



RESEARCH ARTICLE

Acupuncture in Preventing Postoperative Nausea and Vomiting: Efficacy of Two Acupuncture Points Versus a Single One



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Available online 28 April 2013

Received: Dec 11, 2012
Revised: Mar 12, 2013
Accepted: Mar 21, 2013

KEYWORDS

acupuncture;
anesthesiology;
nausea;
vomiting

Abstract

Despite recent advances in anesthesiology and postoperative care, postoperative nausea and vomiting are common complaints. Although acupuncture techniques have received attention in anesthesiology, the ideal technique and selection of the most appropriate acupuncture points are still under debate. This study compared the efficacy of two simultaneous acupuncture points with that of a single point in the prevention and treatment of postoperative nausea and vomiting following general anesthesia through a double-blind, randomized, controlled trial involving 227 surgical patients undergoing general anesthesia who were randomly assigned into two groups. The first group received acupuncture by stimulation only on the PC6 point (single group), and the second group underwent concomitant stimulation of the PC6 and the L14 acupuncture points (combined group) during surgery under general anesthesia. The prevalences of postoperative nausea and vomiting were compared between the two groups. No significant differences were

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observed between the two groups ($p > 0.05$). Of 115 patients in the combined group, 80 (69.6%) complained about nausea and vomiting compared with 96 (85.7%) in the single group, a significantly lower proportion ($p < 0.05$). Our findings favor a combination of PC6 and LI4 stimulation for the treatment of postoperative nausea and vomiting.

1. Introduction

Despite significant advances in anesthetics and postoperative care, nausea and vomiting still occur in surgical patients [1]. Pharmacological prevention has not been completely effective in this regard [2,3]. Antiemetic drugs, even in lower doses, may be associated with adverse effects [4]. This may lead to worsening of a condition that is already hard to manage [5].

In recent decades, alternative medicine has gained popularity in association with routine practice. Postoperative care has shown an increasing trend toward acupuncture [4–6]. Although evidence is in favor of acupuncture, especially acupressure at PC6 point (also called Neiguan), for the prevention of emesis [7–9], there are not sufficient studies to verify the most effective acupoint or to comment on the benefits of a combination approach [4–6]. Furthermore, existing studies do not consistently support each other in order to be to any extent conclusive. Hence, the present study was conducted to compare the efficacy of points PC6 and LI4 (Hegu acupoint) in the prevention of nausea and vomiting following general anesthesia for elective surgery in a tertiary care center in Iran.

2. Methods and materials

2.1. Study design

This study was a double-blind controlled randomized trial conducted between June 2011 and June 2012 at Imam Khomeini Hospital in Tehran, Iran. Inclusion criteria were having an American Society of Anesthesiologists classification I or II, receiving surgery on any site other than the eye or ear regions, and an operating time of between 1 and 2 hours. Patients who had received steroids within the previous month, undergoing an operation lasting more than 2 hours, or had a history of motion sickness were excluded from the study.

The study protocol and method of acupuncture were explained completely to the patients, ensuring they were all aware of the experimental nature of this therapeutic option. Informed consent was obtained from each patient before transfer to the operating room. Finally, the Research and Ethic Committee of Tehran University of Medical Sciences approved the study protocol.

2.2. Patients

During the study period, patients on the list for elective surgery in our department were assessed for eligibility to enter the study. Of 227 eligible patients, 115 cases were

randomly assigned to the combined acupuncture group in which both P6 and LI4 were stimulated, and the remaining 112 patients were assigned to the single acupuncture group treated by stimulation of only P6.

2.3. Surgery and anesthesia

All the operations were elective surgeries under a standardized protocol performed by one of the surgeons in our department. General anesthesia was induced with 6 mg/kg thiopental sodium, 0.5 mg/kg atracurium, and 1.5 mg/kg lidocaine, and then maintained by administration of 110 $\mu\text{g}/\text{kg}$ propofol, 0.5 $\mu\text{g}/\text{kg}$ fentanyl, and 0.3 mg/kg atracurium, with ventilation with 30% oxygen and 70% nitric oxide every 30 minutes until the end of the surgery.

2.4. Randomization

Using a computer-based number-generating program, an independent researcher randomly allocated the patients to either of the two study groups following induction of anesthesia. The surgeon, patients, and investigator collecting the data were all blinded to the study groups.

2.5. Acupuncture

All acupunctures were performed by an expert acupuncturist immediately after induction of general anesthesia.

In the combined group, two sterile acupuncture needles were inserted bilaterally into PC6 and LI4. The needles remained in place until they were removed at the end of the surgery. The acupuncture sites were dressed with appropriate adhesives just before the patient left the operating theater. The same technique was performed on patients in the single group, in which only PC6 was stimulated on each side. All acupuncture techniques were performed similarly for the patients in the same group, and adherence to the care provider's protocol was assured.

Patients were finally transferred to the recovery room and, if stable, to the surgical ward. The occurrence of nausea and vomiting was assessed subjectively within the first 24 postoperative hours by a trained nurse who was blinded to the study groups.

2.6. Objective and hypothesis

The study aimed to test the hypothesis that combined acupuncture would result in a reduced frequency of anesthesia-related postoperative nausea and vomiting.

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