Psychological interventions for needle-related procedural pain and distress in children and adolescents

Abstract:

BACKGROUND: This review is an updated version of the original Cochrane review published in Issue 4, 2006. Needle-related procedures are a common source of pain and distress for children. Our previous review on this topic indicated that a number of psychological interventions were efficacious in managing pediatric needle pain, including distraction, hypnosis, and combined cognitive behavioural interventions. Considerable additional research in the area has been published since that time.

OBJECTIVES: To provide an update to our 2006 review assessing the efficacy of psychological interventions for needle-related procedural pain and distress in children and adolescents.

SEARCH METHODS: Searches of the following databases were conducted for relevant randomized controlled trials (RCTs): Cochrane Central Register of Controlled Trials (CENTRAL); MEDLINE; EMBASE; PsycINFO; the Cumulative Index to Nursing and Allied Health Literature (CINAHL); and Web of Science. Requests for relevant studies were also posted on various electronic list servers. We ran an updated search in March 2012, and again in March 2013.
SELECTION CRITERIA: Participants included children and adolescents aged two to 19 years undergoing needle-related procedures. Only RCTs with at least five participants in each study arm comparing a psychological intervention group with a control or comparison group were eligible for inclusion.

DATA COLLECTION AND ANALYSIS: Two review authors extracted data and assessed trial quality and a third author helped with data extraction and coding for one non-English study. Included studies were coded for quality using the Cochrane Risk of bias tool. Standardized mean differences with 95% confidence intervals were computed for all analyses using Review Manager 5.2 software.

MAIN RESULTS: Thirty-nine trials with 3394 participants were included. The most commonly studied needle procedures were venipuncture, intravenous (IV) line insertion, and immunization. Studies included children aged two to 19 years, with the most evidence available for children under 12 years of age. Consistent with the original review, the most commonly studied psychological interventions for needle procedures were distraction, hypnosis, and cognitive behavioural therapy (CBT). The majority of included studies (19 of 39) examined distraction only. The additional studies from this review update continued to provide strong evidence for the efficacy of distraction and hypnosis. No evidence was available to support the efficacy of preparation and information, combined CBT (at least two or more cognitive or behavioural strategies combined), parent coaching plus distraction, suggestion, or virtual reality for reducing children’s pain and distress. No conclusions could be drawn about interventions of memory alteration, parent positioning plus distraction, blowing out air, or distraction plus suggestion, as evidence was available from single studies only. In addition, the Risk of bias scores indicated several domains with high or unclear bias scores (for example, selection, detection, and performance bias) suggesting that the methodological rigour and reporting of RCTs of psychological interventions continue to have considerable room for improvement.

AUTHORS’ CONCLUSIONS: Overall, there is strong evidence supporting the efficacy of distraction and hypnosis for needle-related pain and distress in children and adolescents, with no evidence currently available for preparation and information or both, combined CBT, parent coaching plus distraction, suggestion, or virtual reality. Additional research is needed to further assess interventions that have only been investigated in one RCT to date (that is,
memory alteration, parent positioning plus distraction, blowing out air, and distraction plus suggestion). There are continuing issues with the quality of trials examining psychological interventions for needle-related pain and distress.