Hypnosis for procedure-related pain and distress in pediatric cancer patients: a systematic review of effectiveness and methodology related to hypnosis interventions

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CRD summary
The authors of this review concluded that hypnosis has the potential to reduce procedure-related pain and distress in paediatric cancer patients, but further research is required. This was a well-conducted review and the authors' cautious conclusions reflect the limited evidence.

Authors' objectives
To assess the effectiveness of hypnosis for procedure-related pain and distress in paediatric patients with cancer.

Searching
MEDLINE, EMBASE, AMED, CISCOM, CINAHL, PsycINFO, the Cochrane Library, the Cochrane Complementary Medicine Fields Trials Registry and other Cochrane Group registries were searched from inception to March 2005 using the reported search terms. The National Research Register (UK) and ClinicalTrials.gov (USA) were among sources searched for unpublished and ongoing studies. In addition, experts in the field were contacted and the reference lists of relevant articles were screened. No language restrictions were applied to the search.

Study selection
Study designs of evaluations included in the review
Systematic reviews and controlled clinical trials were eligible for inclusion.

Specific interventions included in the review
Studies evaluating hypnosis (including self- or therapist-directed hypnosis) used as a specific intervention were eligible for inclusion. The included studies used hypnosis interventions that included relaxation, imagery, autogenic training, analgesic suggestions, fantasy and story telling. In some studies parents were taught hypnotic techniques, while in others, video and audiotapes were used. The comparator interventions included different cognitive-behavioural interventions, non-hypnotic therapist attention interventions and standard care.

Participants included in the review
Studies of paediatric patients with a primary diagnosis of cancer and who were undergoing painful and invasive treatment-related procedures were eligible for inclusion. The participants included boys and girls aged from 3 years 4 months to 17 years, who had leukaemia, non-Hodgkin's lymphoma, or an unspecified type of cancer. The participants were undergoing lumbar puncture (LP), bone marrow aspiration (BMA), venipuncture or Infusapost access procedures.

Outcomes assessed in the review
Studies that assessed patient- and/or observer-reported clinical measures of physical pain and anxiety or distress were eligible for inclusion. The included studies assessed pain and distress using measures that included the Procedure Behavior Checklist, Procedure Behavior Rating Scale-Revised, Stanford Hypnotic Clinical Scale for Children, Observational Scale of Behavioral Distress-Revised, Children's Global Rating Scale and the State Trait Anxiety Inventory.

How were decisions on the relevance of primary studies made?
Two reviewers independently categorised the identified studies by study design and compared the results. In cases of disagreement, articles were retrieved. No other details of the selection process were reported.

Assessment of study quality
The studies were assessed on the basis of selection of the participants, randomisation and blinding, use of intention-to-treat analysis, losses to follow-up and compliance with treatment. Two reviewers independently assessed validity and resolved any disagreements through discussion or through recourse to a third author, with the help of a statistician being sought where required.

**Data extraction**
Two reviewers independently extracted the data and resolved any disagreements through discussion or through recourse to a third author, with the help of a statistician being sought where required. For each study, the statistical significance of treatment comparisons was extracted.

**Methods of synthesis**
How were the studies combined?
The RCTs and non-randomised controlled clinical trial were combined in a narrative. Each study was described in the text, with additional descriptive information tabulated. The authors stated that one systematic review was eligible but made no further mention of this study.

How were differences between studies investigated?
Differences between the studies were discussed with respect to outcome measures, hypnotisability of the participants, age and gender of the participants, and type of hypnosis (self- or therapist-induced).

**Results of the review**
Eight studies (n=313) were included: 7 randomised controlled trials (RCTs; n=293) and 1 non-randomised controlled clinical trial (n=20).

Methodological flaws of the studies included small sample sizes and lack of descriptions of the randomisation method, allocation concealment, blinding of the outcome assessors, recruitment methods, losses to follow-up and compliance. There were also insufficient details of the interventions.

One RCT reported that hypnosis (both direct and indirect) reduced pain and anxiety compared with therapist attention and standard care in children undergoing LP, but reported no difference between direct and indirect hypnosis. One RCT reported that direct and indirect hypnosis both statistically significantly reduced self- and observer-related pain compared with baseline, but reported no statistically significant difference between the hypnotic techniques in children undergoing LPs.

There were no consistent differences between hypnosis and non-directed play (1 study) and cognitive distraction or coping skills (5 studies), but 2 studies reported that hypnosis and distraction both reduced symptoms in comparison with controls. One study found that outcomes varied according to the age of the child: hypnosis significantly reduced pain and anxiety compared with behavioural distraction and standard care after the first intervention in younger children (aged 3 to 6) undergoing BMA, and both hypnosis and distraction significantly decreased observer-rated pain and anxiety compared with controls in older children (aged 7 to 10). One study reported that hypnotisability significantly influenced treatment effect.

None of the studies reported adverse effects due to hypnosis.

**Authors' conclusions**
Hypnosis has the potential to reduce procedure-related pain and distress in paediatric patients with cancer, but further research is required.

**CRD commentary**
The review addressed a clear question that was defined in terms of the participants, intervention, outcomes and study.
design. Several relevant sources were searched and attempts were made to identify unpublished studies, thus reducing the possibility of publication bias. Although no language restrictions were applied to the search, it was not explicitly stated whether any such restrictions were applied to the included studies. Methods were used to minimise reviewer errors and bias in the study selection, validity assessment and data extraction processes. Validity was assessed using specified criteria and the results of this assessment were reported.

Given the differences between the studies, a narrative synthesis was appropriate. Although the statistical significance of the results was reported, no values were given for the outcomes; this means that some comments about the relative effects of interventions cannot be verified. The synthesis of the evidence took study quality into account and various other potential sources of differences between the studies were also discussed. Overall, this was a well-conducted review and the authors’ cautious conclusions reflect the limited evidence.

**Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.

Research: The authors stated that further research is required to evaluate the efficacy, feasibility and safety of hypnosis for the management of procedure-related pain and distress in paediatric patients with cancer, and to examine the influence of age, stage of development and gender on the outcomes. They also stated that research is required to assess the potential use of hypnosis as an adjunct to pharmacological treatments, as preparation for general anaesthesia, and to manage anticipatory anxiety.

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**Record Status**
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.