



EFFECTIVENESS OF EARLY MOBILIZATION ON THE PAIN OF POST LAPARATOMY PATIENTS

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ABSTRACT

The purpose of the study was to determine the effectiveness of early mobilization on the pain of laparotomy postoperative patients. This type of research is called quantitative research. The design in this study is pre-experimental, with a one-group pre-test-post-test design. Sampling using purposive sampling techniques. The number of respondents was 15 post-laparotomy patients. Data analysis was conducted univariately and bivariately (Wilcoxon Signed Rank Test). The results of the study found patient characteristics: the average age was 36.8 years, the gender was mostly women (66.7%), the work of most housewives (46.7%), and education was mostly high school (53.3%). The results of bivariate analysis found that the *p* value was 0.000 with α : 0.05. Conclusion: Early mobilization is effective in reducing pain in post-laparotomy patients.

Keywords: early mobilization; pain; post-laparoscopic surgery

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INTRODUCTION

Laparotomy is a major surgical procedure on the layers of the abdominal wall to determine abdominal problems (Sjamsuhidajat, 2014). Laparotomy is a type of major abdominal surgery. The size of the laparotomy surgical wound is large and deep. This wound also requires a long healing time and further treatment (Potter & Perry AG, 2013). WHO explains that surgery is a case with a high incidence rate. As many as 11% of cases of the disease are treated with surgery. The World Health Assembly agreed to reform to improve the quality of surgical services. This is to overcome important problems in surgery. Service renewal prioritizes strengthening surgical services at the regional level which are connected to primary health services so that the goal of complete service is achieved (WHO, 2016).

The incidence of surgery in hospitals is very high. Kusumayanti (2015) reported that surgery (12.8%) was the eleventh case out of 50 cases. 32% of the surgical cases were laparotomy. The increase in surgical data is very significant. The World Health Organization (WHO) shows that from year to year there is an increase in surgical cases (Kementerian Kesehatan RI, 2011). Laparotomy is an action that causes injury. Body chemicals that can appear with pain include histamine, bradychymine, serotonin. Cramps or stiffness of the abdominal muscles is one of the signs of psot surgery pain. These signs will get worse if accompanied

by abnormal digestive function. Decreased digestive function can increase intra-abdominal pressure, which will worsen the patient's condition (Dermawan & Rahayuningsih, 2010).

Post surgery there is injury to the tissue. The injured tissue will adapt as signs of swelling appear. This condition will increase the pressure on the injured area and cause pain (Strode & Logina, 2009). Pain is subjective where the experience of one patient and another patient is different. Proper management of patient pain is very necessary so that patients feel safe and comfortable. Fulfilling a sense of security and comfort supports the post-operative healing process (Viscusi, 2014). Reducing pain, minimizing post-operative complications, accelerating the return of body system function, patient education to maintain self-concept and knowledge of home care are the goals of post-operative care (Muttaqin, 2012). One of the actions to improve the function of the body's systems is mobilization (Smeltzer & Bare, 2014). The effect of mobilization actions on the body system includes stimulating intestinal peristalsis and reducing pain. Some signs of the body's response to pain include changes in the body's vital signs (pulse, temperature, respiration and blood pressure) and changes in expression. Pain responses range from mild to severe. Severe pain can cause neurogenic shock (Potter & Perry AG, 2013).

Potter & Perry AG, (2013) stated that the action to overcome various complications that can arise post-surgery is early mobilization, namely the transfer of lying down carried out 6 hours post-surgery. The important role of early postoperative mobilization is to increase blood circulation, increase muscle tone, which will then have an impact on changes in the patient's vital signs. Changes in vascularization will increase adequate blood intake so that the body's oxygen needs are met, and have an impact on the healing process. In early mobilization, patients are influenced by various factors. Factors that can influence mobilization ability include the patient's ability to mobilize, lifestyle patterns, age, support system in the environment (family), patient energy and patient psychology (Smeltzer & Bare, 2014).

There has been an increase in surgical cases in hospitals. Primary data from Soeradji Trtonegoro Klaten Hospital states that in the first six months of 2019 there were 177 cases of laparotomy operations. Cases include caesarean section, appendicitis, cholelithiasis and ileus, uterine myoma, colon ca. Hospital policy does not apply early mobilization to reduce post-operative pain. Patient pain management uses analgesics. Problems of pain that increase during activity, pain such as slicing, burning, sleep disturbances and passive patients in early mobilization. Based on these problems, the purpose of the study was to determine the effectiveness of early mobilization on the pain of laparotomy postoperative patients.

METHOD

This type of research is quantitative, the design used is pre-experimental one group pre test-post test. In this research, there is one group that will be given intervention. Before the treatment, a pre-test will be carried out, then a re-measurement (post-test) will be carried out after the intervention. The location of this research is Soeradji Tirtonegoro Hospital, Klaten. The study population was all patients with a post-operative diagnosis of laparotomy within 1 month. The sampling technique used was purposive sampling with inclusion and exclusion criteria determined by the researcher. The number of samples obtained in this study was 15 respondents. Pain data was collected using the Numerical Rating Scale (NRS) measurement scale. Validity and reliability tests were not carried out in this research. Meanwhile, data analysis used the Wilcoxon sign rank test.

RESULTS

Table 1.
Respondent Characteristic

Age	f	%
Min	23	-
Max	52	-
Mean	36,80	-
Median	36,00	-
SD	9,05	-
Gender		
Female	10	66,7
Male	5	33,3
Employment		
House Wife	7	46,7
Private	4	26,7
Self-employed	3	20,0
Civil servants	1	6,7
Level of education		
Junior high school	2	13,3
Senior high school	8	53,3
College	5	33,3

Table 1, the mean age of respondents is 36.80 + 9.05 with the youngest age being 23 years and the oldest age being 52 years. From table it shows that the majority of respondents were female (66.7%), the majority of respondents' jobs are housewives (46.7%) and it is known that the highest education is high school (53.3%).

Table 2.
Mean Pain Level in Pre-test Patients

Category	Min	Max	Mean	Median	SD
Pre test	6,00	8,00	7,17	7,00	0,79
Post test	3,00	5,00	4,20	4,00	0,68

Table 2, the average pre-test pain level is 7.17 + 0.79 with a minimum pain score of 6 and a maximum pain score of 8. Furthermore, the average post-test pain level is 4.20 + 0.68 with a minimum pain score of 3 and The maximum pain score is 5. Based on the average pain score, the respondent's pain before the intervention was severe pain, while the average respondent's pain after the intervention was moderate pain.

Table 3.
Effectiveness of Early Mobilization in Reducing Pain in Laparotomy Patients

Observe	Mean ± SD	Z _{hitung}	Sign
Pre test	7,07 ± 0,79	-3,573	0,000
Post test	4,20 ± 0,68		

Table 3 the results of the Wilcoxon Signed Rank Test show a Zcount of -3.573 with a p-value of 0.000 (α; 0.05). There is a difference in pain scores before and after early mobilization. The Zcount value is negative (-3.573), which means that the pain score after the intervention is lower than the pain score before the intervention. pv; 0.000 indicates that early mobilization is effective for post laparotomy pain.

DISCUSSION

Patient Characteristics

Age

The average age of patients after laparotomy surgery was 36.8 years, with the lowest age being 23 years, the highest being 52 years and a standard deviation of 9.04 years. Based on

these age characteristics, the patient is included in the adult age group. Age can influence how we respond to pain. Increasing age can influence changes in sensory stimulation and pain threshold. As patients get older, they will experience less pain compared to younger people (Potter & Perry AG, 2013). A person's maturity determines a person's ability to reason when facing problems, so that it will help patients deal with pain conditions after surgery. Study Metasari & Sianipar, (2018) the results showed that there was an influence of age on pain intensity. Pain management will improve with age.

Respondent's Gender

The research results showed that the largest gender was female (66.7%). Women have a high sense of pain sensitivity. Study Kusumayanti, (2015) shows that there is an influence of gender on pain intensity, where men have a better ability to endure pain compared to female patients. Research result Pristahayuningtyas, (2016), there are factors that also influence pain, namely culture. Culture influences men and women in interpreting pain.

Respondent's occupation

The research results related to work were housewives (46.7%). The work of housewives risks patients having difficulty accessing health information. According to Prasetyo (2010) it is explained that as social creatures, patients will interact with other people, to exchange information. This causes information exposure between individuals.

Respondent's Education Level

Most patients had a high school education (53.3%). Education will influence the patient's knowledge in dealing with pain. According to research Widayati (2022) the results showed that knowledge was related to the ability to mobilize early in patients undergoing laparotomy. Knowledge will influence changes in a person's behavior when receiving a stimulus, the ability to learn, behave and behave positively (Notoatmodjo, 2014). Most of the results of this research were upper secondary education, the level of education will influence actions to deal with pain. Study Faucett (2009) stated that the higher the patient's level of education, the better ability they will have to adapt to pain.

Post laparotomy patient pain level before early mobilization

The average pain before early mobilization was $7.17 + 0.79$ with a minimum pain score of 6 and a maximum pain score of 8. Based on the average pain level score, the patient's pain was severe pain. The pain that appears in post-laparotomy patients is caused by an incision wound that damages tissue, causing pain (Rampengan (2014). Pain that is acute in laparotomy patients is pain that has a rapid onset and varying intensity. Treatment with medication or non-medication, this acute pain will heal by itself. Improvement in pain is influenced by tissue repair. Tissue repair due to surgery is influenced by tissue damage or deformation, which is one of the pain receptors that stimulates free nerve endings (nociceptors). Wounds cause nerve cells to be damaged, resulting in the appearance of bradykinin, serotonin and proteolytic enzymes which indicate the presence of damaged tissue. This substance affects the pain receptor nerve endings and this stimulation, via the ascending nerve, will be delivered to the part of the brain, namely the hypothalamus. The receptor stimulus becomes more sensitive to thermosensitive so that pain can be felt (Prasetyo, 2010). Study Langanawa (2013) stated that the majority of postoperative laparotomy patients had pain levels with characteristics of moderate pain and severe pain.

Post Laparotomy Pain after Early Mobilization Intervention

The average pain after intervention (post test) was $4.20 + 0.68$ with the lowest pain score being 3 and the highest pain score being 5. The average post test pain was in the moderate pain category. There was a decrease in the level of pain experienced by patients after receiving early mobilization therapy. Based on Muttaqin, (2012) that reducing the degree of pain in post-operative patients can be done by administering drugs and non-drug management. Mobilization has an effect on improving the body's systems, including the pulmonary and cardiovascular systems, which will influence the healing process (Yip et al., 2016). Pain management can be done by providing drug therapy and non-drug therapy (non-pharmacological). Non-pharmacological management can be done with several actions including relaxation, deep breathing techniques, mobilization, hypnotherapy, distraction and TENS (Transcutaneous Electrical Nerve Stimulation) (Fahmi, 2012).

Early mobilization is carried out on laparotomy patients as soon as the patient's condition is stable and movement is possible. Intervention was carried out on the first post-operative day. Nugroho, (2010) stated that it is important to carry out early mobilization in post-operative patients. Some of the positive impacts of early mobilization include reducing pain where there is a diversion of the patient's concentration, and reducing the activation of chemicals in the inflammatory process. Reduced activation of body chemicals will increase the pain response which will minimize nerve transmission of pain to the central nervous system. This process shows that early mobilization is effective in reducing post-operative pain. Early mobilization is an important aspect for improving physiological functions, including cardiovascular, respiratory and digestive functions. This will accelerate the patient's independence resulting in an increase in daily activities. Another impact of early mobilization is increasing the body's metabolism (Berman, 2009). Early mobilization carried out regularly can increase the body's metabolism, making blood circulation in the wound area smooth. So that there is sufficient oxygen, amino acids, vitamins and minerals in the wound area, and this will prevent tissue hypoxia and speed up wound healing (Muttaqin, (2012).

Effectiveness of self-mobilization on pain in post laparotomy patients

Bivariate analysis showed that $p\text{-value} = 0.00$ ($\alpha: 0.05$). Pain in post-operative patients has an impact on the body's physiological functions, where the body's system issues a warning that treatment must be carried out to prevent further trauma. Pain is the main problem of postoperative patients. This feeling of discomfort will appear before the patient's consciousness recovers and increases with the reduced effect of the anesthesia given during the operation. Surgical pain is acute pain due to incisions during surgery (Potter & Perry AG, 2013). There are many ways to deal with pain. Management of post-operative pain in patients is mobilization. Early mobilization will increase blood circulation, which has an impact on the local vasoconstriction and vasodilation processes in the injured area. Changes in the wound area with smooth blood flow to the wound area cause an increase in the amount of oxygen, nutrients needed by the tissue, metabolism and tissue repair. Hypoxia does not occur, wound tissue repair is good, and pain will decrease (Potter & Perry AG, 2013).

Hidayat & Uliah, (2015) the decrease in the patient's pain scale after surgery can be influenced by actions to divert the patient's concentration. It is hoped that initially the patient will concentrate on the pain when early mobilization is carried out, the patient's attention will change. The action of early mobilization also causes no interaction between the pain stimulus and the fiber stimulus responsible for sending the sensation of pain, resulting in an inhibitory gate circuit. Research shows that early mobilization has proven effective in reducing pain after laparotomy surgery. The patient's concentration, which was initially focused on the pain

experienced, shifts to the movements being carried out. This will also have an effect on improving the body system, blood circulation, breathing and digestion will gradually improve. Metabolic improvements also occur resulting in accelerated repair of damaged tissue. Ganong (2008) said that post-operative patient pain can be blocked when there is an interaction between the pain stimulus, the stimulus in the fibers that send the pain sensation will be blocked in the inhibitory gate circuit. Diverting concentration by doing movements or other actions will divert the patient's focus from the pain they are feeling, so that the patient will feel less pain.

Other assessment results that support the results of this research are Ani Wulandari (2018) the results obtained were significant differences in pre- and post-mobilization pain in post-TURP surgery patients. Caecilia (2016) research also supports this, namely that there are changes in pain levels pre and post early mobilization of appendectomy patients.

CONCLUSION

The conclusion in this study is that the characteristics of the patients in this study were an average age of 36.8 years, the majority gender was female (66.7%), the occupation was a housewife (46.7%), and the highest education was high school (53.3%). The pain level of post laparotomy patients before early mobilization intervention was mostly on a scale of 7 - 10 (66.7%), falling into the severe pain category. Post laparotomy patient pain after early mobilization intervention was obtained on a scale of 4 - 6 (100.0%), falling into the moderate pain category. Early mobilization is effective in reducing pain in laparotomy patients with a p-value of 0.000 (α : 0.05).

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