Acupressure in High-Risk Ambulatory Post-Operative Patients to Reduce PONV

Alexandra Lafferty

BSN, Douglas College

NURS 2217: Nursing Inquiry EIP

Navneet Sahota-Bagri

November 4th, 2020

Acupressure in High-Risk Ambulatory Post-Operative Patients to Reduce PONV

Postoperative nausea and vomiting (PONV) have been found to be one of the most prevalent symptoms and complications experienced after surgery (Hofmann et al., 2017). PONV is extremely distressing for patients (Hofmann et al., 2017). It can result in pulmonary aspiration, electrolyte imbalances, suture line tensions, wound dehiscence and delayed discharge (Hofmann et al., 2017). PONV is a complex interaction between the vomiting centre, triggered chemoreceptors, inner ear, vagus nerve, limbic system and cerebral cortex (Lewis et al., 2019). This phenomenon occurs in approximately 30% of all patients who have undergone surgery, and up to 80% of patients who are considered to be high risk (Lewis et al, 2019). The current commonly used treatment for PONV, in developed nations, are antiemetics (Hofmann et al., 2017). There is currently no drug to fully eliminate PONV, however these antiemetics can be used prophylactically and as intervention. Often the antiemetics used are droperidol, ondansetron and metoclopramide (Hofmann et al., 2017).

Acupressure is a Chinese medicine technique (Lewis et al., 2019). Its purpose is to stimulate and strengthen the body's energy flow to manage symptoms (Lewis et al., 2019). This technique is non-invasive and easy to learn, allowing patient's and caretakers to perform it themselves. Acupressure has been helpful in reducing pain, dyspnea, insomnia, fatigue, allergies, nausea and vomiting (Miao et al., 2017).
Acupressure is safe, non-invasive and has little to no cost or side effects (Sahin et al., 2018).

This paper will discuss the positive effects of acupressure to reduce post-operative nausea and vomiting. I will examine my PICOT question: Do postoperative high-risk ambulatory

surgical patients experience less PONV with the use of P6 acupressure when compared to those receiving only the conventional antiemetic interventions in all three phases of post-op?

Critiquing Guidelines Table

Refer to Appendix A for the completed critical appraisal table of assigned article by Hofmaann et al. (2017).

Implications to practice at a Semester II level

Education

In order for a Semester II student to use acupressure effectively in the clinical settings, the student first must be aware of the protocols in place to deal with PONV in the specific agency. A Semester II student should take it upon themself to learn and understand current methods of preventing and relieving PONV. The student then needs to be educated on the skill of acupressure, so the student is able to teach the patient, if desired. Acupressure can be performed by someone's fingers or by wearing a wrist band (Miao et al., 2017). The student must assure the patient has consented to the intervention and should be explained the purpose, while still allowing incorporation of conventional antiemetics and other interventions if desired. As a semester II student I am educated that there are alternative options for PONV. Other nonpharmacological interventions include electrical nerve stimulation, acupuncture, and aromatherapy. Complementary and alternatives may include ginger, peppermint oil, breathing exercises, massages, guided imagery and several other options (Lewis et al., 2017). Moreover, it is important for a semester II student to understand the concept of patient-centered care. The patient should have full control of their choices and have help to make informed choices with the support of their care team (British Columbia Ministry of Health, 2015). Allowing the patient to

collaborate and participate in their care is an important aspect of nursing which is taught at the Semester II level.

Nursing Practice

Semester II students should understand they are working with post-operative ambulatory patients and many are in the high-risk category. Students should be aware that high-risk contributing factors may include females, non-smokers, history of PONV or post discharge nausea and vomiting, motion sickness, volatile gas anaesthesia and postoperative opioid pain management (Hofmann, 2017). Upon reviewing the literature, it is clear that while a Semester II student is assessing a patient's PONV, they will need to use a scale so comparison is possible. The student needs to be able to assess if the PONV is decreasing, which ultimately allows them to see if the intervention is working. As demonstrated by Hofmann et al. (2017), researchers can use a visual analogue scale (VAS) to rate the patient's nausea. Student's must be able to explain the scale, so the patient understands what is being asked in order to accurately assess. 0 on the scale should mean that there is no nausea, and 10 on the scale should mean the patient has severe vomiting with dry heaving/retching observed (Hofmann, 2017). A semester II student should be aware of the complications associated with PONV. As mentioned, PONV can result in aspiration, electrolyte imbalance, suture line tensions, wound dehiscence and delayed discharge. The student should be able to act accordingly depending on which outcomes result if vomiting does occur. This includes interventions such as assuring the bedside suction is functioning, positioning the patient to lay on their side or semi-Fowler's, and assessing lab values of serum electrolytes (Lewis et al., 2017). The student should be aware of where suture lines are present, so they are able to assess for any signs of tension or dehiscence at the incision site.

Furthermore, in my nursing practice I would need to initiate the use of acupressure on my unit and in my agency. I could do so by collaborating first with the patient care coordinator (PCC) and unit manager. I would show them supporting research, such as my assigned article. I would explain the importance of incorporating other methods of treating and preventing PONV. I would also explain the benefit of having a low cost and low risk intervention.

Patient Teaching

As a Semester II student, I need to explain to my patient how the VAS scale works, as mentioned above. The patient needs to thoroughly understand what the scale means and its importance to us. As a semester II student it is part of my job in clinical to assess my post-operative patients for nausea, so I am able to help reduce the discomfort and potentially prevent vomiting from occurring. The patient should be taught to tell their nurse anytime they feel nauseous and be informed of their options. A semester II nurse should be open to letting the patient decide between PRN medications and alternatives such as acupressure. The patient also needs to be aware of the risks involved with nausea and vomiting, specifically aspiration and wound dehiscence. The semester II student should explain the importance of proper positioning and bracing surgical incisions when heaving. The patient should also be taught to show the nurse any emesis, so the colour and amount can be properly documented (Lewis et al., 2017).

Research

As a semester II student I continue to strengthen my knowledge of varying phenomenon I may encounter in my clinical setting. Through understanding the research article assigned I have further expanded my education on alternatives to conventional antiemetics. Furthermore, I have discovered oral Ondansetron has a duration of 4-8 hours, however the safe administration occurs every 8 hours (Vallerand & Sanoski, 2019). This leaves a potentially large time frame for the

medication to be ineffective. As a semester II student I am aware of the difference's patients may have metabolising various drugs. If a patient metabolises the drug quickly, it does not simply mean I can administer the medication sooner. Therefore, an alternative while we wait for the next administration time could be acupressure in order to continue to prevent their nausea. As a student I can explain this research to my patient if they are in distress or feel anxious about PONV. I am able to support the use of acupressure for PONV with the article I have been assigned.

Implication of the evidence to Nursing and Health Care or Settings

Upon further research of this topic, I reviewed Rajaram et al., (2020) *P6 point acupressure versus Ondansetron in Prevention of Carboprost-induced Nausea and Vomiting* and Sahin et al., (2018) *Effect of acupressure application to the P6 acupoint before laparoscopic cholecystectomy on postoperative nausea-vomiting: A randomized controlled clinical study.* All studies further support the use of acupressure to reduce nausea and vomiting severity.

Weaknesses and Differences

Rajaram et al., (2020) used acupressure instead of antiemetics, whereas Hofmann et al., (2017) used conventional antiemetics adjunctively to acupressure. Sahin et al., (2018) further differed from the other studies by having three groups with different interventions. One group used only acupressure, one placebo acupressure and the last used antiemetics. Hofmann et al., (2017) and Sahin et al., (2018) both used a 10-point numeric scale to assess the patient's nausea levels. Rajaram et al., (2020) did not specify the scale or tool used to identify the patient's nausea. Hofmann et al., (2017) had a wide range of mobilized surgeries that could be included in the study. The surgeries varied from laparoscopic cholecystectomy, appendectomy, gynecologic, ear, nose and throat, vein stripping and arthroscopic knee. Rajaraman et al., (2018) participants

needed to be undergoing an elective caesarean section under spinal anesthesia. Sahin et al., (2018) specified the study to only women undergoing laparoscopic cholecystectomy. Lastly, Hofmaan et al., (2017) and Sahin et al., (2018) only studied patients from one hospital, respectively. This could create skewed results due to the socioeconomic aspect involved. If the hospital is located in an expensive, high-class neighbourhood the results will vary due to other factors, than if it was located in a low-income, poverty filled area. Having the diversity of various hospitals and regions may ultimately provide a more accurate representation for the study.

Strengths and Similarities

All studies are randomized control trials which provides research regarding cause-and-effect relationships with minimal bias associated to them (LoBiondo-Wood et al., 2018). The studies that used antiemetics all used Ondansetron, although Hofmann, et al., (2017) also used metoclopramide, decadron and droperidol. Furthermore, the P6 pressure point was the only spot used for acupressure in all studies. Using only the P6 spot helps to strengthen the research. Rajaram et al., (2020) excluded participants with previous PONV and motion sickness, which would result in a decrease of high-risk patients. However, both Hofmann et al., (2017) and Sahin et al., (2018) included these patients in their study in order to assess high-risk patients and their reaction to PONV. High-risk patients may be more beneficial for this study, because low-risk patients may not be as likely to be affected by the interventions regardless of their efficiency.

For Changes to Occur

In order for acupressure to be incorporated into healthcare on a daily basis, nurses first need to be educated on how to perform this intervention. The nurse should be aware of the pressure points, specifically the P6 point, as indicated by these studies. The P6 area is about three

finger widths proximal from the palm of the hand between the palmaris longus and flexor carpi radialis tendons of the forearm (Hofmann et al., 2017). In addition to understanding the location, the nurse must know what tools to use. Acupressure can be performed with fingers or a wrist band that contains a small bead (Miao et al., 2017). Upon reviewing the literature, I did not find any studies supporting one being more effective than the other. I would assume the finger method of acupressure to be more obtainable in the healthcare setting. There is no cost associated this way, whereas the wrist band would require the hospital to supply or manufacture them. Additionally, as explained, the implementation of acupressure would need to occur. This may involve the participation of the patient care coordinators, managers, physicians, occupational therapists and nurses. Furthermore, in order for protocols to be made, the agency would also need to be addressed.

Nursing Ways of Knowing

The evidence has informed my nurse's way of knowing in several ways. Some patients were willing to pay $56-$100 out of pocket to avoid PONV, resulting in an average additional $400 per patient (Hofmann et al., 2017). Socioeconomically speaking, acupressure is an intervention with low to no cost involved. This makes it accessible to patient's who may not be able to afford antiemetics, especially on top of other hospital costs or missing work from hospital stays. Acupressure for PONV allows socioeconomic diversity in the healthcare setting.

This intervention also involves ethical care and open-mindedness. It is a traditional Chinese technique which allows the nurse to involve other cultures when using different treatment methods. PONV is the top-ranking fear that patients express before elective surgery (Hofmann et al., 2017). It is important for the nurse to be compassionate and assess the psychological factors ethically.

The nurse should assure they have personal knowledge of these techniques. This will allow the nurse to teach not only patients and their caregivers but help teach their fellow colleagues. The nurse should reflect on their own personal beliefs but allow patients to have their own and allow them to make their own choices. Furthermore, the knowledge from the evidence should expand the nurse to greater levels of incorporation. The nurse should now understand the effectiveness of interventions that may not be in their own clinical setting yet. It should help to enlarge the scope of available methods to patient care.

Conclusion

A strong correlation exists between the reduction of PONV with the use of P6 acupressure. Acupressure is proven to be low risk and low cost. It can be used adjunctively or alternatively to significantly reduce the frequency and severity of PONV ambulatory patients. To further expand this study, there should be more studies performed to assess other acupressure points. There should also be more studies done for more specific operations and procedures to further strengthen the differences. The research findings from my assigned article answered my clinical question adequately; however, it was difficult to find supporting articles specific to the similar procedures used in Hofmaan et al., (2017). The study findings state the largest significance occurred in phase I, followed by phase III, with no significance in phase II (Hofmann et al., 2017). There are recommendations for the need of implementation of PONV risk factor assessments and further evaluation during the study. Furthermore, a larger sample size may have been achievable if they allowed males to join the study initially. The study allowed males to participate only after 1 year, however allowing males to participate as long as they still met the other four risk factors would help increase the sample size. The increase in sample size would strengthen the randomized control trial design used in this study.

This literature has helped build my evidence informed practice to promote positive patient outcomes by including alternative methods for PONV. My mind has been opened to the use of alternatives, including other culture's methods. I have been informed of the expenses related to antiemetics for patients and systems as a whole. Any reduction in these costs would be beneficial. With the use of acupressure in all 3 postoperative phases, it may be possible to control PONV and potentially reduce the use of antiemetics. This review of literature has allowed me to collaborate in the future with my patients and offer alternatives they may not be aware about. Additionally, it allows me to collaborate with my colleagues and inform them of this intervention learned. This review of literature has provided me with knowledge relating to the fear patients may feel in regard to PONV. Prior to reading these articles, I was not aware of the distress many patient's feel towards nausea and vomiting. As a nurse it is my job to provide my patients with the competence and understandings of such interventions to prevent PONV. This research has helped further develop my understanding of acupressure and PONV. It will allow me to offer this intervention to my patients and colleagues in the future when I am a graduated nurse.

References

British Columbia Ministry of Health. (2015, February). *The British Columbia Patient-Centered Care Framework*. Health.gov.bc.ca. https://www.health.gov.bc.ca/library/publications/year/2015_a/pt-centred-care-framework.pdf

Hofmann, D., Murray, C., Beck, J., Homann, R. (2017, August). *Acupressure in Management of Postoperative Nausea and Vomiting in High-Risk Ambulatory Surgical Patients*. Amazonaws. https://learn-ca-central-1-prod-fleet01-xythos.s3.ca-central-1.amazonaws.com/5eac5bdd7f7c4/2814122?response-cache-control=private%2C%20max-age%3D21600&response-content-disposition=inline%3B%20filename%2A%3DUTF-8%27%27accuprecssure%2520post%2520op%2520nv%2

Lewis, S., Bucher, L., McLean Heitkemper, M., Harding, M., Barry, M., Lok, J., Tyerman, J., Goldsworthy, S., Kwong, J., Roberts, D. (2019) *Medical-Surgical Nursing in Canada: Assessment and Management of Clinical Problems*. (4th Edition) [Texidium]. Elsevier. https://reader.texidium.com/dist/#/book/7386

Lobiondo-Wood, G., Haber, J., Cameron, C., Sing, M. (2018). *Nursing Research in Canada*. [Texidium]. Elsevier. https://reader.texidium.com/dist/#/book/9770

Miao, J., Liu, X., Wu, C., Kong, H., Xie, W., Liu, K. (2017, February 9). *Effects of Acupressure on Chemotherapy-Induced Nausea and Vomiting- A Systemic Review with Meta-Analyses and Trial Sequential Analysis of Randomized Controlled Trials*. Elsevier. https://reader.elsevier.com/reader/sd/pii/S0020748917300482?token=9D946F838D0C0D1CDB2B768AFD8C7D6A7D78217CB01F3B4BB8CDABDDF7F5B31EDBAD2EC6B1F0D5F40166A3D5E677B9A9

Rajaram, G., Raghu, K., Kumar, S., Nikhil, N. (2020). *P6 point acupressure versus Ondansetron in Prevention of Carboprost-induced Nausea and Vomiting*. Ebscohost.com. https://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=8&sid=1aea8aa8-16d5-422d-bc04-e3ab2fee963f%40pdc-v-sessmgr04

Sahin, S. Y., Iyigun, E., Can, M. F. (2018). *Effect of acupressure application to the P6 acupoint before laparoscopic cholecystectomy on postoperative nausea-vomiting: A randomized controlled clinical study*. Elsevier.com. https://reader.elsevier.com/reader/sd/pii/S0020748918301755?token=D9F7FCB8060AF6789B2040A433696C53688063B1F0CB0A3F68F54C208E73598A7805643CEA5B4FC7FB05CB7814178D7D

Vallerand, A. H., Sanoski, C. A. (2019). *Davis's Canadian Drug Guide for Nurses*. (16th edition). F.A. Davis Company.

Appendix A: Critiquing Guideline Table

Assigned Article • Title, Author/s & Date	Title: Acupressure in Management of Postoperative nausea and Vomiting in High-Risk Ambulatory Surgical Patients Authors: Debra Hofmann, Carrie Murray, Janet Beck, Rebecca Hofmann Date: August 2017
Level of Evidence • What level of evidence does the study rate?	Level 2: A well-designed RCT
Research Method: • What is the research method: qualitative or quantitative or mix methods?	Quantitative method
Research Design (Qualitative- phenomenological, grounded theory etc.) (Quantitative- experimental, quasi-experimental, non-experimental etc.) • What type of design is used? • What is the rationale for the design? • Is the choice of design logical?	-Experimental Design -Randomized blinded placebo-controlled -Rationale is to rid any possible psychological effects related to participant being aware of receiving treatment vs. not receiving treatment (placebo) -The design is logical so the patient's not receiving the intervention are assuming they will feel PONV, creating the phenomena in their own mind

Purpose of the study • What is the overall purpose and/or objectives of the study? • Is there significance of this research to Nursing and/or Patients? Explain.	-Randomized blinded placebo-controlled research study to investigate the effect of acupressure over 24 hours postop for ambulatory surgical patients who are identified as high risk for PONV -Yes, it helps us understand alternatives and potentially high reward, low risk interventions that our current pharmaceutical options do not -It also allows us to expand options for our patient's who may prefer this method over conventional antiemetics and other westernized methods
Hypotheses and Research Question • If any, what is the stated research question/s in the study? Or what can be implied? • What is the stated hypotheses/s if any?	1) Does preoperative placement of acupressure beads at P6 affect the incidence and severity of PONV immediately after surgery in high-risk ambulatory surgical patients compared with usual care of preventative rescue antiemetics? 2) Does preoperative placement of acupressure beads at P6 worn for 24 hours after surgery affect the incidence of PONV at postoperative Phases II and III in high-risk ambulatory surgical patients compared with usual care of preventative and rescue antiemetics?
Phenomenon of Interest • How is the phenomenon of interest understood and described?	The effects of P6 acupressure to decrease PONV incidence in high-risk ambulatory patients.

Review of the Literature & Definitions • What key concepts and definitions are included in the review? (Briefly state) • How did the study intend to fill gaps in knowledge or resolve conflicts to address the phenomenon of interest?	-PONV is a complex interaction between vomiting centre, triggered chemoreceptors, inner ear, vagus nerve, limbic system and cerebral cortex -PONV can result in pulmonary aspiration, electrolyte imbalances, suture line tensions causing hematomas and wound dehiscence, delayed discharges and unplanned possibly unnecessary hospitalizations -When asked, patients would choose pain over nausea/vomiting post operatively, they would also be willing to pay to avoid this complication -PONV is extremely distressing to patients -Acupressure is used to strengthen the body's energy flow to manage symptoms. It is zero-no cost and poses few risks. It is non-invasive and allows patients to perform it on their own
Sample Selection • How was the sample selected? • What type of sampling method was used in the study? • Describe the sample characteristics • Is the sample size appropriate for the design? Legal/Ethical Issues • Highlight any ethical or legal issues for the participants • How was consent obtained?	- RN's contacted every scheduled elective ambulatory surgical patient before the day of surgery via telephone -patients who met 4/5 risk factors were eligible for participants and notified preanesthesia resource center registered nurses -Guidelines for sample: female, PONV hx or motion sickness, non-smoker, volatile gas general anesthetic -Sample size is appropriate, however the larger numbers for a RCT will further support the outcome -Ethically, patient's could be feeling high anxiety prior to their operations. Since recruiting nurses were phoning them at home, this may be alerting them to PONV when it was not something the worried about previously. This could lead to the participants feeling obliged to participate. -Consent was obtained in written form. Initially patients were explained the study via telephone and if they decided to participate once at the hospital, they consented

Method- Instruments used • Describe the data-collection procedures • Are the methods/instruments similar for all participants? • How is the method compatible with the purpose of the research?	-use of 0-10 scale during all three phases during study -preanesthesia resource center RNs contacted every scheduled elective ambulatory surgical patient before surgery day via telephone, patients who met 4/5 risk factors were eligible and notified of study. 110 participants were then randomly assigned to intervention group or control group -1.5 hours before scheduled appointment, subjects greeted by a research assistant who confirmed eligibility, verbally explained study procedures, read written consent form and answered any questions. -each participant filled out a demographic questionnaire before entering study (age, gender, level of education) -instruments used were the same for the 2 groups respectively. The intervention group received the bead/patch, the control group received a placebo bead/patch.
Dependent Variable (s) • What is the DV?	PONV in participants
Independent Variable (s) • What is the IV?	Acupressure or placebo
Results & Findings • Briefly state what the results and research findings are • If hypotheses' testing was done, were the hypotheses supported or not?	-105 women, 5 men; 93 completed all three phases of study -patient evaluated and ranked their nausea on a Likert VAS and 0-10 nausea scale -53 in control (sham), 57 in intervention (patch) -acupressure patches applied preoperatively had significant impact in lowering PONV scores in all three phases

Strengths • What are some strong aspects of the research? Consider the feasibility of how well the study was conducted. • What techniques & methods did the study use to build rigor & reliability? (Quantitative: randomization, use of stats software, control, & constancy in data collection) (Qualitative: member checking, data gathering, data saturation). • Others:	-RCT shows directly cause-and-effect relationships; reduces bias -nausea and vomiting were assessed using a VAS 0-10 scale during recovery on admission and discharge at phase 1 and 2. Participants contacted via phone in phase 3 as well 24-48 hr post op. -study is specific to mobilized surgeries: laparoscopic cholecystectomy, appendectomy, gynecologic, ear, nose and throat, vein stripping and arthroscopic knee. -all participants met 4 out of 5 risk factors in order to be eligible: female, PONV hx or motion sickness, non-smoker, volatile gas general anesthetic -random assignment to placebo vs real group -demographic questionnaire including age, gender, level of education -low price in materials and low risk of adverse reactions -participants were familiarized with nausea and vomiting instrument prior to use
Weaknesses • What are some weak aspects of the research? Consider consistency of the evidence (generability & applicability) • When looking at the evidence, what potential is there for research bias or challenges with validity? (Quantitative: objectivity, sample size, selection bias), (Qualitative: objectivity, structure of interviews, data collection and analysis). • Others:	-nurses were not assessing PONV; belief expressed by nurses was that if it was no mentioned directly patients would not complain/ by mentioning it would cause the phenomenon. This caused lack of early assessment and may have influenced less antiemetic prophylaxis, increasing PONV. -sample size could be increased if males were included in the study sooner -possible bias potential if patient has received acupressure before, they would be aware if they are in intervention or control group. No information regarding this being a screening question. This could alter the outcomes. -study occurred at only one hospital, resulting in this sample potentially being socioeconomically similar to each other -no indication of misplacement of bead/patch

Conclusion, Implications & Recommendations • Describe the researcher's conclusions • Does the conclusion reflect the study's findings? • What are the risks or benefits involved for patients if the research findings are used in practice? • What relevance for nursing practice does the investigator identify? If none, what do you think is important for nurses or nursing? • To what population may the findings be generalized? • What recommendations for future research are stated or implied? If none, discuss what research could further advance this topic of interest.	-acupressure is effective with minimal risk and low-cost adjunctive therapy for PONV prevention and treatment in high-risk ambulatory surgical patients -secondary study finding revealed need for the implementation of PONV risk factor assessment sand evaluation -conclusion does reflect the study's findings -the relevance would be this alternative for patients that is low cost and effective. Unlike many antiemetics, this has little to no negative side effects -population may be generalized to people who can afford elective surgeries, people who are in generally healthy state to be receiving elective surgery, people who have access to telephones to receive post op assessments -recommendations are the need for implementation of PONV risk factor assessment and evaluation. Further studies using other acupressure points should be conducted
Worth to Nursing Practice • Describe how well did this study answer your clinical question. • Upon reviewing the assigned study, along with your 2 other studies, give at least two examples of how together – the findings have contributed to informing your own nursing practice. • How has your practice changed or will your practice change from the research evidence?	-this study answered my clinical question, however it could be more specific. It was difficult to find supporting evidence about the P6 acupressure point relating to similar ambulatory surgeries -all 3 studies including this one support the reduction of nausea using acupressure on the P6 location as well as the low cost and adverse effects associated with acupressure -my practice has changed by remembering this as an alternative. In the future when I have patients experiencing PONV I can see if this is an available alternative to antiemetics on my unit. -I have built further understanding regarding PONV

Note: Critiquing Guidelines were adapted from LoBiondo-Wood, Haber, Cameron & Singh (2018). Nursing research in Canada: Methods, critical appraisal, and utilization (4th Canadian Edition). Toronto, ON: Elsevier Canada. Mosby