ORIGINAL ARTICLE

Comparing Effects of Two Different Types of Nei-Guan Acupuncture Stimulation Devices in Reducing Postoperative Nausea and Vomiting

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Purpose: *To compare the effects of a relief band using transcutaneous electrical nerve stimulation with a wrist band using acupressure on the Nei-Guan acupuncture point to relieve postoperative nausea and vomiting (PONV) in patients who had undergone gynecologic surgery.*
Design: *A double-blinded randomized controlled trial.*
Methods: *In total, 54 patients scheduled for gynecologic surgery under general anesthesia were included in this study. Assessments of PONV were performed 0, 2, 6, and 24 hours after discharge from the postanesthesia care unit. The severity of PONV was measured using the Rhodes' Index of Nausea, Vomiting and Retching and by recording the frequency of patient-requested antiemetic administration that is used to treat severe cases of PONV.*
Findings: *The relief band reduced the severity of PONV and the need for antiemetic administration within the first 24 hours postsurgery.*
Conclusions: *The results of this study support the use of a relief band when compared with a wrist band and with a control group to reduce PONV in women after gynecologic surgery.*

Keywords: *acupressure, postoperative nausea and vomiting, gynecologic surgery.*

POSTOPERATIVE NAUSEA AND VOMITING (PONV) is one of the most significant issues for surgical patients who have undergone general anesthesia.[1] Despite being a common side effect of general anesthesia, PONV has received little attention in gynecologic surgery studies. Because PONV is not a serious complication, patients consider it to be merely an unpleasant side effect. According to recent guidelines, the first step in PONV management consists of the administration of antiemetic drugs, such as 5-hydroxytryptamine-3 (5-HT3) receptor antagonists, droperidol, ondansetron, and dexamethasone, alone or in combination.[1-3] These antiemetics reduced the risk of PONV by about 26%,[4] although half of the patients in one study complained of nausea and vomiting despite the administration of antiemetics.[5] Because antiemetic drugs cannot completely ameliorate PONV, other interventions that support the nonpharmacologic management of PONV need to be identified.

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There are several strategies for the nonpharmacologic management and prevention of PONV, including music therapy,[6] intraoperative gastric decompression,[7] and herbal supplements such as ginger.[8] Unfortunately, these strategies have not been shown to be effective for PONV treatment. However, the PONV-relieving effects of Nei-Guan acupuncture point or P6 stimulation are similar to that of prophylactic antiemetics.[3,9] In previous nursing studies, the nursing intervention of Nei-Guan acupuncture point stimulation has focused on the direct finger-applied pressure method, which has limited use in clinical application because of a lack of available time and personnel.[10,11] In recent years, devices for Nei-Guan acupuncture point stimulation, such as the relief band and wrist band, have been developed. However, there have been few reports on these bands published in nursing journals,[12,13] and even fewer comparing the effects of relief and wrist bands in clinical practice. Thus, we compared the clinical applicability of Nei-Guan acupuncture point stimulation with the relief and wrist bands as a nursing intervention for the mitigation of PONV in women who have undergone gynecologic surgery.

Background

PONV is a common surgical side effect. Despite recent advancements in anesthetic agents and therapies, 25% to 80% of surgical patients experience nausea and vomiting.[14] Although PONV is not a serious complication, the symptoms are upsetting to patients and, in severe cases, can lead to dehydration and electrolyte imbalance, potentially delaying patient recovery and extending the postanesthesia care unit (PACU) time and hospital stay.[3] Continuous vomiting can also induce aspiration pneumonia, open surgical suture wounds, increase venous pressure that leads to bleeding from the surgical site, and cause airway obstructions.[15,16]

Patients at risk for PONV include women, nonsmokers, patient with a history of nausea and vomiting or motion sickness, patients who are under anesthesia for an hour or longer, and the administration patient-controlled analgesia (PCA) pump or opioids for postoperative pain.[1,17] Because of recent developments in laparoscopic surgery equipment and techniques, 70% to 80% of gynecologic surgeries traditionally performed by laparotomy have been replaced with laparoscopic procedures. This trend has increased the incidence of nausea and vomiting.[18,19] Furthermore, most gynecologic surgery patients are given narcotic analgesics through PCA for pain control. The administration of these pain-relieving opioids is believed to cause PONV, in addition to factors such as preoperative dehydration, anemia, hypotension, dizziness, and sharp jerks and postural changes.[20,21] Therefore, many patients receiving gynecologic surgery are at high risk of PONV.

To reduce PONV, a variety of antiemetics such as antihistamines, anticholinergics, dopamine receptor antagonists, and serotonin antagonists have been used. Currently, ondansetron is the most frequently used antiemetic in PACUs; it selectively competes for 5-HT3 receptors in the vagus nerve terminal, stomach, intestines, mucous membranes, and chemoreceptor trigger zone.[2] However, ondansetron and other 5-HT3 receptor antagonists are considered relatively expensive as compared to droperidol or dexamethasone, and are associated with numerous side effects including anxiety, anorexia, orthostatic hypotension, hiccups, insomnia, headache, oversedation, and a mild increase in liver enzyme levels.[2,22] Despite these drawbacks, Carlisle and Stevenson[2] reported that the risk of treatment using antiemetics for PONV is decreased compared with placebo by about 0.4 to 0.7 times (95% confidence interval). In contrast, Park and Cho[5] found that 50% of patients complained of nausea and vomiting despite the administration of antiemetics. Therefore, antiemetic drugs are unsuccessful in eliminating nausea and vomiting completely. However, there are no alternative pharmacologic treatments currently available for the complete prevention of nausea and vomiting. Complementary and alternative therapies, such as acupressure, may be considered as potential nursing interventions to supplement the effects of antiemetics and minimize their side effects.[12,19,21]

The effects of nonpharmacologic methods, such as acupuncture, acupressure, and transcutaneous electrical nerve stimulation (TENS) on the inhibition of nausea and vomiting and on the subsequent decrease in side effects caused by the administration of pain control drugs in