Case Report

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Case Study: Application Of Dhikr And Audio Murottal On Changes Hemodynamic Status In Patient With Post-Thoracotomy Pectus Bar

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ABSTRACT

Hemodynamic instability is a problem that often occurs in postoperative patients in the ICU, one of which is thoracotomy surgery. Signs of hemodynamic instability are an increase in Mean Arterial Pressure (MAP), heart rate and respiratory rate, changes in decreased oxygen saturation, increased pain scale and even decreased consciousness. Maintaining hemodynamic stability in post-operative patients can be done by administering pharmacological and non-pharmacological interventions. Nursing care that can be done to maintain the patient's hemodynamic stability includes oxygenation, head position adjustment, stimulation with both verbal and non-verbal communication approaches, gentle massage relaxation and music therapy. Music therapy that can make patients relax and calm, one of which is by dhikr therapy and listening murottal Al-Quran. Purpose: to analyze dhikr therapy and listening murottal Al-Quran on changes in hemodynamic status in postoperative (thoracotomy) patients. Methods: This study used the case study method to explore the problem of nursing care. The approach used is the nursing care approach which includes: assessment, diagnoses, interventions, implementation and evaluation. Hemodynamic recording is recorded on a flipchart and pain measurement is carried out using the Critical Pain Observational Tool (CPOT) instrument. Results: The results showed that after 3 days of intervention, there was a decrease in heart rate, respiratory rate, pain scale, increase in GCS values and other hemodynamic component values within normal limits. Conclusion: Therapeutic intervention of dhikr and listening murottal Al-Quran can maintain hemodynamic stability in postoperative patients in the ICU.

Introduction

Pectus Excavatum (PEx) is an abnormality in the shape of the chest wall or a condition in which a person's sternum sinks into the chest (Shaalan A. M et al, 2017). Pectus excavatum, or "funnel chest" is caused due to the separation of the posterior sternum and adjoining ribs into the chest cavity (Biavati M et al, 2020). Patients with severe cases of pectus excavatum in the middle of the chest may look as if the area has left a deep indentation and will get worse and the symptoms will worsen as they get older. This anterior chest wall condition is the most common disorder, estimated to occur in 1 in 40 to 1 in 400 people worldwide (Biavati, M et al, 2020). This condition is found in 1:1000 births and is experienced more by men than women with a ratio of 3:1 (Harris C, 2016).

The causes of this chest deformity or pectus excavatum are not known with certainty. The cause of pectus excavatum may be due to excessive growth resulting in a mismatch of bone growth in the costochondral area. Several studies have shown that patients with PE have shorter soft bones. Approximately 43% of patients with PE have a family history of the condition. Pectus excavatum is considered a hereditary disorder due to a gene abnormality that is not known with certainty (Abid, I et al, 2017).

Some of the symptoms that are felt in patients with pectus excavatum include chest pain, back pain, palpitations, fatigue, shortness of breath, especially when on the move and even besides that it can also affect appearance because the chest looks like it has an indentation (Harris C, 2016). Several investigations can be carried out to determine the condition of pectus excavatum and see the impact of this abnormality on the heart and lungs. This examination includes chest X-rays and chest CT scans. From this examination it will be seen whether the heart or lungs are compressed. In addition, echocardiography examinations can also be performed to check heart function (Abid, I et al, 2017).

Mild cases of pectus excavatum can be treated with physiotherapy, namely physical exercise aimed at improving body posture and developing the chest wall, but for moderate and even severe cases, surgery is necessary (Harris C, 2016). The operation performed is a small invasive operation called the nuss procedure. This action is performed to correct abnormalities in the chest wall by placing a pectus bar under the sternum. The sternum can be lifted back to its normal position and the bar will be left in the chest for 2 to 4 years. Then after that, another operation was carried out to remove the pectus bar, one of which was by performing a thoracotomy.

Thoracotomy is an action by making a hole in the chest to be able to dissect one of the organs in the thorax, such as the heart and lungs or one of the structures in the mediastinum. After a thoracotomy procedure, the patient is usually still affected by anesthetic drugs so that he experiences a decrease in consciousness. Post-thoracic surgery patients also tend to experience ventilation problems, severe pain and even other complications such as respiratory failure, bleeding and even shock so that patients require intensive care in the ICU (Intensive Care Unit) room (Harris C, 2016).

Hemodynamic instability is one of the most common problems in postoperative patients because the control mechanisms have not or are not functioning normally. Hemodynamics is circulation or blood flow in the body which monitoring can be done in invasive and non-invasive ways. Hemodynamic monitoring is a very important part of the care of critically ill patients because their hemodynamic status can change rapidly and is useful as an evaluation of the success of patient resuscitation in the early shock phase (Ramsingh, Alexander & Cannesson, 2012). Hemodynamics is an examination of the physical aspects which include blood flow, cardiac function and peripheral vascular characteristics. The hemodynamic components themselves include pulse frequency, blood pressure, respiration, fluid intake output, oxygen saturation (SPO2) and GCS (Glasgow Coma Scale).

Unstable hemodynamic conditions are usually caused by stressors from physiological, psychological and environmental aspects.

Stressors that appear in critical patients in the ICU are influenced by the acute pain felt by patients (Setyawati, Ibrahim, & Mulyati, 2016). This is also in line with research conducted by Kurniawan, Kristinawati and Widayati, (2019) where the psychological stressors felt by patients due to pain in patients who are directly exposed to threats to death, responses to medical treatment received by patients as well as loss of communication skills and loss of mechanical

Method

This type of research is descriptive in the form of a case study (case study) to explore the problem of nursing care of clients with postoperatively with the criteria of post thoracotomy pectus excavatum patients with hemodynamic instability, patients are often restless and uncomfortable, patients experience pain (CPOT 4 moderate pain). The approach used is through nursing assessment, nursing diagnosis, nursing action intervention, nursing implementation and evaluation which is a nursing care approach.

Researchers conducted an assessment of the patient including demographic data, medical history before and after surgery, hemodynamic monitoring and assessment for pain measurement which was carried out using the Critical Pain Observational Tool (CPOT) instrument before being given dhikr therapy and audio murottal Al-Quran. The Critical Pain Observational Tool (CPOT) is a pain scale measurement by evaluating four behavioral domains consisting of facial expressions, body movements, muscle tension and compliance with the use of a ventilator. This tool provides good evidence for face, constructive and validity criteria. The CPOT instrument is used to assess and assess pain in patients who experience decreased consciousness, patients who receive sedation and are intubated. Before giving dhikr therapy and audio murottal Al-Quran. After the assessment is carried out, a nursing diagnosis can be enforced and then a nursing action plan will be developed. Then, interventions for dhikr therapy and audio murottal Al-Quran are performed for 30-60 minutes. After administration of therapy, reassess whether the pain is reduced and the patient's hemodynamic status is within normal or stable limits.

Case

Mr. N,18 years old came to RSUP Dr. Hasan Sadikin with a planned thoracotomy surgery to remove the pectus bar. Previously the patient complained of tightness and pain in his chest. Shortness of breath has been felt since 3 days of SMRS, slightly reduced after the surgical procedure. At the time of assessment the patient was weak and powerless in general, GCS 9 (E4M5VT), shortness of breath (+), chest pain (+) when trying to cough, CPOT pain scale 3 (moderate pain). The patient's family said Mr. N began to experience the same complaint since he was 14 years old, so he often experienced shortness of breath, chest pain, and tired easily. One month ago, the client underwent the first thoracostomy (nuss procedure).

Physical examination results BP 95/85 mmHg, HR: 104x/minute, RR: 25x/minute, temperature: 36.5, SPO2: 100% (connected to a PSV mode ventilator), breathing fast and shallow, there are sternum breathing muscles, asymmetrical chest expansion, gurgling breath sounds, rhonchi heard, patient had ETT diameter 7mm in diameter and 21cm in depth, connected to a PSV mode ventilator with PEEP 5, FiO2 50%, and pressure support 5, conjunctiva was not anemic, sclera was not icteric, pulse was strong, cold axillary temperature, regular S1 and S2 heart sounds, murmur (-), no extremity edema. Lab examination Hb: 7.6 g/dL Ht: 22.6% Leukocytes: 7.95/mm3 erythrocytes: 2.83 Million/mm3 platelets: 152/mm3 sodium: 129 mg/dL calcium: 4.22 mg/dL creatinine 0.63 mg/dL pH: 7.452 pCO2: 38.0 mmHg pO2: 234.4 mmHg HCO3: 26.7 mmol/L. Chest photo investigation showed no cardiomegaly, suspected right bronchopneumonia. The results of the CPOT 4 pain assessment (moderate pain), MFS 50 fall assessment. The pharmacological therapies given were ceftriaxone, omeprazole, morphine, PCT, Dexmedetomidine, Vitamin K and Tranexamic acid

Results

During the 3 days of implementation, it was shown that dhikr therapy and audio murottal Al-Quran had an effect on the stability of the patient's hemodynamic status. Table 1. Shows an overview of the patient's hemodynamic status.

Hari		TD (mmHg)	MAP	HR (x/menit)	RR (x/menit)	Suhu (°C)	SPO2 (100%)	CPOT	GCS
1	Pre	99/64	76	110	28	36,8	100	3	E4M5VT (9)
	Post	96/60	72	98	24	36,5	100	3	E4M5VT (9)
2	Pre	110/85	93	122	30	36,8	99	3	E4M6V2 (12)
	Post	103/74	84	111	24	36,8	100	2	E4M6V2 (12)
3	Pre	120/98	105	115	29	36,8	99	1	E4M6V3 (15)
	Post	115/87	96	101	24	36,5	100	1	E4M6V3 (15)

Table 1. hemodynamic status.

Table 1. shows that there is stable hemodynamic status and is within the normal range after being given dhikr therapy and audio murottal Al-Quran. On the first day of the intervention, there was a decrease in the patient's pulse and respiratory rate, while the other hemodynamics were still within normal limits. On the second day of the intervention, the patient experienced a decrease in pain, an increase in the GCS value, a decrease in the patient's pulse, respiration and body temperature while other hemodynamic values were still within normal limits. Then on the third day of the intervention, the patient experienced a decrease in the pain score, an increase in the GCS value and a decrease in the pulse and respiratory rates while the other hemodynamics were still within normal limits.

In addition to giving non-pharmacological interventions, patients also receive pharmacological therapy to reduce pain and that is by giving morphine 10 mg 1x1 IV and dexmedetomidine 0.4 1x1 IV. Judging from the hemodynamic monitoring on the second day where there was a decrease in the pain scale then the administration of morphine was stopped. Then the administration of dexmedetomidine was stopped on the third day because the patient's condition was stable.

Discussion

One of the management of postoperative patients is by monitoring hemodynamic status. Researchers conducted hemodynamic monitoring in the ICU (intensive care unit) room in postoperative patients with a medical diagnosis of pectus excavatum. Assessment of the status of the patient's cardiovascular system is carried out by monitoring hemodynamics by assessing ng properly. Medical monitoring devices are tools used to monitor hemodynamics. This becomes an integral part of the whole process of collecting data on the patient's condition and disease starting from the history, physical examination and various other supporting examinations needed to support the patient's diagnosis such as urine examination, radiological examination, routine blood laboratory examination, liver function, record heart, and others (Sirait, 2020).

What usually happens to ICU (intensive care unit) patients is hemodynamic instability caused by stressors from environmental, psychological and physiological aspects. Stressors that arise in critical patients in the ICU (intensive care unit). affected by acute pain felt in patients (Setyawati, Ibrahim, & Mulyati, 2016). Where the hemodynamic parameters used are non-invasive hemodynamic parameters such as systolic blood pressure, diastolic blood pressure, pulse, respiratory rate and SPO2 which results can be observed immediately after being given an action (Sari, 2020). Maintaining hemodynamic stability can be done by administering pharmacological and nonpharmacological therapy. In this study, the pharmacological therapy given was therapy with morphine and dexmedetomidine.

According to the Food and Drug Supervisory Agency, a drug that functions to relieve and eliminate severe pain and this condition cannot be treated with non-narcotic analgesics is morphine. Conditions of severe pain include trauma such as burns, pain due to coronary thrombosis, neoplasms, acute occlusion of peripheral, pulmonary or coronary vessels, renal colic or biliary colic, acute pericarditis, pleurisy and spontaneous pneumothorax, fractures and postoperative pain. The use of morphine has side effects of brachycardia, tachycardia, respiratory

depression and others. Meanwhile, Dexmedetomidine is an initial sedative drug in patients who receive mechanical ventilation and intubation while being treated in the intensive care unit and has side effects such as hypotension, bradycardia and others. To minimize the side effects of pharmacological therapy given such as bradycardia, tachycardia and even hypotension which is part of the hemodynamics so other efforts need to be made to maintain the patient's hemodynamic stability.

Murotal therapy and Dhikr can be used as a non-pharmacological measure in maintaining hemodynamic stability in critical patients. The results of the study by the researchers showed that there was a decrease in pulse frequency, breathing and an increase in GCS as well as a decrease in pain scale before the intervention and after the intervention of dhikr therapy and audio murottal Al-Quran in postoperative patients in the ICU (intensive care unit). Previous studies support this research which states that patients treated in the ICU (intensive care unit) who have been given readings of the Qur'an experience a decrease in both systolic and diastolic blood pressure, heart rate or pulse, arterial pressure, and respiratory rate as well as an increase in the percentage O2 saturation in patients (Mansouri et al, 2017). Another study by Yorpina & Syafriati (2020) also said that there is an effect of dhikr therapy in reducing pain in postoperative patients.

Dhikr Therapy

This study found that dhikr therapy can reduce pain in patients after surgery. This is in line with Yorpina & Syafriati's research (2020), the results of the study with the pre and post test results of the non-parametric test were obtained by the Wilxocon test, the results of a reduction in pain before and after being given dhikr audio therapy were 0.008 <; 0.05. Dhikr sound therapy to relieve postoperative pain. Dhikr therapy is regular rhythmic reading therapy accompanied by devotion to Allah SWT. Dhikr can relieve pain with expressions used in dhikr therapy in the form of the names of Allah SWT or words that have soothing meanings. (Himawan et al, 2017). The correct sentence of dhikr given to the patient is to say "Laa Ilaa Ha Illallah". This pronunciation means that there is no God but Allah SWT, meaning that the servant accepts all of His decrees and accepts the oneness of Allah SWT (Budiyanto et al, 2015).

Budiyanto et al (2015) in their research stated that dhikr therapy had an effect on reducing postoperative patient pain. Judging from the statistical results which show a ρ-value of 0.000, ρ-value <α (0.000 <0.05) which means that changes in pain intensity in postoperative patients before and after giving dhikr therapy are affected by dhikr therapy. The decrease in pain intensity is caused because patients who experience pain in meeting their comfort needs will seek help, nurses can meet the patient's comfort needs by giving or listening to Dhikr. The medical and psychological effects in the body produced by dhikr can function as a cure for pain, where this phenomenon makes the heart and mind calm compared to before dhikr.

Lukman (2012) in his research said that physiologically the brain works when stimulated from the outside because the brain produces neuropeptides, namely sensory chemicals. This is due to spiritual dhikr therapy by remembering the names of Allah SWT. After the neuropeptide substance is produced by the brain, the substance will be absorbed into the body and provide a feedback effect in the form of comfort and pleasure.

Audio Murottal Al-Quran Therapy

In this study, apart from dhikr therapy, murottal audio therapy was also considered to be able to maintain stable hemodynamic status including heart rate, respiratory rate and GCS (Glasgow Coma Scale). in postoperative patients. This is consistent with previous studies which found that after listening to recitation in ICU patients, blood pressure, arterial pressure, heart rate and respiratory rate decreased and oxygen saturation increased in patients (Mansouri et al, 2017). Reading and listening to the holy verses of the Qur'an generates sound impulses or stimuli received by the reading ear, after which the ear starts the listening process. Physiologically, listening is a process in which the ear receives

information from the central nervous system. Because the sound produced by the sound source is received by the ear. These vibrations are converted into mechanical impulses in the middle ear and into electrical impulses in the inner ear and are transmitted to the cerebral cortex of the brainstem via the auditory nerve. (Rochawati, 2018).

In another study by Irman et al (2021) stated that vital signs, such as: Oxygen saturation, Respiration Rate, Heart Rate, and MAP (Mean Artery Pressure) changed after being given Murrotal therapy intervention compared to before being given this therapy. Another study by El-Hady & Kandeel (2017) also proved that in patients with mechanical ventilators attached, murotal therapy proved effective in increasing hemodynamic parameters, respiratory function and level of consciousness with a P value = 0.001. Murrotal Al-Qur'an therapy is a therapy used to activate natural endorphins, cause feelings of relaxation, distract from anxiety and improve the body's chemical systems so that blood pressure decreases and breathing, heart rate, pulse and brain waves slow down (Handayani et al, 2014).

Widaryati (2016) in her research stated that giving the Al-Qur'an murottal therapy intervention affected the GCS (Glasgow Coma Scale) value but had no effect on systolic and diastolic blood pressure, respiratory rate and pulse. In the GCS (Glasgow Coma Scale) evaluation, the significance value is less than 0.05 which is the GCS (Glasgow Coma Scale) variable. This means that Murottal Al-Qur'an Therapy only has a significant effect on increasing the GCS (Glasgow Coma Scale) value. The other four variables are systolic blood pressure, diastolic blood pressure, respiratory rate and pulse have a significance value greater than 0.05. The GCS (Glasgow Coma Scale) is used to quantify the state of consciousness, where the assessment is based on three aspects, namely the ability to open the eyes, verbal skills and motor skills.Consciousness is the main function of the central nervous system.Continued and effective interaction between the cerebral hemispheres and the formation of the retina is necessary to maintain conscious activity.

In line with research by Yusuf & Rahman (2019) which found that the GCS score (Glasgow Coma Scale) increased after providing therapeutic interventions with stimulation of the Koran. On average, each patient experienced an increase in the GCS (Glasgow Coma Scale) value motorically. In his research, there was a change in GCS (Glasgow Coma Scale) after being given Al-Quran stimulation therapy, with 9 out of 10 respondents experiencing changes in consciousness after therapy. In this study, each respondent experienced an increase in the motor GCS (Glasgow Coma Scale) score. After the intervention was carried out in the form of stimulation of the Koran, when the nurse assessed the level of consciousness when receiving a pain stimulus in the xiphoid process area, the motor score slowly increased 1-2 points when the respondent initially only when the subject was able to make abnormal bending or extension movements, he starts trying to reach a designated area of pain, even if he doesn't reach the goal with a painful stimulus.

Conclusions

Based on the results obtained, the intervention of dhikr therapy and audio murottal Al-Quran has the potential to maintain hemodynamic stability in postoperative thoracotomy patients in pectus excavatum patients who are being treated in the ICU (intensive care unit). Recommendations for further research are expected to be able to conduct detailed research on dhikr therapy and audio murottal Al-Quran to provide a more accurate picture. and refine this study regarding its effect on the hemodynamic status of postoperative patients, especially in post pectus excavatum thoracotomy patients.

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