ORIGINAL ARTICLE

A Prospective Study of Nausea and Vomiting After Breast Cancer Surgery

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Purpose: *Postoperative nausea and vomiting (PONV) and post-discharge nausea and vomiting (PDNV) continue to be common and disturbing complications experienced after surgery, particularly in women and especially in women undergoing breast cancer surgery. The purpose of this study was to assess the incidence and risk factors associated with PONV and PDNV from preoperative to 48 hours postoperatively in 97 women scheduled for breast cancer surgery.*
Design: *Prospective, comparative design.*
Methods: *After informed consent was obtained, women scheduled for breast cancer surgery were evaluated for incidence of vomiting, as well as the presence and severity of nausea from the preoperative holding area for 48 hours following surgery. Vomiting was assessed as both a nominally scaled, binary variable (Yes/No) and as a continuous variable to measure separate emetic events. Nausea was measured on an 11point verbal numeric scale with 0 being the absence of nausea and 10 representing the highest level of nausea ever experienced.*
Results: *Twenty-nine (29.8%) women experienced nausea, and nine (9%) women experienced nausea and vomiting while in the post-anesthesia care unit despite close attention to the need for prophylactic antiemetic medications. Women who experienced PONV had higher levels of pain and received more opioids than those women who did not experience PONV. Women who received intravenous acetaminophen did not experience less PONV in this study. PDNV occurred more frequently than PONV, with 34 women (35%) reporting occurrence after discharge. About 13 women who did not experience PONV while in the PACU subsequently experienced PDNV after leaving the hospital, evidence for the importance of patient discharge teaching regarding these symptoms. Although clinical guidelines are necessary, our observation is that nurses in the PACU setting continuously challenge themselves to individualize the com-*

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Conflict of interest: None to report.

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bination of medications and activities for each patient to reduce PONV after surgery.

Keywords: *Post-operative, nausea, vomiting, symptoms, breast cancer surgery.*

POSTOPERATIVE NAUSEA AND VOMITING (PONV) continues to be one of the most common and disturbing complications patients experience after surgery, particularly for women undergoing cancer surgery.[1-3] The incidence of PONV after breast cancer surgery has been reported to be as high as 80%.[4-6] Because 232,670 women are expected to be diagnosed with breast cancer in 2015 and most will undergo surgery as part of their curative treatment, PONV in this population is a highly significant clinical problem.[7] PONV has a profound impact on the health and well-being of women with breast cancer and is related to significant morbidity (dehydration, wound dehiscence, pain, and immobility),[8] delayed discharge from the postanesthesia care unit (PACU), increased length of hospital stay, increased hospital costs,[9-11] and poor patient satisfaction.[12] PONV is also the most common reason for unplanned overnight stays after breast cancer surgery.[9] In addition, with the emergence of same-day surgery as the standard for most breast cancer resections, these women also experience postdischarge nausea and vomiting (PDNV) at home without nursing support.[13,14] Patients have reported that they experience their highest level of nausea on the day of discharge after ambulatory surgery.[15]

Guidelines from the American Society of Clinical Oncology indicate that the goal for treatment-induced nausea and vomiting should be *complete control*.[16] However, this goal has remained elusive. Recent research has shown that nearly one-third of all women continue to experience PONV and PDNV after surgery for breast cancer, despite adherence to appropriate antiemetic guidelines.[17] Well-established risk factors have been identified that increase the risk of PONV and PDNV. They include the use of opioids for postoperative pain,[18] female gender, a negative smoking history, and history of PONV or motion sickness.[8,19-21] In addition, some studies have found preoperative psychological factors, including anxiety and distress, increase the severity of PONV for women with breast cancer.[22]

Purpose

The purpose of this prospective study was to assess the incidence and risk factors associated with PONV and PDNV from preoperative to 48 hours postoperatively in women scheduled for breast cancer surgery.

Methods

Design

This study, which was approved by the University of Pittsburgh Institutional Review Board, used a prospective comparative design to compare women with breast cancer who experienced nausea and vomiting after surgery with women with breast cancer who did not. Women who were diagnosed with breast cancer and were scheduled for surgery were evaluated for incidence of vomiting as well as the presence and severity of nausea.

To be eligible for the study, women were diagnosed with early stage breast cancer (stage I, II, and IIIA) and scheduled for surgical resection of their cancer under general anesthesia or combined general and regional anesthesia. Only women with an American Society of Anesthesiologists physical status of I, II, or III were included, and because the study design included follow-up telephone calls after discharge, they also had to have access to a telephone. Exclusion criteria included having breast reconstruction surgery (because of length of anesthesia time) or any history of neurologic conditions such as stroke, head injury, spinal cord injury, and intracerebral hemorrhage, which could also be the cause of nausea. Given the planned objectives of the study, a sample of 100 was estimated to yield