concept of somatization provides a useful theoretical framework. Lipowski (1988) defines somatization as the tendency to experience and communicate somatic symptoms that are unaccounted for by

pathological findings, to attribute these to physical illness and to seek medical help. For pediatric patients this construct has to be modified to a perspective encompassing the whole family, especially the role of the caregivers in the process of somatization (Campo & Fritz, 2001).

The literature on evidence-based interventions reflects the differences between medical and biopsychosocial models of RAP. Pharmacological and dietary interventions tend to confirm the medical illness concepts of caregivers and patients, but so far there is little evidence for the effectiveness of these interventions. On the other hand, behavioral interventions provide a biopsychosocial illness concept, and several studies have demonstrated their efficacy and effectiveness.

Dietary treatments

The rationale for this type of treatment is based on the assumption that bowel motility in children with RAP is similar to that of adults with irritable bowel syndrome (IBS), and dietary supplementation might positively influence bowel motility and shorten transit time. Only a few randomized controlled studies have been done to evaluate dietary interventions. Treatment for two weeks with peppermint oil may benefit children with IBS (Kline et al., 2001). Seventy-five percent of the children treated with peppermint oil described reduced severity of their abdominal pain compared with their pretreatment pain report. Feldman et al. (1985) reported that almost twice as many children who were given additional fiber showed at least

50% fewer pain attacks compared to the placebo group. However these findings are inconclusive and have not been replicated. Another type of dietary intervention is based on the assumption that children with RAP suffer from lactose malabsorption, but a lactose-free diet is unlikely to improve the symptoms of RAP (Dearlove et al., 1983; Lebenthal et al., 1981).

Pharmacological treatments

RCTs on pharmacological interventions for RAP are also scarce. A subgroup of children with severe peptic symptoms seem to benefit from acid-suppressive treatment with the H₂-receptor famotidine, but the superiority of the treatment compared with placebo was only significant in the global evaluation and not in the quantitative pain assessment (See et al., 2001). The results of a recent 12-week, open-label trial with 25 participants indicating that the selective serotonin reuptake inhibitor citalopram might be effective both in reducing abdominal pain and comorbid anxiety or depression (Campo et al., 2004a) warrants replication in a RCT. In a small RCT with crossover design, which also has not yet been replicated, the serotonin antagonist pizotifen has been found to be effective in treating children with abdominal migraine (Symon & Russell, 1995).

Psychological treatments

Cognitive-behavioral family interventions (CBFI) address dysfunctional perceptions of bodily sensations and maladaptive illness concepts, provide coping strategies for episodes of pain, reduce secondary gain that reinforces pain behaviors and try to reestablish the psychosocial functioning of children and adolescents with RAP. This type of intervention is based on a biopsychosocial model and integrates behavioral interventions with elements of patient and parent education. CBFI implies that patients and parents have to take into account psychological and social aspects of RAP. An exclusive subjective attribution of pain to organic causes, contrasting with the absence of organic disease as determined by physicians, has to be replaced by a more complex illness concept indicating the importance of the patients' and their caregivers' behavior. After more

than 10 years, the encouraging results of Sanders et al. (1989, 1994) have been replicated recently in another RCT of a similar program of CBFI combined with standard medical care (SMC) compared to SMC only (Robins et al., 2005). Immediately after the intervention and up to 1 year following study entry, the participants of the CBFI and their parents reported significantly less abdominal pain than the parents and children receiving SMC only. The intervention program comprised three sessions for children and parents and an additional two sessions with only the children. The major goals were to present a model of RAP to both children and parents, instruct children in the active management of pain episodes, model and practice pain management techniques on the basis of a cognitive-behavioral model, and assist parents in developing more adaptive responses to their child's pain.

Hicks et al. (in press) developed a CBFI for internet and telephone use with the main elements being relaxation techniques and cognitive strategies. They described a significant improvement in pain symptoms in 1- and 3-month follow-ups compared to a SMC waiting list. Most of the participants in this study suffered from combined pediatric headache and RAP, and 71% of the children receiving CBFI described a 50% or greater reduction of their pain symptoms compared with 14-18% of controls.

Multimodal treatment

A component analysis of an 8-week multimodal treatment program integrating dietary fiber, biofeedback, cognitive-behavioral interventions and "parental support" demonstrated the superiority of combined treatment strategies requiring active participation of patients compared to the passive fiber-only treatment (Humphreys & Gevirtz, 2000). Seventy-two percent of the children in the combined group reported elimination of pain 8 weeks after study entry, compared to only 1 (7%) of the 14 fiber-only group members. The best treatment outcome with a pain reduction at 100% was achieved with a combination of fiber and biofeedback.

Terminology

This review is based on a literature search strategy referring to the term recurrent abdominal pain (RAP) and its definition by Apley and Naish (1958) as ≥ 3 episodes of abdominal pain, over a period of ≥ 3 months and severe enough to affect activities. Clinicians have sometimes used this term incorrectly to imply functional, nonorganic or psychogenic abdominal pain. It is now agreed that RAP is a description, not a diagnosis, comprising a variety of functional gastrointestinal disorders causing abdominal pain, and including organic disease (Di Lorenzo et al., 2005b). Some of the reviewed studies (e.g. Lindley et al., 2005) have examined children with functional abdominal pain, which is a more specific definition of nonorganic abdominal pain, as it is recommended for future studies by the American Academy of Pediatrics (AAP) Subcommittee on Chronic Abdominal Pain and the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (Di Lorenzo et al., 2005a).

Conclusions

Summarizing the results of this review, there is growing evidence from the literature of the global efficacy of non-pharmacological interventions such as CBT for RAP in different treatment settings. In contrast, there is little evidence for the effectiveness of pharmacological or dietary treatments (for details see also the technical and clinical reports of the AAP Subcommittee on Chronic Abdominal Pain [Di Lorenzo et al., 2005a,b] and the Cochrane reviews of Eccleston et al., 2002 and Huertas-Ceballos et al., 2002a,b). Therefore the evidence-based clinical report of the AAP Subcommittee on Chronic Abdominal Pain concludes that the child with functional abdominal pain is best evaluated and treated in the context of a biopsychosocial model of care, and that education of the family is an important part of treatment.

So far the empirical data base from RCTs is too small to determine which treatment components are effective for which patients in which outcomes. It is not clear which treatment elements of CBT programs are necessary and effective for all patients and whether differential, custom-tailored intervention strategies might be indicated for specific subgroups of patients. The efficacy of biofeedback and

other relaxation methods in the treatment of RAP is not yet clear. Modification of psychological treatments for different developmental stages, and for patients with or without comorbid psychiatric disorders, as well as the combination of psychological and pharmacological interventions may provide further benefit for patients and their families. The high rate of comorbid internalizing disorders (Campo et al., 2004b) raises the question of whether RAP might be a specific manifestation of psychiatric disorders in childhood and adolescence, at least in a large subgroup of patients. In the case of combined RAP and a psychiatric disorder it would be necessary to provide more comprehensive interventions which take into account comorbid anxiety or depression, compared with mono-symptomatic RAP. In future, the definition of subgroups of RAP patients might help to develop indications for different treatment strategies. The utility of the ROME II criteria (Rasquin-Weber et al., 1999), which provide a symptom-based classification of functional disorders associated with abdominal pain, for this purpose should be systematically investigated. Further large-scale and multi-site RCTs with standardized instruments for measuring outcome in terms of symptoms and quality of life are necessary. More carefully conducted RCTs are needed to compare two or more of the successful treatments or different combinations of behavioral, dietary or pharmacological treatments.

Once established as empirically validated treatments, structured intervention procedures such as CBT have to be implemented in clinical practice. For this purpose, effectiveness studies of interventions in different settings are urgently needed. Traditional referrals to mental health specialists sometimes fail because of low acceptance and conflicting illness concepts of the patient and the caregivers. To avoid "consumerism" in health care with recurring disappointing results for the patient, primary care professionals, family physicians and pediatricians should be trained in establishing an alliance with patients and parents on the basis of a common biopsychosocial understanding of RAP. Providing low-threshold access to specific interventions would be a promising strategy for case management. Structured patient education, internet- and telephone-based intervention programs or mental health

liaison services for pediatric RAP patients may facilitate the utilization of psychological treatments for RAP in community settings.

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