Educating patients about anesthesia: a systematic review of randomized controlled trials of media-based interventions

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CRD summary
This review evaluated media-based patient education about anaesthesia prior to surgery. The authors concluded that videos and printed information on the process and risks of anaesthesia increased knowledge and reduced anxiety, but had no effect on patient satisfaction. This was a well-conducted review but, owing to insufficient information about the patients studied, it is difficult to determine in whom the intervention is effective.

Authors' objectives
To determine whether media-based patient education about anaesthesia could decrease patient anxiety and increase knowledge and satisfaction.

Searching
MEDLINE (from 1966 to May 2002), EMBASE (from 1988 to May 2002), PsycINFO (from 1984 to May 2002), CINAHL (from 1982 to May 2002) and the Cochrane CENTRAL Register were searched for studies in any language; the search terms were reported. The bibliographies of retrieved studies, review articles and observational studies were checked. In addition, the authors of RCTs were contacted for further published and unpublished studies.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion. The comparators in each of the included studies could be either a control group (receiving no intervention or a non-medical intervention) or a different type of media-based intervention.

Specific interventions included in the review
Studies of media-based interventions (pamphlets, video, booklets, audiotapes, or the Internet) that relayed information pertaining to general or regional anaesthesia and/or pain management were eligible for inclusion. Studies that compared the level of risk disclosure were excluded from the review. The interventions were delivered at a pre-admission clinic, a day prior to surgery, or on the day of surgery.

Participants included in the review
The inclusion criteria for the participants were not explicit. In the included studies, patients or the parents of patients undergoing anaesthesia received the media-based intervention.

Outcomes assessed in the review
Studies that evaluated anxiety, level of patient knowledge, and patient satisfaction were eligible for inclusion. Anxiety was assessed using a validated instrument, e.g. Spielberger's State and Trait Anxiety Inventory, a visual analogue scale (VAS), Amsterdam Preoperative Anxiety and Information Scale, Yale Preoperative Anxiety Scale, and the Children's Global Mood Score. Patient knowledge was assessed using the Standard Anaesthesia Learning Test or multi-item knowledge questionnaires, whereas patient satisfaction was as defined by the trialist.

How were decisions on the relevance of primary studies made?
Two reviewers independently assessed the quality of each included study.

Assessment of study quality
Validity was assessed by assigning a grade for the adequacy of allocation concealment to each included study, according
to published criteria (see Other Publications of Related Interest), and recording the blinding and number of withdrawals. Two reviewers independently assessed the quality of each included study.

Data extraction
Two reviewers independently extracted the data using a standardised form. Any discrepancies were resolved by discussion, or by consultation with a third reviewer. If insufficient data were given in the paper, additional information was sought from the trial investigator. Data on anxiety, knowledge and patient satisfaction were extracted as reported in each of the included studies, and were used to derive a weighted mean difference (WMD) or relative risk (RR) where appropriate. In studies that evaluated anxiety, before-and-after scores were used with a correlation of 0.8 to calculate a mean difference. Further details were provided.

Methods of synthesis
How were the studies combined?
Studies that were sufficiently homogeneous were combined by meta-analysis, using the random-effects method of DerSimonian and Laird. A pooled RR and 95% confidence intervals (CIs) were calculated for studies that used dichotomous outcomes, and a pooled WMD and 95% CI for studies that used continuous outcomes. Where heterogeneity precluded a meta-analysis, the results were presented in a narrative discussion. The authors stated that a funnel plot analysis was not performed as too few studies were included in the review.

How were differences between studies investigated?
Heterogeneity was assessed statistically using the Q-statistic with a significance threshold of P less than 0.10. If statistical heterogeneity was found, the potential reasons for it were explored in a narrative discussion. The authors stated that a sensitivity analysis according to study quality was considered, but was not performed because of the small number of studies included in the review.

Results of the review
Fifteen RCTs (n=1,506) were included in the review.

Concealment of allocation was adequate in four RCTs and inadequate in a further two. Two RCTs were double-blind and four were single-blind.

Anxiety (8 RCTs, n=701).
Levels of anxiety measured using the Spielberger's State and Trait Anxiety Inventory were significantly less intense prior to anaesthesia in patients who received video and/or printed information, compared with no intervention (3 RCTs, WMD 3, 95% CI: 1, 5). Restricting the analysis to parents of children undergoing surgery did not change the results. Two further studies found no reduction in state anxiety levels in patients receiving a pamphlet and video (WMD 1, 95% CI: -0.53, 2.53), or in state and trait anxiety scores in patients receiving video alone, compared with the control group. No significant difference was found in the levels of anxiety in children receiving a video or printed information prior to anaesthesia, as measured by the Global Mood Score or the Yale Preoperative Anxiety Scale (2 RCTs; results not given). However, the anxiety levels of parents who received the intervention were lower than the control group, as measured by a VAS (4.5 +/- 3.7 versus 5.8 +/-5.0) and the Amsterdam Preoperative Anxiety Scale (P<0.0001) in the respective studies. A further study found that patients receiving a pamphlet were less anxious about pain management than a control group (P<0.01), as measured by a VAS.

Knowledge (9 RCTs, n=956).
Patients receiving a video were significantly more likely to answer all knowledge questions correctly in comparison with the control group (2 RCTs; RR 6.64, 95% CI: 2.05, 21.52). A subgroup analysis found that the video was more effective in educating patients about the risk of anaesthesia compared with the process, and was more effective in the identification of misconceptions in patients who had previously undergone anaesthesia. One study found that patients receiving a video had higher scores for knowledge of anaesthesia procedures and risk than the control group (P=0.02).
Levels of knowledge about pain management were significantly higher in patients receiving a video compared with no intervention (2 RCTs; WMD 17%, 95% CI: 9, 25). Patients receiving a pamphlet had a significantly better understanding of pain management and patient-controlled analgesic devices than those in the control group (1 RCT; RR 2.80, 95% CI: 1.11, 7.09). A further study found that a booklet improved patients understanding of premedication compared with the control group. One study found no differences in the patients' knowledge between those receiving a video and those receiving no intervention, based on the number of correct answers.

Patient satisfaction (5 RCTs, n=561).

More patients thought that viewing a video aided preparation for surgery than patients in the control group (92% versus 74%; P=0.01) in one study, while another study found viewing a video to be helpful compared with the control (85% versus 42%; P<0.01). Statistical heterogeneity precluded pooling of these studies (Q=11.43; P<0.01).

No difference was found in the expected and actual experiences in the operating room following receipt of a media-based intervention compared with no intervention (3 RCTs; RR 1.06, 95% CI: 0.93, 1.22). One study found no difference in the level of patient satisfaction and knowledge between patients receiving a booklet and patients in the control group.

Authors' conclusions
The authors stated that videos and printed information on the process and risks of anaesthesia in educating patients prior to surgery are effective in increasing knowledge, and are associated with a small reduction in anxiety levels. However, there was no effect on patient satisfaction.

CRD commentary
The review addressed a clear question and the inclusion criteria were explicit for the interventions and outcomes. However, the inclusion criteria for the participants were less clear, which makes it difficult to identify the specific patient population in whom the intervention would be effective. Several sources were searched to identify relevant studies and attempts were undertaken to reduce language and publication bias. The authors used procedures to minimise bias in the study selection, data extraction and validity assessment processes.

The authors did not give an adequate report of the patients' characteristics or the results of each included study. This prevents the reader from assessing whether pooling the studies was appropriate, and in what patients the intervention was effective. However, the authors stated that studies with statistical heterogeneity would not be pooled, but the results were only presented for one comparison. The authors' conclusions are appropriate for the evidence presented, although the review would have benefited from further details of the patients' characteristics.

Implications of the review for practice and research
Practice: The authors stated that videos and printed information educating patients on the process and risks of anaesthesia should be given prior to surgery.

Research: The authors stated that further studies are required to determine which medium of patient education is most effective, and if it impacts on patient compliance and peri-operative instructions.

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