Electroacupuncture for pain treatment after total knee arthroplasty

In a single-blinded randomised preliminary study evaluating the analgesic effect of electroacupuncture for postoperative pain in patients undergoing total knee arthroplasty, Tzeng et al. showed that electroacupuncture delayed the first demand for epidural patient-controlled analgesia (PCA), but did not decrease the total dosage of PCA solution or the incidence of postoperative vomiting. Given that total knee arthroplasty is a common surgical procedure and is frequently associated with severe postoperative pain, their findings have potential implications. In a randomised controlled trial, however, to differentiate the effect of one factor on study endpoints, all of the other factors have to be standardised. In this study, several important issues were not well addressed.

First, preoperative psychological comorbidities such as anxiety, depression, negative mood and pain catastrophising are highly prevalent in patients undergoing total knee arthroplasty, and are significantly associated with acute and chronic pain after the procedure. In the summary of patient demographics, the authors did not specify whether the preoperative psychological comorbidities of patients were comparable among all three study groups. We are concerned that imbalance in preoperative psychological comorbidities between the three study groups may have affected their results.

Second, intraoperative anaesthesia was provided in the form of spinal anaesthesia over levels L3–L4 using 0.5% bupivacaine (12–14 mg). The authors did not report whether the blockade limit of the spinal anaesthesia and the duration of surgery were comparable among the three study groups, therefore we cannot exclude the possibility that these factors may have confounded the assessment of the time until first demand of PCA in this study.

Third, we would be interested to know whether opioid drugs were used to improve the quality of spinal anaesthesia during surgery. When acute early postoperative pain relief between groups is examined, standardisation of the intraoperative use of opioid drugs is a crucial consideration in study design. Furthermore, other limitations of this study design were the lack of any postoperative pain assessment and a pain treatment aim. Thus, it was unclear exactly how patients were instructed to administer the analgesic drugs via the PCA pump. In the absence of comparisons of opioid drug dosages during anaesthesia and postoperative pain levels, the primary findings and their subsequent conclusions must be interpreted with caution.

Fourth, this study did not compare patients’ satisfaction scores regarding pain management in the three study groups, which may otherwise have provided more information regarding the clinical applicability of acupuncture for postoperative pain control after total knee arthroplasty. Satisfaction can be quantified using a simple scoring system—for example, from 1 to 5 where 1=very unsatisfactory; 2=unsatisfactory; 3=neutral; 4=satisfactory; 5=very satisfactory.

Finally, electroacupuncture delayed the first demand for PCA but did not decrease the total dosage of PCA solution. These findings suggest that electroacupuncture may merely provide a transient relief of postoperative pain. Given that electroacupuncture is an invasive intervention that demands appropriately trained practitioners and involves additional costs, if the benefits are transient then we would argue that further studies addressing the cost-effectiveness of this approach are necessary before it can be considered as a routine analgesic method in patients undergoing total knee arthroplasty.

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