

Effect of Early Mobilization on the Change of Pain Level in Clients With Post Appendectomy at Mawar Surgical Room of Baladhika Husada Hospital Jember Regency

SISWOYO¹, CAECILIA YUDISTIKA PRISTAHAYUNINGTYAS², MURTAQIB³, KHOLID ROSYIDI MUHAMMAD NUR⁴

Faculty of Nursing, University of Jember, East Java, Indonesia

Correspondence to Rini Kundaryanti, 37 Tegal Boto Sumbersari Campus, Kalimantan Street, Sumbersari, Jember, Krajan Timur, Sumbersari, Kec. Sumbersari, Jember District, East Java 68121 Email: siswoyo.psik@unej.ac.id; telephone number: +62 821-4165-2876

ABSTRACT

Background: Appendectomy is a procedure that can cause pain.

Aim: The clients with post appendectomy surgery needed the maximal treatment to return the body function quickly. One of non pharmacological therapy that could be used to decrease the pain was early mobilization. Early mobilization was useful to distract clients from the pain.

Aim: To analyze the effect of early mobilization on the change of pain level in clients with post appendectomy operation at Mawar Surgical Room of Baladhika Husada Hospital Jember Regency. Independent variable of this research was early mobilization and dependent variable was the change of pain level. This research used pre experimental: one group pretest posttest design. The sampling collection technique used was consecutive sampling involving 8 individuals. Data analysis used t-dependent testing with the significance level of 95% ($\alpha=0,05$). Data analysis regarding dependent t-test showed that there was a significant difference between pretest and posttest after doing early mobilization ($p=0,000$). The conclusion of this research suggested that there was an effect of early mobilization on the change of pain level.

Conclusion: The early mobilization was expected to be applied as one of methods in providing nursing care to clients with post appendectomy surgery.

Keywords: early mobilization, appendectomy, pain

INTRODUCTION

Appendicitis is inflammation of the vermiform appendix, and the most common cause of abdominal problems¹. The incidence of appendicitis in the world in 2007 reached 7% of the total world population. The incidence of appendicitis in developed countries is greater than in developing countries. One in 15 people had suffered from appendicitis in his life, namely the number of people with appendicitis in Indonesia reached 591,819 people and the incidence of appendicitis increased in 2009 by 596,132 people. The data from the Ministry of Health 2008 found that the incidence of appendicitis in Indonesia got highest rank among other cases of abdominal emergency².

The results of a preliminary study conducted in the Rose Room of Baladhika Husada Hospital, Jember Regency, found data on cases of appendectomy that occurred in 2013 as many as 64 and 2014 as many as 71 cases. According to nurses in the Rose Surgery Room at Baladhika Husada Hospital, mobilization was always carried out on clients of post appendectomy surgery and was usually done after the first 24 hours of post appendectomy surgery, but early mobilization for post appendectomy surgery clients did not have a fixed Standard Operating Procedure (SOP).

The appendectomy procedure is part of the laparotomy procedure. Post laparotomy patients required maximum care to speed up the return of body functions³. Appendectomy is a complex event as a potential or actual threat to the integrity of a person both spiritual bio psychosocial which can cause a response in the form of pain. The pain usually comes after surgery. One of the treatments for post surgery clients to reduce pain is by early mobilization⁴.

Early mobilization has an important role in reducing pain by eliminating the concentration of patients at the site of pain or the area of surgery, reducing activation of chemical mediators in the inflammatory process that improves pain response and minimizes nerve pain transmission to the central nerve⁵. Therefore, the researcher wanted to know the effect of mobilization on changes in the clients pain level of post appendectomy surgery at Baladhika Husada Hospital, Jember Regency.

METHOD

This research was pre-experimental design with a one group pretest-posttest approach. The population in this research were all clients of post appendectomy surgery in May 2015 in the Rose Surgery Room of Baladhika Husada Hospital, Jember Regency. The sampling technique used was consecutive sampling. The sample in this research were clients of post appendectomy surgery in May 2015 in the Rose Surgery Room in Baladhika Husada Hospital, Jember Regency, as many as 8 respondents.

The data collection techniques used was the observation sheet Numeric Rating Scale (NRS). Early mobilization was carried out 1x24 hours for \pm 45 minutes, at first 6-8 hours post appendectomy surgery consisting of two steps, the first step was to move the client's extremity by bending and straightening it, each repeated 3 times, each repetition was 8 times, then the second step did the right tilt and left tilt, each for 15 minutes. Data analysis used descriptive analysis and inferential analysis. Descriptive analysis was to explain or describe the characteristics of respondents. Inferential analysis in this

research used the dependent-t test parametric statistical test.

RESULT

The Respondents' Characteristics: Table 1. The distribution of Respondents based on Gender in Rose Surgery Room of Baladhika Husada Hospital, Jember Regency in 4-27 May 2015 (n = 8)

Gender Respondent	amount people	%age
male	3	37,5
female	5	62,5
Total	8	100

Table 1 showed an overview of gender of the respondents in this research. The majority of respondents were female with a total of 5 people (62.5%), while the male respondents in this research were 3 people (37.5%).

Tabel 2. The Distribution of Respondents based on age in the Rose Surgery Room of Baladhika Husada Hospital, Jember Regency in 4-27 May 2015 (n = 8)

Variable	Mean	SD	Modus	Min-Max
Age	25,12	9,55	19	18-44

Table 2 explained that the mean value of the age of this reserach's respondents was 25.12 or the average age of the respondents was ± 25 years. The youngest respondents in this research was 18 years and the oldest of respondents was 44 years.

Pain scale before early mobilization:

Table 3. The Distribution of Average pain Scale Value of Client of post Appendectomy surgery Before early mobilization in 4-27 May 2015 (n = 8)

Variabel	Mean	SD	Modus	Min-Max
Pain before	7,75	2,37	10	4-10

Table 3 illustrated that the average scale of pain before doing early mobilization. The results of the analysis by using the research instrument Numeric Rating Scale showed that the average scale of pain before doing early mobilization was 7.75 with a standard deviation of ± 2.37.

Pain Scale After Doing Early Mobilization: Table 4. The Distribution of Average pain Scale of Client of post Appendectomy surgery After doing Early Mobilization in 4-27 May 2015 (n = 8)

Variabel	Mean	SD	Modus	Min-Max
Pain after	5,62	1,996	7	3-8

Table 4 illustrated the average pain after doing early mobilization. The results of the analysis using the research instrument Numeric Rating Scale showed that the average pain scale after doing early mobilization was 5.62 with a standard deviation of ±1.996. The Differences in Pain Scale Value before and after doing early mobilization

The data also explained that there were differences of the pain scale before and after doing early mobilization and all respondents in the reseach experienced a reduction of pain scale, which was as many as 8 people.

The analysis by using the parametric dependent t-test results obtained p value of 0,000 (p value <0.05), it could be concluded that there were differences in the pain level in clients of post appendectomy surgery before and after doing early mobilization in the Rose Surgery Room of Baladhika Husada Hospital Jember Regency.

Tabel 5. The differences in Pain Scale Value in Clients of post Appendectomy Surgery Before and After doing Early Mobilization Interventions in the Rose Surgery Room Baladhika Husada Hospital, Jember Regency in 4-27 May 2015 (n = 8)

Pain scale value	before	After		Difference Δ
	Pain scale category	Pain scale value	Pain scale category	
10	Severe pain	7	Severe pain	-3
7	Severe pain	4	Moderate pain	-3
7	Severe pain	6	Moderate pain	-1
5	Moderate pain	3	mild pain	-2
4	Moderate pain	3	mild pain	-1
10	Severe pain	8	Severe pain	-2
10	Severe pain	7	Severe pain	-3
9	Severe pain	7	Severe pain	-2

Table 6: The analysis result of Pain Scale Scale Differences in Clients of post Appendectomy surgery Before and After Early Mobilization Interventions in the Rose Surgery Room Baladhika Husada Hospital, Jember Regency in 4-27 May 2015 (n = 8)

Variable	Mean	SD	P value	t
Before and after early mobilization intervention	-2,12	0,83	0,000	-7,20

DISCUSSION

The respondents' characteristics: According to Santacroce said that the ratio of the appendicitis incidence was 1.4 more to male than female³. The incidence of appendicitis was generally comparable between male and female⁷. The results of research carried out in the Rose Surgery Room of Baladhika Husada Hospital related to clients who had appendicitis and did an appendectomy procedure showed the results related to the data on respondents' characteristics, especially gender, that the majority of respondents were female with a total of 5 people (62.5%). This amount could be influenced by several cultures that had a rule that a man is not allowed to cry, while woman is allowed to cry in the same situation, so that in interpreting pain, women were more visible⁶.

Appendicitis occurred in everyone with a variety of ages. The highest incidence was in male of 10-14 years and female of 15-19 years. Appendicitis is often occurred in ± 25 years². The incidence of appendicitis could occur at any age, but more often attacked in 10-30 years⁷. The highest incidence was in the 20-30 year age group, after which it decreased⁸. The results of the research conducted in May 2015 showed that the average age of respondents who had appendicitis and an appendectomy procedure was ± 25 years.

The average age of the research respondents was 25 years which included early adults⁹. This age was generally active and had minimum primary health problems. But on this age the lifestyle could cause health problems. The lack of exercises habits and bad personal hygiene increased the risk of sharing various types of diseases⁶.

Pain level before doing early mobilization: The mean or average pain scale experienced by respondents before doing early mobilization was 7.75 or included in the category of severe pain scale according to Mac Caffery and Beebe. The research which was conducted by Dian Novita in 2012, showed that the pain scale that was mostly experienced by post surgery clients was a severe pain scale category¹⁰. Based on the research that had been done, the scale of pain of the respondents before doing early mobilization even though the majority was on a scale of 10, namely the severe pain category, but there were 2 respondents who also experienced pain and were on a moderate pain scale. Pain is a subjective sensation, an uncomfortable feeling usually associated with actual or potential tissue damage¹¹.

The results of the research showed that there were no respondents who did not feel the pain. This was in accordance with the statement in Smeltzer & Bare, which the pain experienced by post surgery clients came due to mechanical stimulation of the wound which caused the body to produce pain chemical mediators, resulting in pain in each post surgery client⁴. The intensity of post surgery pain varies from mild to severe pain, but decreased in line with the healing process¹². The difference in pain could be influenced by several factors.

The Factors that influenced post abdominal surgery pain included age, gender, culture, meaning of pain, attention, anxiety, fatigue, prior experience, coping style, family and social support¹². Based on research conducted by I Putu Artha Wijaya in a journal entitled factor Analysis of Affecting the Pain Intensity of Post-Abdomen Surgery in the Context of Nursing Care in Badung Hospital Bali, it was revealed that, factors which was affecting the pain of post abdominal surgery included age, gender, spirituality, culture, level of education, experience of previous pain, attitudes and beliefs, level of anxiety, and location of incision¹³.

The results of the research on post appendectomy surgery clients before doing early mobilization showed that post appendectomy surgery clients still felt severe pain despite giving pharmacological therapy. Therefore non-pharmacological therapy was needed to accompany pharmacological therapy, so that it could help to reduce pain. If post surgery pain was not controlled, it could cause the client's rehabilitation process to be delayed and hospitalization to be longer. It was because the client focused all his attention on the pain that was felt⁴.

The pain level after doing early mobilization: The average scale results or the mean value of the client pain scale after doing early mobilization was 5.62 (moderate pain category) with a standard deviation of ± 1.99 , in this research there were no respondents who experienced the painless category of post appendectomy surgery after doing mobilization early. The scale of pain before and after doing early mobilization decreased, from a mean of 7.75 which included the severe pain scale category to 5.62 which included the moderate pain scale category. This showed that the pain scale of the respondents before and after doing early mobilization had decreased.

The Decreasing pain scale values that was varied from one individual to another and the changes in values that were relatively small could be caused by various

factors. One of them was because pain was subjective, there were no two people experienced the same pain and two same pain produced identical responses or feelings to individuals. Pain was a source of frustration, both clients and health workers¹². The other factors that could cause various pain values and showed relatively small changes, including the meaning of pain, pain perception, pain tolerance, and reaction to pain⁵.

The decreasing the pain scale after doing mobilization was also affected because early mobilization had an important role in reducing pain by removing the patient's concentration at the site of pain or surgery area, reducing activation of chemical mediators such as histamine, bradykinin, prostaglandins, acetylcholine, P substances, leukotrienes and potassium in the inflammatory process that increased pain response and minimized nerve pain transmission to the central nerve. Physical movements could be carried out on the bed by moving the hands and feet which could be bent or straightened, contracting the muscles in static or dynamic conditions including also moving other bodies, tilting left or right⁴.

The Effect of Early Mobilization on the Changes in Pain Levels: The results of the dependent t-test statistic obtained bivariate dependent t-test or paired t-test with p value = 0,000 which meant that there was a significant difference between the scale of pain before doing early mobilization and the scale of pain after doing early mobilization.

Based on the research conducted, the respondent's pain scale value after doing early mobilization showed that 100% of respondents experienced a reduction in pain scale and the average reduction in the client's pain scale before and after doing early mobilization was from a mean of 7.75 which included a severe pain scale category. 5.62 which belonged to the moderate pain scale category.

The decreasing of the pain scale could be affected by the diversion in concentration of client attention, which previously focused on the pain experienced, but during early mobilization, focusing on pain was transferred to early mobilization activities. pain that occurred in a person due to certain stimulus such as surgery, could be blocked when there was an interaction between a pain stimulus and a stimulus to the fibers that sent a painful sensation blocked on the gate inhibitor circuit¹⁴.

There was pharmacological management as well as non-pharmacological management for pain. Management of non-pharmacological pain included distraction and relaxation techniques. One distraction was by inviting clients who experienced pain to move and carry out activities, so that the focus of the client's attention was not on pain, but on the activities or movements carried out. The distraction could range from monotonous prevention to physical or mental activity. Some people could relieve pain through games and activities⁴.

Early mobilization exercises could focus the client's attention on the movements performed. It triggers the release of norepinephrine and serotonin¹⁵. The released of these compounds stimulated or modulated the descending control system. There were two things in the descending control system, the first was the release of substance P by delta-A and delta-C neurons. The second thing was the mechanoreceptors and beta-A neurons

released neurotransmitters inhibiting endogenous opiates such as endorphins and dynorphins. It became more dominant to close the defense mechanism by inhibiting substance P. The inhibition of substance P decreased nerve transmission to the central nerve so it decreased pain perception⁴.

CONCLUSION AND SUGGESTION

The conclusion from the results of the research was that there was an effect of early mobilization on changes in the pain level of post appendectomy surgery clients. These results indicated that early mobilization could be given to reduce the pain scale of clients in post appendectomy surgery clients.

This research was expected to improve the quality of health services by providing early post surgery mobilization, especially appendectomy so that it could be one of the interventions to reduce non-pharmacological pain. In addition, this research could be continued with further research which could be in the form of experimental research with a more accurate level of estimation, involving control groups, and using a larger number of samples.

Acknowledgment: The researcher expressed his gratitude to the research respondents and the Baladhika Husada Hospital in Jember Regency, especially the Mawar Surgery Room, which assisted researchers in carrying out the research and Faculty of Nursing University of Jember that give support of this study.

Acknowledgment: The researcher expressed his gratitude to the research respondents and the Baladhika Husada Hospital in Jember Regency, especially the Mawar Surgery Room, which assisted researchers in carrying out the research and faculty of Nursing University of Jember that give support of this study.

REFERENCES

1. Dermawan, Rahayuningsih. Keperawatan medikal bedah: sistem pencernaan. Yogyakarta: Gosyen Publishing; 2010.
2. Eylin. Karakteristik pasien dan diagnosis histologi pada kasus apendisitis berdasarkan data registrasi di departemen patologi anatomi fakultas kedokteran indonesia rsupn cipto mangunkusumo pada tahun 2003-2007. Tesis. Jakarta: Fakultas Kedokteran Universitas Indonesia [internet]. 2014. [diakses tanggal 3 Oktober 2014]. dari: <http://www.google.com/url?q=http://lib.ui.ac.id/file%3Ffile%3Ddigital/122559-09008fkKarakteristik%2520pasien&ved>.
3. Muttaqin dan Sari. Asuhan keperawatan perioperatif. Jakarta: Salemba Medika; 2009.
4. Smeltzer, Bare. Keperawatan medikal bedah. Edisi 8. Volume 2. Jakarta: EGC; 2002
5. Hidayat AAA. Pengantar kebutuhan dasar manusia: aplikasi konsep dan proses keperawatan. Jakarta: Salemba Medika; 2006.
6. Potter PA, Perry AG. Buku ajar fundamental keperawatan: konsep, proses, dan praktik. Jakarta: EGC; 2005.
7. Sjamsuhidajat dan Wim. Buku ajar ilmu bedah. Edisi Revisi. Jakarta: EGC; 1997.
8. Mansjoer. Kapita selekta kedokteran. Edisi Ketiga. Jilid Kedua. Jakarta: Media Aeculapius; 2000.
9. Depkes RI. Profil kesehatan indonesia. Jakarta: Departemen Republik Indonesia; 2009.
10. Novita. Pengaruh terapi musik pada nyeri post operasi open reduction and internal fixation (orif) di rsud dr. h. abdul moeloek propinsi lampung. Tesis. Depok: Fakultas Ilmu Perawatan Universitas Indonesia [internet]. 2012. [diakses tanggal 14 Maret 2015]. dari: <http://lib.ui.ac.id/file?file=digital/20328120-T30673%20-%20Pengaruh%20terapi.pdf>.
11. Siswati. Pengaruh masase kulit terhadap penurunan rasa nyeri pada pasien post apendiktomi di rindu b2 rsup h. adam malik medan 2010. Skripsi. Surakarta: Stikes Kusuma Husada. [internet]. 2010. [diakses tanggal 16 April 2015]. Dari: <http://digilib.stikeskusumahusada.ac.id/files/disk/1/10/01-gdl-rafideviar-473-1-rafidev-n.pdf>.
12. Potter PA, Perry AG. Buku ajar fundamental keperawatan: konsep, proses, dan praktik. Jakarta: EGC; 2006.
13. Wijaya IPA. Analisis faktor-faktor yang mempengaruhi intensitas nyeri pasien pasca bedah abdomen dalam konteks asuhan keperawatan di rsud badung bali. Jurnal Dunia Kesehatan Vol. 3 (1). [internet]. 2014. [diakses tanggal 9 Juni 2015]. dari: <http://www.triatma-mapindo.ac.id/ojsstikes/index.php/JDK3/article/view/35>.
14. Ganong WF. Buku ajar fisiologi kedokteran. Edisi 22. Jakarta: EGC; 2008.
15. Rospond RM. Pemeriksaan dan penilaian nyeri. [internet]. 2008. [diakses 14 Maret 2015]. dari: <https://yrawati.files.wordpress.com/2008/27/pemeriksaan-dan-penilaian-nyeri.pdf>.