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Effectiveness of Acupressure on Post Operative Nausea and Vomiting in Post Abdominal Surgery Patients A Systematic Review

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Abstract

Surgery is a form of medical therapy that can cause stress because it poses a threat to a person's body, integrity, and soul. The surgical process is also often associated with high treatment costs, infectious complications, perioperative nausea and vomiting (PONV), and readmissions. An integrated and continuous nursing care process can make a difference between a negative or positive surgical experience and can influence the client's recovery. Complementary therapy is known as traditional therapy combined with modern medicine. Complementary is the use of traditional therapy in modern medicine. Some have been scientifically proven, for example, touch therapy to increase relaxation, reduce pain, reduce anxiety, speed up wound healing, and make a positive contribution to psychoimmunological changes. This research contributes to a systematic review of complementary therapies, especially acupressure, used to treat complaints of nausea and vomiting in post-abdominal surgery patients to identify the effectiveness of acupressure therapy for postoperative nausea and vomiting in post-abdominal surgery patients. The research design that will be carried out is a systematic review using the PRISMA flow diagram. Researchers used PIO and searched for articles that were in English and published from 2013 to November 2023. The databases used were Proquest, Pubmed, Sage, Clinical Key Nursing, Science Direct, and Google Scholar. Researchers use the Covidence tool to carry out the data selection process through to extraction and use the CASP instrument to evaluate research articles. Eight articles were identified and analyzed. Five articles used an RCT design, one article used a Prospective Cohort design, and one article used a semi-experimental design. The sample size of the reported studies ranged from 60 to 227 people conducted in various geographic regions such as Turkey, Iran, and China. Acupressure therapy used at several points has been proven to help reduce PONV in post-abdominal surgery patients. Acupressure therapy can reduce PONV complaints in post-abdominal surgery patients.

Keywords: *Abdomen Surgery; Acupressure; Post Operative Nausea; Vomiting.*

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1. Introduction

Surgery is a form of medical therapy that can cause stress because it poses a threat to a person's body, integrity, and soul (Mazzotta et al., 2020). Weiser et al., 2016) estimate that there are 234.2 million major surgical procedures performed every year throughout the world. Surgical procedures rank 11th out of 50 disease patterns in Indonesia with a percentage of 12.8% and it is estimated that 32% of them are laparotomy (Silpia et al., 2021).

Surgery is performed on clients when the best therapy for the disorder they are experiencing is in the form of repair, removal or replacement of body tissue or organs (Tortora & Derrickson, 2014). Surgery is an invasive process because incisions are made in the body or when parts of the body are removed. Laparotomy surgery is a major surgical procedure that involves incisions in the layers of the abdominal wall that are experiencing problems such as bleeding, perforation, cancer, and obstruction in the abdominal area (Gejoe et al., 2017).

Contemporary colorectal surgery is often associated with length of stay (LOS). The LOS required is approximately 8 days in patients undergoing open abdominal surgery and 5 days in laparoscopic surgery. The surgical process is also often associated with high treatment costs, infectious complications, perioperative nausea and vomiting (PONV), and readmissions (Carmichael et al., 2017). Major surgery causes physiological

stress to the body that can induce organ dysfunction and hormonal and neurological disorders. This experience is felt by patients as pain, nausea, sleep disturbances, and fatigue (Schlesinger et al., 2023)

An integrated and continuous nursing care process can make a difference between a negative or positive surgical experience and can influence the client's recovery process (Abeles et al., 2017). Postoperative patient care has several components. The problems that often arise after laparotomy surgery are pain in the surgical area, limited range of motion of the joints, and the risk of infection (Mazzotta et al., 2020; Silpia et al., 2021).

Complementary therapy is known as traditional therapy combined with modern medicine. Complementary is the use of traditional therapy in modern medicine (Tóth et al., 2018). This terminology is known as therapeutic modalities or activities that add to orthodox approaches to health services (Tick et al., 2018). Some people also call complementary therapy holistic medicine. This opinion is based on a form of therapy that affects the individual as a whole, namely an individual's harmony to integrate the mind, body, and soul in a functional unity (Niu et al., 2021).

The roles of nurses that can be carried out from the knowledge of complementary therapies include counselors, health educators, researchers, direct service providers, coordinators, and advocates. As a counselor, nurses can be a place for questions, consultations, and discussions if clients need information or before making decisions. As health educators, nurses can become educators for nurses in nursing colleges such as those developing in Australia by first developing an educational curriculum (Widyatuti, 2008). The role of nurses as researchers includes conducting various research developed from the results of evidence-based practice.

2. Method

The research design that will be carried out is a systematic review using the PRISMA flow diagram. Researchers used PIO and searched for articles that were in English and published from 2013 to November 2023. The databases used were Proquest, Pubmed, Sage, Clinical Key Nursing, Science Direct, and Google Scholar. Researchers use the Covidence tool to carry out the data selection process through to extraction. The inclusion criteria were outlined by the researcher through the PIO. Population (P): Adult patients (over 18 years of age) who will undergo abdominal surgery. Intervention (I): acupressure Outcome (O): postoperative nausea and vomiting. The study design that will be used is experimental with RCT, prospective cohort, and semi-experimental. Exclusion criteria in this study were pediatric patients, suffering from psychological disorders and articles in the form of guidelines, news, reviews, books, conferences, correspondence, editorials, and encyclopedias, captions.

Data from studies that meet the criteria will be extracted using a data extraction tool developed to conduct reviews based on items commonly found in a systematic review. Data to be extracted include study code (number), citation (author, and year when the article was received/published), country or region where the research was conducted, research design, research location, sample size, instruments used to assess PONV and then the results obtained from research and conclusions. Next, the researcher will carry out the data synthesis process using the narrative synthesis method. Narrative synthesis is a narrative or summary of research results that will be used to answer research questions. This data synthesis method describes the results of questions or search results from researchers. The results of data extraction and synthesis can be seen in Table 1.

3. Results and Discussion

The initial search obtained in this study totaled 2441 articles from six databases. There were 90 articles whose eligibility was assessed and the final result was 8 articles that underwent data extraction and analysis, however, one article was still in the research process so there were seven articles that would be discussed in this systematic review.

The initial search obtained in this study used RCT studies, prospective cohorts, and semi-experimental designs. The sample sizes used in these studies varied, starting from 60 to 227 people conducted in various geographic regions such as Turkey, Iran, and China.

The studies involved involved 1050 participants and the majority were women (78%, n=820) and 230 men (22%). All participants were recruited at the hospital where the study was conducted. The type of surgery performed was abdominal surgery which included gynecological surgery for the majority of respondents, namely 525 patients (50%) and gastroscopy for 150 patients (14%), and other abdominal operations including laparoscopy, cholecystectomy, or thyroidectomy.

The instrument used to assess the severity of PONV symptoms is by using the VAS scale for complaints of nausea with categories 0 for No nausea to 10 for severe nausea. Vomiting complaints were assessed by counting the vomiting complaints that occurred within 24 hours after surgery. If the patient experiences complaints of nausea or vomiting, it is considered that the patient is experiencing PONV symptoms.

Table 1. Synthesis of Main Results of Various Intervention Groups

Writer	Desain	Population	Implementation	Duration of intervention	Nausea	Vomiting	Conclusion
(Alizadeh et al., 2014)	RCT	227 surgical patients Combined class 115 single class 112	Acupuncture points PC6 and LI4 on each side of the body	Durante operation	51.3% in the combined class and 75% in the single class	18.3% in combined and 34.8% in single class	The combination of acupuncture points is more effective in reducing postoperative nausea and vomiting in surgical patients
(Chen et al., 2014)	Kohort prospektif	150 patients divided into 3 treatment groups EA group, D group and EA + D group.	EA at points LI4, PC6 and ST36 And D, namely 10 ml of oral diclonine hydrochloride mucus, swallowed for 15 minutes	20 minutes before surgery, acupuncture was performed at 3 points and then induced with 2/15 Hz electric gel until the end of gastroscopy.	VAS score was lower in the EA+D group than in the EA and D groups (P<0.01), but there was no statistical difference between the D and EA groups (P>0.05)		Acupuncture can reduce the side effects caused by endoscopy. Related advantages are the simplicity, convenience, and economy of acupuncture, as well as the potential to reduce drug side effects;
(Yu et al., 2020)	RCT	60 patients divided into two groups n=30	TEAS at points GV20, EX-HN-3, ST36, PC6	30 minutes before anesthesia is given electrical stimulation	The incidence of PONV in TEAS was 23.3% and in the control group was 56.7% with P < 0.01		TEAS significantly improves the quality of early recovery and reduces the incidence of nausea and vomiting in the first 24 hours of surgery.
(Yan et al., 2023)	RCT	180 patient divided into two groups	Acupuncture at points PC6, LI4, ST36, SP6	Acupuncture needles are manipulated by rotating, lifting and piercing for 30 seconds and then left for 30 minutes	There were significant differences between groups for the primary outcome; The incidence of PONV within 24 hours after surgery was 44.0% in the combination group and 60.2% in the ondansetron group		Acupuncture combined with ondansetron is more effective in preventing postoperative nausea but does not prevent postoperative vomiting compared with ondansetron alone .
(Yang et al., 2015)	RCT	160 patients were divided into 4 treatment groups	Acupoint ST36 combination with vitamin B1	1. Group P (placebo control group): 2. Group O (ondansetron group)		POV each group ware P 33%, O 11%,A 9% and C 6%.	The results show that ondansetron, acupuncture injection point at ST36 and their combination are highly effective for prophylaxis against POV, with a trend favoring combination therapy.

Writer	Desain	Population	Implementation	Duration of intervention	Nausea	Vomiting	Conclusion
				3. Group A (acustimulation group) 4. Group C (combination group)			
(Cankaya, S, & Saritas, S. (2018))	Semi eksperimental	88 patient	Classic foot massage	Efflurage on the foot dorsum, on the lateral side of the foot and sole	• Significant effect on the incidence of nausea which decreased from 47.7% at pretest to 2.3% at posttest • No significant differences between pretest and posttest	-	The combination of acupuncture points is more effective in reducing postoperative nausea and vomiting in surgical patients
(Yu et al., 2020)	RCT	153 patients were divided into three treatment groups	TEAS at point P6	The duration of TEAS is 30 minutes before anesthesia until discharge from PACU.	• TEAS P6 combined with dexamethasone produces antiemetic effects better than that of dexamethasone alone • similar effect to tropicaletron combined with dexamethasone.	• TEAS P6 combined with dexamethasone was better than that of dexamethasone alone, and was similar to tropicaletron combined with dexamethasone	Acupuncture can reduce the side effects caused by endoscopy. Related advantages are the simplicity, convenience, and economy of acupuncture, as well as the potential to reduce drug side effects

The aim of this systematic review is to see whether there is an influence of acupressure therapy given to abdominal surgery patients on the incidence of PONV. Factors that can influence the incidence of PONV in post-abdominal surgery patients are very important to identify before the patient undergoes surgery. This is used as a guide for specialist anesthetists in carrying out anesthesia and providing prophylactic therapy for nausea and vomiting before the patient undergoes induction. This study is a summary of several studies comparing pharmacological and non-pharmacological therapies that can be given to reduce the incidence of PONV in patients undergoing abdominal surgery.

Postoperative nausea and vomiting (PONV) is a common occurrence after anesthesia and causes patient dissatisfaction and discomfort (Amirshahi et al., 2020). Under certain circumstances, PONV can cause postoperative complications, especially in patients who cannot tolerate increases in heart rate or blood pressure, intrathoracic pressure, or central venous pressure (CANAKCİ & CATAK, 2019). The results showed that the frequency of PONV reached 80% in high-risk populations and up to 30% in the general population. Increased medical costs, prolonged hospitalization, and hospital readmissions are common occurrences in PONV cases (Squire & Spencer, 2018). Many patients prefer pain over postoperative nausea or vomiting and are willing to incur additional costs to avoid PONV.

All research in this systematic study has medium/high methodological quality and meets all components of the quality assessment criteria. However, these studies have several differences in the interventions carried out in terms of the point of therapy given and the technique of providing therapy. This systematic review shows several studies that use acupuncture techniques at acupoints and proves that acupuncture techniques can be used as a complementary therapy that can be used to treat complaints of postoperative nausea and vomiting in patients with abdominal surgery. Alizadeh, et al, (2013) conducted a trial and showed the effectiveness of the LI4 acupoint as an additional drug with the PC6 acupoint to reduce postoperative nausea and vomiting. From the results of the study by Chen, et al (2020), acupuncture can relieve the side effects caused by endoscopy. Related advantages are the simplicity, convenience, and economy of acupuncture, and the potential to reduce drug side effects; In addition, this treatment has a strong operation in the clinic so it can be easily accepted by patients.

The use of TEAS significantly improves the quality of early recovery, increases MMSE scores, and reduces the incidence of pain, nausea, and vomiting in patients undergoing laparoscopic gynecological surgery (Yu, et al, 2020). The effect of TEAS P6 combined with dexamethasone was better than that of dexamethasone alone and was similar to tropical Tron combined with dexamethasone for the prevention of PONV in gynecological patients undergoing laparoscopic surgery. Our findings suggest that P6 stimulation may be an alternative to 5-HT3 antagonists for patients at high risk of PONV in a multimodal antiemetic approach. Unfortunately, P6 stimulation has not yet become a routine procedure for PONV prophylaxis, although it appears to have good cost-effectiveness. (Yang, et al, 2015). The results should encourage and promote the application of this combined technique in the daily life of operations and surgical departments. (Alizadeh, et al, 2013).

This research has several strengths, namely first, this research is a systematic review that summarizes and reports the latest literature regarding the effectiveness of acupressure therapy that can be used to treat PONV symptoms. Second, the literature search process uses extensive searches from various databases. Third, the process of searching for literature to be reviewed was carried out systematically using the evidence tool. However, this research also has limitations that must be acknowledged. A search using the words acupressure which focuses on pressing certain points on the patient's body was limited to only 7 articles obtained but the intervention provided was not only pressure but also the use of acupuncture needles, TEAS, and foot massage. Apart from that, this research also focuses only on articles that are in English and can be accessed by researchers so that some research that may be related and related cannot be included in this research.

4. Conclusions and Suggestions

The results of this study can conclude that there are differences in PONV symptoms in post-abdominal surgery patients after being given acupressure therapy intervention. Evaluating the incidence of PONV can be done by using VAS for nausea and assessing the frequency of vomiting in post-abdominal surgery patients during the 24 hours post-surgery. Antiemetic therapy for prophylaxis and rescue in patients with PONV can be given to patients with an APFEL score of more than 3 or a high risk of 60-80% of PONV.

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