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Psychological interventions for pediatric chronic pain – The good news and the challenges ahead

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In a 2002 systematic review of pediatric clinical trials Eccleston et al. [1] found that psychological therapies had a significant effect on pain reduction. Although that review sought to include all pain conditions, the available studies at the time focused almost exclusively on treatment of pediatric headache. In recent years, randomized clinical trials (RCTs) have been published on other pediatric pain conditions, including abdominal pain and fibromyalgia. In addition, effects of psychological therapies on clinical outcomes beyond pain reduction, such as functional disability and emotional distress were examined. In this issue of *Pain*, Palermo et al. [4] present a timely meta-analytic review paper that reflects on these new developments.

There is positive news on several fronts. First, the results of the meta-analysis confirm that psychologically based therapies are quite effective in producing clinically significant reduction in pain (defined as greater than 50%) in children with chronic pain. A strong and sustained treatment effect of psychological therapies (including cognitive-behavioral therapy, relaxation and biofeedback) was found for pain reduction across illness groups. Second, the average duration of treatment was relatively short (6.4 h), showing that the treatment can be successfully implemented in a relatively cost-effective manner. Moreover, alternative formats of treatment delivery, such as internet-assisted therapy, appeared to be just as effective as traditional face-to-face sessions. Finally, the methodological quality of RCTs in pediatric chronic pain has improved over the years, increasing confidence in the results of the trials.

In contrast to the strong effects on pain reduction, the meta-analysis indicated that evidence for effects of psychological therapies on other outcome domains, such as functional disability and emotional distress, is still quite limited. Nevertheless, because of the multiple measures used to assess these outcome domains and methodological weaknesses such as small sample sizes it is probably too early to conclude that psychological therapies are not effective in reducing disability and distress. Standardization of measures used in future pediatric pain RCTs, as recommended in the recently published PedIMPACT consensus statement [3], and the steadily improving design quality of pediatric trials, will undoubtedly improve our ability to test the effects of psychological therapies for reducing functional disability and emotional distress.

Although results of the meta-analytic review are very encouraging, there is clearly more work to be done. As the authors point out, while the quality of pediatric RCTs has improved

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over the years, the overall ratings of design and treatment quality are about average on a rating measure developed for psychological trials in pain [5]. First, sample size in the pediatric trials is a major concern with an average of $N = 21$ per treatment arm in the 25 studies included in the meta-analysis. The lack of placebo (attention) control groups in pediatric RCTs is a second limitation, with most studies using usual medical care or wait-list control as comparison groups. These limitations might be viewed in the context of the unique challenges of pediatric chronic pain RCTs. Most pediatric researchers struggle with sample size issues due to relatively small numbers of children and adolescents with a particular pain condition at a single study site. There is a recognized need for multi-site studies to conduct fully-powered pediatric RCTs. But this requires substantial funding and resources for adequate personnel, staff training and site coordination. Second, ethical issues surrounding assignment to “placebo treatment” for vulnerable populations, such as children, are often debated in pediatric settings. In adult trials for psychological therapies, “attention-control” is the gold standard used to control for non-specific therapist attention effects. In pediatrics, health care providers may overtly or inadvertently resist referring their young patients to a trial if there is a chance that they may be randomized to a “placebo” condition. However, when reassured that “attention-control” is not expected to be inactive in the same way as a placebo in a pharmaceutical trial (because of the psychological support and/or psycho-education provided), most providers view a randomized trial as being of potential benefit to their patients. The dual challenges mentioned above – of obtaining adequate resources for multi-site studies and executing rigorous trial designs must be overcome if pediatric RCTs are to deliver results of the highest scientific quality.

Other issues are less challenging to implement, but require greater attention in psychological RCTs for pediatric pain. These include blinding of investigators and assessment staff to prevent inadvertent bias, monitoring therapist adherence to the treatment protocol (treatment integrity), and patient adherence to behavioral skills training (treatment uptake). A final issue relevant to all RCTs, particularly those delivered to vulnerable populations such as children, is reporting of adverse events, whether or not they are thought to be related to the intervention. Because there is a belief that adverse events do not occur in psychological trials, they are seldom monitored. However, there is increasing recognition that psychological treatments have the potential for negative outcomes for some patients [2]. Thus, adverse reactions should be routinely monitored and reported.

Development of standardized, empirically supported protocols for psychological therapies for pediatric chronic pain through well designed RCTs can form a strong basis for the next stage of care delivery, i.e., wider dissemination. Due to limited availability of providers with specialized training, access to effective treatments is often problematic for patients. A potential solution is to incorporate newer technologies such as internet-assisted therapies, including social networking-type approaches to implement psychologically based therapies. These may be even better suited for younger populations who are well accustomed to electronic forms of communication. Pediatric pain researchers may be in the unique position of being able to test technologically advanced interventions with patients (mostly adolescents) who have a high level of comfort with on-line communication. Importantly, many pediatric hospitals are developing the relevant guidelines for human subjects’ protection and privacy issues that should make it possible to subject these newer forms of treatment delivery to the same level of scrutiny as traditional RCTs. The end result of this effort should accelerate the pace of research in effective interventions for pediatric chronic pain.

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