A systematic review of nonpharmacologic adjunctive therapies for symptom management in children with cancer

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CRD summary
The review concluded that there were various nonpharmacologic adjunctive therapy solutions for the management of symptoms in children with cancer when standard pharmacologic and medical care were unsuccessful. Incomplete reporting of review methods and the potential for missed studies mean that the author's conclusions should be treated with some caution.

Authors' objectives
To evaluate the use of nonpharmacologic adjunctive therapies (NAT) for symptom management in children with cancer.

Searching
The Cochrane Library, PubMed, CINAHL and PsycINFO were searched from inception to 2006 for studies published in English. Search terms were reported.

Study selection
Studies evaluating nonpharmacologic adjunctive therapies for symptoms associated with cancer treatment in children were eligible for inclusion. Studies of biological therapies such as vitamins and herbal products were excluded.

The included studies assessed a range of nonpharmacologic adjunctive therapies, most commonly cognitive behavioural therapies (CBT), relaxation and hypnosis. The included studies assessed a range of cancer treatment procedures including lumbar punctures, bone marrow aspirations, needle sticks, chemotherapy and radiologic procedures. Symptoms included in the studies were procedural pain, fear, distress and anxiety; nausea and vomiting; anxiety; distress; and depression.

The author stated neither how papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
The author did not state that validity was assessed, but certain aspects of study quality were discussed.

Data extraction
The author stated neither how data were extracted for the review nor how many reviewers performed the data extraction.

Methods of synthesis
The studies were combined in a narrative synthesis. Each study was described in the text. Additional descriptive information was presented in tables.

Results of the review
Forty one studies (n=1,153) were included in the review (17 RCTs, 13 non-RCTs, seven case studies and four qualitative studies.)

Anxiety and depression were reduced after music therapy (three studies). Nausea and vomiting were reduced after distraction therapy using video games (one study), hypnosis (two studies), and self-hypnosis (four studies), relaxation and distraction therapy (one study). Acupuncture reduced the number of antiemetics administered, but not nausea scores (one study). Distress was reduced after distraction and hypnosis therapy (one study), but there was no significant reduction in distress using relaxation, distraction or hypnosis therapy (one study).
Procedural anxiety was reduced using breathing and distraction treatment (one study), CBT (two studies), distraction as age-appropriate techniques (three studies), video game interventions (three studies), age-appropriate humour (one study) and hypnosis (nine studies).

Procedural distress was reduced using art therapy (one study), distraction therapy (three studies) and general relaxation techniques (one study). Mixed results were reported for multimodal therapy using breathing, distraction, imagery and play (one study), CBT (six studies) and nonessential touch (one study). Music-assisted relaxation was not found to reduce procedural distress, fear or pain (one study).

No intervention reduced procedural fear (five studies).

Procedural pain was reduced using hypnosis (six out of seven studies), distraction and relaxation therapy (one study), CBT (one study), virtual reality distraction therapy (two studies), imagery combined with relaxation therapy (one study). One study of CBT and one of music-assisted relaxation showed no reduction in pain. Imagery treatment showed mixed effects (two studies).

**Authors’ conclusions**
Various potential solutions for the management of symptoms in children with cancer were available when standard pharmacologic and medical care were unsuccessful.

**CRD commentary**
The review addressed a broad research question in terms of participants, interventions and outcomes. Inclusion criteria were not defined for study design. Several relevant sources were searched, but no attempts were made to minimise either publication or language bias. Methods used to select studies, assess validity and extract data were not described, so it was not known whether efforts were made to reduce reviewer errors and bias. Although the authors did not state how validity was assessed, some limitations of study quality were discussed in the text. In view of the differences between studies, a narrative synthesis was appropriate. Sample sizes in the included studies were small and no details of participants were reported. Both qualitative and quantitative data were included. Incomplete reporting of review methods and the potential for missed studies mean that the author’s conclusions should be treated with some caution.

**Implications of the review for practice and research**
Practice: The author stated that practitioners should rigorously review research with their institutions before using any nonpharmacologic adjunctive therapies.

Research: The author stated that further research of nonpharmacologic adjunctive therapy modalities was required to demonstrate efficacy, safety and generalisability. Further studies should be methodologically robust, use complete informed consent and researchers should collaborate with clinicians in order to ensure studies are clinically relevant.

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