Effects of P6 Stimulation on Postoperative Nausea and Vomiting in Laparoscopic Cholecystectomy Patients

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Purpose: *Postoperative nausea and vomiting (PONV) remains one of the most common postsurgical complications after anesthesia and surgery. Pericardium 6 (P6) stimulation is believed to prevent PONV and is a potential adjunctive treatment with pharmacologic agents. The purpose of this study was to compare the effects of P6 stimulation on PONV occurrence to a control group not receiving the P6 stimulation in sequential female patients undergoing laparoscopic cholecystecomy at a community hospital in central Florida between November 2010 and March 2013.*
Design: *This study is a double-blinded randomized controlled trial.*
Methods: *PONV was measured on admission to the postanesthesia care unit (PACU), at 30 and 60 minutes, at discharge from the PACU to home and at two points at home up to 6 hours and between 6 and 24 hours.*
Findings: *Of the 56 total patients, those in the P6 group (n = 26) had statistically significant lower incidence of PONV, 0%, vs 14.3% in the control group (n = 27;* $P < .05$*) on admission to the PACU, but at all other time points, there was no significant difference in PONV. Thirty-one percent of the patients in the P6 group had PONV in PACU or at home compared with 51.9% in the control group.*
Conclusions: *The results of the study demonstrate that the use of P6 stimulation in the perioperative arena is clinically meaningful; however, more research is needed with a larger sample size.*

Keywords: *PONV, P6 stimulation, cholecystectomy.*

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POSTOPERATIVE NAUSEA AND VOMITING (PONV) or postdischarge nausea and vomiting (PDNV) is a common postoperative complication prolonging postsurgical hospital stay. PONV affects approximately 75 million patients each year or one-third of the surgical population. Complications of PONV can include discomfort, wound dehiscence, aspiration, dehydration, electrolyte imbalance, increased bleeding under skin flaps, and systemic hypertension.[1,2] Nausea and vomiting after surgery occurs in 30% to 50% of patients, and this percentage may actually be higher than estimated because of failure to report its occurrence.[1]

Prevention of PONV provides comfort and increases patient satisfaction. The ability to maintain nutrition and hydration aids in the healing process. Ambulatory surgery patients with severe PONV do not meet discharge criteria, and recovery may be delayed leading to unanticipated admission and significant financial burden. Patients' fear of PONV may be greater than their fear of postoperative pain.[1] In a recent systemic review, Lee and Fan[3] found that patients with very high baseline risk of PONV were more likely to benefit from P6 acustimulation, that P6 stimulation efficacy was at least equal to pharmacologic interventions, and that further research was unlikely to reverse the fact that P6 acustimulation is more effective than placebo.

Purpose

The purpose of this study is to investigate the effects of P6 electrical acustimulation on PONV and PDNV prophylaxis in females after laparoscopic cholecystectomy.

Design

The study is a double-blinded randomized controlled clinical trial. The patient and the postanesthesia care unit (PACU) registered nurse (RN) were unaware if the group selected was control or treatment. The study was approved by the hospital Institutional Review Board (IRB) for Human Research and conducted in the perioperative area at Winter Haven Hospital, Winter Haven, Florida, from November 2010 to March 2013.

Setting and Sample

Winter Haven Hospital is a 527-bed not-for-profit magnet community hospital located in Central Florida. The hospital serves a rural population with the metropolitan centers of Tampa and Orlando located 60 to 65 miles away. The hospital has a preoperative area with 15 beds, 13 operating rooms (ORs), and a 23-bed PACU.

The study sample consisted of females aged 18 to 67 undergoing laparoscopic cholecystectomy surgery. Inclusion criteria were an American Society of Anesthesiologists (ASA) physical status of I or II, nonsmoking, and English speaking. Patients were excluded from the study if nausea was already present in the preoperative area, if the participant had taken antiemetic medication within 24 hours of surgery, if she had a history of alcohol or drug abuse, if she was pregnant, and/or if the surgery lasted more than 90 minutes.

Instrument

The instrument used to collect and record study data by the PACU RN was the hospital-developed modified Likert Nausea Scale Score (Table 1). Three months before the study, all PACU RN staff received education on how to use the scale that was incorporated into the PACU as a standard of practice for all patients. The scale was used to measure PONV events in the PACU on arrival, at 30 and 60 minutes, and on discharge from the PACU to home. PDNV at two points posthospital discharge, 0 to 6 hours and 6 to 24 hours, was determined via a follow-up phone call to the patient at home.[4] Postdischarge data were recorded on a call back form.

Methods

Preadmission clinic staff screened for potential candidates using an inclusion and exclusion questionnaire (admission questionnaire) while conducting the admission interview 3 to 4 days before surgery. The list of all potential candidates was given to the principal investigator (PI) the

Table 1. Postoperative Nausea and Vomiting Scale

Likert Nausea Scale Score	
Initial assessment (patient has an Aldrete LOC score of 1)	30 min after
□ 1—None	□ 1—None
□ 2—Mild	□ 2—Mild
□ 3—Moderate	□ 3—Moderate
□ 4—Severe	□ 4—Severe
Did the patient vomit? Please **circle** Yes or No	Did the patient vomit? Please **circle** Yes or No
1-h Assessment	Discharge assessment
□ 1—None	□ 1—None
□ 2—Mild	□ 2—Mild
□ 3—Moderate	□ 3—Moderate
□ 4—Severe	□ 4—Severe
Did the patient vomit? Please **circle** Yes or No	Did the patient vomit? Please **circle** Yes or No

LOC, level of consciousness.