PERIOPERATIVE PSYCHOTHERAPY FOR PERSISTENT POST-SURGICAL PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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INTRODUCTION / AIM

Acute pain is an inevitable experience following surgery, however, up to 80% of surgical patients will develop persistent pain. Sub-acute post-surgical pain is defined as pain at 2-3 weeks after surgery, and persistent post-surgical pain lasts ≥2 months after a surgical procedure and excludes other causes of pain. Persistent post-surgical pain is associated with reduced quality of life, physical and psychological function, and increased health care costs. There is evidence to suggest that depression, anxiety, stress, and catastrophizing are associated with persistent post-surgical pain, and psychological intervention has been proposed as a potential strategy to prevent or reduce post-surgical pain. In the only systematic review on this topic, published in 1993, Johnston and Vögele found that a variety of psychological approaches before surgery generally reduced acute post-surgical pain, negative affect, pain medication requirements, and length of hospital stay, and accelerated clinical recovery. However, this review only captured short-term outcomes (≤14 days after surgery), and did not assess risk of bias or the quality of evidence. We therefore conducted a systematic review and meta-analysis of randomized controlled trials (RCTs) to assess the effects of psychological intervention in patients undergoing surgery to prevent or reduce persistent post-operative pain.

METHODS

Eligible studies met the following criteria: (1) random allocation of adult patients to any perioperative psychological intervention, before surgery or within three weeks after surgery, and a control arm consisting of care as usual or an attention control; (2) inclusion of surgical patients; and (3) reported data on sub-acute or persistent post-surgical pain. We conducted a computerized search of MEDLINE, PsycINFO, CINAHL, and the Cochrane Central Registry of Controlled Trials (CENTRAL) to identify relevant RCTs, in any language, from inception of each database to November 2015. We searched Google Scholar, and ProQuest Dissertations and Theses Full Text Database to identify relevant conference abstracts and dissertations. We also searched the Cochrane Database of Systematic Reviews, and reviewers scanned the reference lists of all eligible RCTs and relevant systematic reviews to identify additional studies.

RESULTS

We identified 10,126 potentially eligible studies and retrieved 236 articles in full-text; 10 English-language trials were eligible and included in our review. Almost all trials (9 of 10) failed to conceal allocation of participants. Six of ten trials had high risk of bias in terms of random sequence generation and blinding of outcome assessors. We detected no evidence of publication.
bias. The pooled results from 10 trials showed that psychological intervention was beneficial in reducing persistent post-surgical pain (weighted mean difference [WMD] -1.72cm on a 10cm VAS, 95% CI, -2.49cm to -0.95cm; $I^2 = 86$%; heterogeneity $p<0.01$). Differences in effect between trials was partially explained by the type of psychological intervention provided (interaction $p<0.01$). Specifically, we found moderate quality evidence that patients provided with education reported no significant reduction in post-operative pain (WMD -0.40cm, 95% CI, -1.03cm to 0.23cm, $I^2 = 0$%), and moderate quality evidence that patients provided with relaxation therapy experienced a moderate reduction in pain (WMD -2.66cm, 95% CI, -3.56cm to -1.76cm, $I^2 = 88$%). In terms of the proportion of surgical patients experiencing patient-important post-surgical pain (>3cm on a 10cm VAS), relaxation therapy showed a large effect compared to care-as-usual or attention control: relative risk = 0.42 (95% CI, 0.26 to 0.62), and risk difference = - 41.7% (95% CI, -53.4% to -27.7%).

**DISCUSSION / CONCLUSIONS**

We found moderate quality evidence that relaxation therapy has a large effect on reducing sub-acute and persistent post-surgical pain, whereas education was ineffective. Large randomized controlled trials that conceal allocation and, ideally, use attention control to blind patients, are required to confirm or refute our findings.

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