Reframing memory reduced some measures of children's anticipatory distress and pain during lumbar puncture

Chen E, Zeltzer LK, Craske MG, et al. *Alteration of memory in the reduction of children's distress during repeated aversive medical procedures.* *J Consult Clin Psychol* 1999 Aug;67:481-90.

QUESTION: Does a memory based intervention reduce distress in children receiving lumbar puncture?

Design

Randomised (allocation concealed*), unblinded*, controlled trial of 3 consecutive lumbar punctures.

Setting

The outpatient Childrens Center for Cancer and Blood Diseases at Childrens Hospital Los Angeles, Los Angeles, California, USA.

Patients

55 English or Spanish speaking children between 3 and 18 years of age (mean age 7 y, 67% boys) with acute lymphoblastic leukaemia having lumbar punctures (1 at baseline, 1 at post-intervention, and 1 at 1 wk follow up). 50 children were included in the analyses.

Intervention

25 children were allocated to a reframing memory intervention. The 15 minute intervention occurred twice—immediately after the first lumbar puncture and before the second. Children's memories of the most recent lumbar puncture were elicited through a memory interview; the therapist encouraged children to re-evaluate their memories by reminding them about successful coping behaviours and to increase the accuracy of recall. The children received a card with the guided memories. 25 children were allocated to the attention control group. These children spent 2 fifteen minute periods with the therapist but did not discuss the lumbar puncture.

Main outcome measures

Multiple measures of distress were studied: child, parent, and physician reports; physiological; and observable distress measures before and after each lumbar puncture.

Main results

In the parental report domain, parents of children (n = 22) in the intervention group thought their children expected less pain over time from lumbar puncture than did parents of children in the attention control group (n = 25) (effect size 0.44, one tailed $p < 0.05$). No other self report measure showed statistically significant differences. For physiological measures, children in the intervention group (n = 22) showed greater decreases in anticipatory heart rate over time than did children in the attention control group (n = 23) (effect size 0.84, one tailed $p < 0.01$). No other physiological measure showed statistically significant differences (or if they did, follow up was $< 80\%$). For behavioural observations, no statistically significant differences existed between groups. Follow up at 1 week was $< 80\%$. In the behavioural observation realm, however, children in the intervention group (n = 21) showed greater decreases in observable distress over time than did children in the control group (n = 22) (effect size 0.30, one tailed $p < 0.05$).

Conclusion

A psychological intervention aimed at reframing children's memories of their previous experiences with lumbar punctures reduced some measures of children's anticipatory distress and reduced parent ratings of the child's anticipatory pain.

*See glossary.

COMMENTARY

Despite unprecedented scientific interest in addressing the pain problems of children, major challenges remain. A gap often exists between what we know about controlling children's pain and how we practise clinically. In particular, we now know that children's pain is not simply proportional to the level of tissue damage. We must also target our interventions to the situational factors that can intensify a child's pain. What children understand, what they (and others) do, and how they feel emotionally are powerful factors that must be assessed and modified to provide optimal pain relief for a child.

In the cost cutting environment of many healthcare settings, psychological treatments that uniquely target these situational factors are often seen as costly or superfluous. Thus, the study by Chen *et al* which evaluates a cost effective intervention for children receiving invasive and aversive medical procedures provides an important contribution to our efforts to improve pain control for children.

Children randomised to receive this intervention were assisted by a trained therapist, who incorporated aspects of desensitisation (to alter the aversive significance of the lumbar puncture), information (to provide accurate expectations), and cognitive coping strategies (to encourage children to use pain reducing strategies). The complexity of multiple distress outcome measures evaluated at 2 time periods may have compromised our ability to assess clearly the positive effects of the intervention. The study yielded contradictory results depending on the time period and the specific self report, physiological, or behavioural measure studied. Whether this is because of the attenuation of intervention effects or loss to follow up is unclear. Yet, the study provides confirming evidence of the importance of targeting interventions to the primary (lumbar puncture) and secondary (situational) factors that affect a child's pain.

The practice recommendations that follow are: (1) we should identify and then modify all sources of procedural pain; (2) we should identify these from the child's perspective because an adult observer might not know which aspects of a medical procedure are the aversive triggers for a child's distress; and (3) we can incorporate non-drug pain treatments into clinical practice in a cost effective manner.

Patricia A McGrath, PhD
University of Western Ontario
London, Ontario, Canada

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For correspondence:
Dr E Chen, Department
of Psychiatry,
University of
Pittsburgh, School of
Medicine, 3811
O'Hara Street,
Pittsburgh, PA 15213,
USA. Fax +1 412 624
0967.