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[Intervention Review]

Psychological interventions for acute pain after open heart surgery

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ABSTRACT

Background

This is an update of a Cochrane review previously published in 2014. Acute postoperative pain is one of the most disturbing complaints in open heart surgery, and is associated with a risk of negative consequences. Several trials investigated the effects of psychological interventions to reduce acute postoperative pain and improve the course of physical and psychological recovery of participants undergoing open heart surgery.

Objectives

To compare the efficacy of psychological interventions as an adjunct to standard care versus standard care alone or standard care plus attention control in adults undergoing open heart surgery for pain, pain medication, psychological distress, mobility, and time to extubation.

Search methods

For this update, we searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase, Web of Science, and PsycINFO for eligible studies up to February 2017. We used the 'related articles' and 'cited by' options of eligible studies to identify additional relevant studies. We checked lists of references of relevant articles and previous reviews. We searched the ProQuest Dissertations and Theses Full Text Database, ClinicalTrials and the WHO International Clinical Trials Registry Platform to identify any unpublished material or ongoing trials. We also contacted the authors of primary studies to identify any unpublished material. In addition, we wrote to all leading heart centres in Germany, Switzerland, and Austria to check whether they were aware of any ongoing trials.

Selection criteria

Randomised controlled trials comparing psychological interventions as an adjunct to standard care versus standard care alone or standard care plus attention in adults undergoing open heart surgery.

Data collection and analysis

Two review authors (SZ and SK) independently assessed trials for eligibility, estimated the risk of bias and extracted all data. We calculated effect sizes for each comparison (Hedges' *g*) and meta-analysed data using a random-effects model. We assessed the evidence using GRADE and created 'Summary of findings' tables.

Main results

We added six studies to this update. Overall, we included 23 studies (2669 participants).

For the majority of outcomes (two-thirds), we could not perform a meta-analysis since outcomes were not measured, or data were provided by one trial only.

No study reported data on the number of participants with pain intensity reduction of at least 50% from baseline. Only one study reported data on the number of participants below 30/100 mm on the Visual Analogue Scale (VAS) in pain intensity (very low-quality evidence). Psychological interventions did not reduce pain intensity in the short-term interval (g 0.39, 95% CI -0.18 to 0.96, 2 studies, 104 participants, low-quality evidence), medium-term interval (g -0.02, 95% CI -0.24 to 0.20, 4 studies, 413 participants, moderate-quality evidence) or in the long-term interval (g 0.05, 95% CI -0.20 to 0.30, 2 studies, 200 participants, moderate-quality evidence).

No study reported data on median time to re-medication or on number of participants re-medicated. Only two studies provided data on postoperative analgesic use in the short-term interval, showing that psychological interventions did not reduce the use of analgesic medication (g 1.18, 95% CI -2.03 to 4.39, 2 studies, 104 participants, low-quality evidence). Studies revealed that psychological interventions reduced mental distress in the medium-term (g 0.37, 95% CI 0.13 to 0.60, 13 studies, 1388 participants, moderate-quality evidence) and likewise in the long-term interval (g 0.32, 95% CI 0.10 to 0.53, 14 studies, 1586 participants, moderate-quality evidence). Psychological interventions did not improve mobility in the medium-term interval (g 0.23, 95% CI -0.22 to 0.67, 3 studies, 444 participants, low-quality evidence), nor in the long-term interval (g 0.09, 95% CI -0.10 to 0.28, 4 studies, 458 participants, moderate-quality evidence). Only two studies reported data on time to extubation, indicating that psychological interventions reduced the time to extubation (g 0.56, 95% CI 0.08 to 1.03, 2 studies, 154 participants, low-quality evidence).

Overall, the very low to moderate quality of the body of evidence on the efficacy of psychological interventions for acute pain after open heart surgery cannot be regarded as sufficient to draw robust conclusions.

Most 'Risk of bias' assessments were low or unclear. We judged selection bias (random sequence generation) and attrition bias to be mostly low risk for included studies. However, we judged the risk of selection bias (allocation concealment), performance bias, detection bias and reporting bias to be mostly unclear.

Authors' conclusions

In line with the conclusions of our previous review, there is a lack of evidence to support or refute psychological interventions in order to reduce postoperative pain in participants undergoing open heart surgery. We found moderate-quality evidence that psychological interventions reduced mental distress in participants undergoing open heart surgery. Given the small numbers of studies, it is not possible to draw robust conclusions on the efficacy of psychological interventions on outcomes such as analgesic use, mobility, and time to extubation respectively on adverse events or harms of psychological interventions.

PLAIN LANGUAGE SUMMARY

Psychological treatments to reduce pain in people undergoing open heart surgery

Background

Acute postoperative pain is one of the most disturbing complaints after open heart surgery. It is related to impaired wound healing, chronic pain, or depression. Psychological treatment is designed to improve participant' knowledge and to alter surgery-related mental distress, negative beliefs and noncompliance. It aims to reduce pain and anxiety, and to improve the postoperative recovery after open heart surgery.

This is an update of a review previously published in 2014 investigating whether psychological treatment could successfully reduce acute postoperative pain and improve the course of physical and psychological recovery of people undergoing open heart surgery.

Study characteristics

We found 23 studies, including a total of 2669 participants, which reported effects of psychological treatment compared to a control group without psychological treatment on pain intensity, use of pain medication, mental distress, mobility, or time to extubation after surgery.

Key findings and quality of evidence

We rated the quality of the evidence from studies using four levels: very low, low, moderate, or high. Very low-quality evidence means that we are very uncertain about the results. High-quality evidence means that we are very confident in the results.

We do not know if psychological treatment reduces pain intensity, enhances mobility, or decreases intubation time after open heart surgery. This is because there were not enough data to answer some parts of our review question, because there were problems with the design of some studies, or because results were conflicting. We only found very low to moderate-quality evidence for these outcomes.

We found moderate-quality evidence that psychological treatment could reduce mental distress. This means that we are moderately certain about the results because there were psychological treatments that clearly reduced distress whereas others did not.

The evidence in our review is current to February 2017.