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The Effect of Murottal Therapy of Surah Ar-Rahman on the Hemodynamic Status of Patients Receiving Intensive Care in the ICU

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Abstract

Introduction: ICU is a unit of care for patients with life-threatening chronic diseases that require ongoing care, monitoring, and the use of life-saving support equipment and drugs. Critical patients who can be treated in the ICU are divided into several criteria, where for the first category or criteria patients treated in the ICU are critical patients with conditions and hemodynamics that are unstable, requiring intensive care and tetritation. Hemodynamic instability is a problem that often occurs in critical patients, because the control mechanisms do not function normally. The high stressor in the ICU room causes the patient's hemodynamics to become unstable. Therefore, it is necessary to carry out non-pharmacological measures to complement the pharmacological therapy that has been given to control hemodynamic status. Non-pharmacological action that can be done is Murrotal therapy. Where murotal therapy can stimulate the hypothalamus to release endorphins so that patients become relaxed and calm and increase parasympathetic nerves. Objective: To analyze the effect of Surah Ar-Rahman murottal therapy on the hemodynamic status of patients in intensive care in the ICU. This research method uses a descriptive method with a case report approach. The population in this study were 1 patient in the ICU RSU HAJI Surabaya. The sample technique used was purposive sampling technique, with the object under study determined based on the criteria the researcher wanted by applying inclusion and exclusion criteria. The independent variable in this study was the administration of Surah Ar-Rahman murottal therapy and the dependent variable in this study was the patient's hemodynamic status. Results: Based on the results of the study, it was found that Murottal therapy in patients in the Intensive Care Unit was effective in stabilizing the patient's hemodynamics. Murottal Al-Qur'an therapy is one of the interventions that can be implemented by nurses to help stabilize the patient's hemodynamics in the ICU room

Keywords: *Hemodynamic Status, Murottal Therapy, Intensive Care Unit, Surah Ar - Rahman*

INTRODUCTION

The intensive care unit (ICU) is a specialized hospital unit dedicated to the care of patients who require life support and those who are at high risk of organ failure and death (Ervin et al., 2018). The ICU provides care for patients with life-threatening chronic illnesses who require continuous treatment, monitoring, and the use of supportive equipment and medications to save their lives (Kosasih et al., 2019). Critically ill patients admitted to the ICU are classified into several criteria. The first category includes critically ill patients with unstable conditions and hemodynamics who require intensive and titrated care (KEMENKES, 2011).

According to the World Health Organization (WHO), the number of critically ill patients in the ICU increases every year. Approximately 9.8–24.6 critically ill patients are treated in the ICU per 100,000 population, and deaths caused by critical to chronic illnesses worldwide have increased by 1.1 to 7.4 million people (WHO, 2015). A national inpatient study in Germany from 2011 to 2014 showed that 52,249 patients, or 15.1%, had unstable hemodynamic conditions, and 2.3% of them experienced syncope in cases of pulmonary embolism (Keller, Hobohm, Munzel & Ostad, 2018). In addition, a study conducted by Quezada et al. (2019) in the United States showed that 1,207 patients experienced hemodynamic instability, with mortality rates of 14% among critically ill patients with unstable hemodynamics and 5.4% among those with stable hemodynamics. Another study also reported that 479 patients, or 46%, of critically ill patients in Canadian hospitals experienced post-intubation hypotension (Greens, 2015).

Hemodynamic measurement can be performed using invasive or non-invasive methods. Pulse rate and blood pressure are important components of hemodynamic monitoring. Heart rate is the result of the electrical activity of the heart, which is influenced by the conduction system and electrolytes. Other indicators include peripheral perfusion, capillary refill time, skin color, skin moisture, body temperature, and decreased consciousness in both neurological and non-neurological conditions (Setyawati et al., 2016).

Hemodynamic instability is one of the most common problems in critically ill patients because the body's control mechanisms do not function normally. Hemodynamics refers to the circulation or flow of blood in the body, which can be monitored through both invasive and non-invasive methods. Hemodynamic monitoring is a very important component in the care of critically ill patients because their hemodynamic status can change rapidly. It is also useful for evaluating the success of resuscitation in the early phase of shock (Ramsingh, Alexander, & Cannesson, 2012). Hemodynamic instability may be caused by stressors from physiological, psychological, and environmental aspects. Stressors in critically ill patients are influenced by acute pain experienced by the patients (Setyawati, Ibrahim, & Mulyati, 2016). This is also in line with the study conducted by Kurniawan, Kristinawati and Widayati (2019), which stated that psychological stressors experienced by patients may result from anxiety due to direct exposure to the threat of death, responses to medical procedures received by the patient, loss of communication ability, and loss of self-control mechanisms.

The high level of stressors in the ICU can cause patients' hemodynamic status to become unstable. Considering the importance of hemodynamic status in critically ill patients in the ICU, non-pharmacological interventions are needed to complement the pharmacological therapy already provided in order to control hemodynamic status. Non-pharmacological interventions that can be applied include murottal therapy and foot-hand massage. Murottal therapy can stimulate the hypothalamus to release endorphin hormones, allowing the patient to feel relaxed and calm while increasing parasympathetic nerve activity. Qur'anic murottal therapy can influence the hemodynamic status of critically ill patients because listening to verses from the Holy Qur'an or sound can increase feelings of relaxation by reducing stress hormones and activating natural endorphins. This process may lower blood pressure and slow breathing, heart rate, pulse rate, and brain wave activity (Kurniawan, Agustin and Kurniawan, 2012). According to a study conducted by Kurniawan, Agustin and Kurniawan (2012) involving 70 respondents treated in the ICU of RSUD Dr. Soediran Mangun Sumarso Wonogiri, there was an effect on respiratory rate (RR), blood pressure, mean arterial pressure (MAP), and oxygen saturation (SpO_2) before and after murottal therapy using Surah Ar-Rahman. However, there was no effect on heart rate (HR) before and after the murottal therapy using Surah Ar-Rahman.

Listening to the murottal recitation of Surah Ar-Rahman can create a positive perception, which may stimulate the hypothalamus to release endorphin hormones and produce a feeling of happiness. This feeling of happiness stimulates the amygdala to activate and regulate the autonomic nervous system,

which consists of the sympathetic and parasympathetic nerves. The parasympathetic nervous system affects the heart by slowing the heart rate, while the sympathetic nervous system has the opposite effect. Regulation of autonomic nerve stimulation also leads to the regulation of epinephrine and norepinephrine secretion by the adrenal medulla.

Controlled levels of epinephrine and norepinephrine may inhibit the formation of angiotensin, resulting in decreased blood pressure. This is in line with Surah Al-A'raf verse 204 of the Qur'an, which states, "And when the Qur'an is recited, listen to it attentively and remain silent so that you may receive mercy." Qur'anic murottal therapy, which may improve sleep quality and hemodynamic function, can serve as an indicator that the patient feels comfortable during hemodialysis. Comfort is one application of Kolcaba's Comfort Theory, which emphasizes the excellence of nursing practice through the promotion of comfort in life. According to Kolcaba, comfort refers to the absence of pain, anxiety, and other forms of physical discomfort.

Based on the background described above, the researcher is interested in discussing "The Effect of Murottal Therapy of Surah Ar-Rahman on the Hemodynamic Status of Patients in Intensive Care."

METHODS

This study used a descriptive method with a case report approach. The population in this study consisted of one patient admitted to the ICU of RSU Haji Surabaya. The sampling technique used was purposive sampling, in which the research subject was selected based on the criteria determined by the researcher by applying inclusion and exclusion criteria. The independent variable in this study was the administration of murottal therapy of Surah Ar-Rahman, while the dependent variable was the patient's hemodynamic status, including decreased blood pressure, decreased pulse rate, decreased respiratory rate, body temperature, oxygen saturation, heart rhythm, central venous pressure, and mean arterial pressure. The research instruments used in this study included a demographic data questionnaire, standard operating procedures, guidelines for administering the Surah Ar-Rahman audio therapy based on frequency, intensity, time, and type, and a hemodynamic status observation sheet. The data analysis used in this study consisted of descriptive analysis, including analysis of Surah Ar-Rahman murottal therapy and hemodynamic status, and inferential analysis to determine the effect of Surah Ar-Rahman murottal therapy on the hemodynamic status of patients receiving intensive care in the ICU.

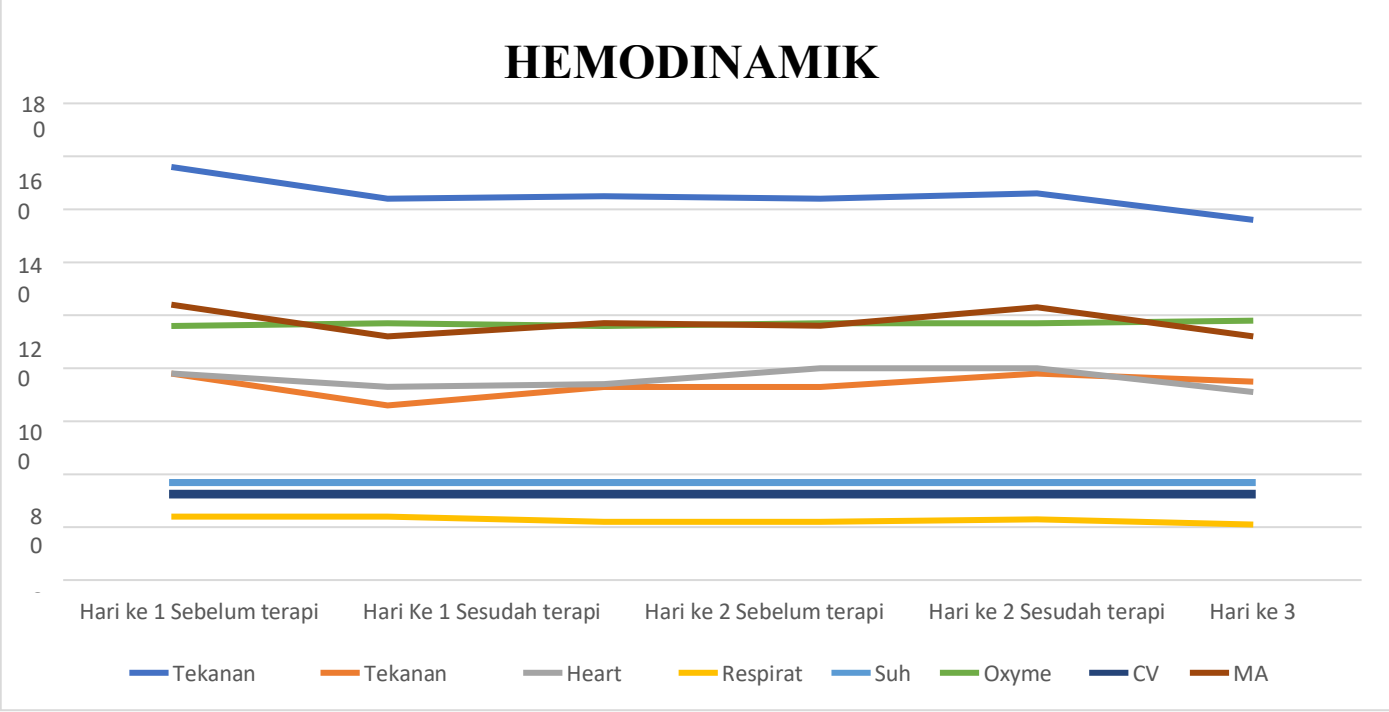
RESULTS

Based on the clinical observation, one patient was identified with the following condition. The patient was Mrs. N, a 49-year-old female who was receiving oxygen support through a mechanical ventilator with an FiO_2 of 60%. Her level of consciousness was decreased, with a Glasgow Coma Scale score of E2 Vx M3, indicating a stuporous condition. The patient's current medical problems included stage 5 chronic kidney disease, severe anemia, hyperkalemia, and premature ventricular contraction bigeminy. Based on the available history, the patient had no previous history of hypertension, heart disease, diabetes mellitus, asthma, or other chronic illnesses. The patient was receiving several therapies, including Nefrosteril 250 cc over 24 hours, norepinephrine 8 mg diluted with 50 cc of normal saline, nicardipine 20 mg diluted with 50 cc of normal saline, Santagesik injection 1 gram three times daily, Ondancetron injection 8 mg three times daily, and Omeprazole injection 40 mg twice daily. Oral medications included ISDN as recorded, folic acid three times daily, Lubumn three tablets twice daily, sodium bicarbonate three times daily, telmisartan 80 mg once daily at night if blood pressure was above 140 mmHg, amiodarone 200 mg, carvedilol 6.25 mg twice daily, and Ceftrimox 480 mg two tablets twice daily.

Hemodynamic parameters were evaluated before and after the intervention. The normal range for systolic blood pressure is 120–140 mmHg. In the intervention group, the mean systolic blood pressure decreased from 148.7 mmHg to 141.3 mmHg after the intervention, indicating an improvement toward the normal range. The normal diastolic blood pressure is 80–90 mmHg; however, the mean diastolic pressure decreased from 76.1 mmHg to 71.6 mmHg after the intervention. The normal heart rate ranges from 60 to 100 beats per minute. In this patient, the mean heart rate decreased from 79.8 to 74.6 beats per minute, while remaining within the normal range. The normal respiratory rate is 16–20 breaths per minute. The mean respiratory rate decreased from 23.8 to 22.1 breaths per minute, showing a reduction although it remained slightly above the normal range. Body temperature remained stable at 36.9°C before and after the intervention, which was within the normal range of 36.5–37.5°C. Oxygen saturation, with a normal range of 95%–100%, increased from 96.3% to 97.3% after the intervention, indicating improved oxygenation. Central venous pressure remained unchanged at 32.7 mmHg before and after the intervention, which was higher than the normal range of 3–8 mmHg.

Tabel 1. Hasil Obsercasi Pre dan Post Intervensi

Variable	Before						Mean	After						Mean
	Day 1	Mean	Day 2	Mean	Day 3	Mean		Day 1	Mean	Day 2	Mean	Day 3	Mean	
Tekanan Sistolik	165-143	156	167-122	145	155-140	146	149	151-139	144	155-129	144	148-126	136	141
Tekanan Diastolik	83-72	78	78-63	73	88-73	78	76	70-63	66	89-61	73	82-65	75	72
Heart Rate (HR)	82-74	78	79-70	74	89-75	82	80	79-67	73	87-73	80	75-68	71	75
Respiratory (RR)	26-23	24	26-22	22	24-22	23	24	24-21	24	25-20	22	23-20	21	22
Suhu	36,3-37,6	36,9	36,6-37,2	36,9	36,6-37,6	37,1	37	36,2-376	36,8	36,6-37,0	36,7	37,4-36,8	37,1	37
Oxymeter (SPO2)	96-97%	96	94-97%	96	96-98%	97	96	98%97%	97	98-96%	97	98-97%	98	97
CVP	30-34	32	31-33	32	34-32	33	33	30-34	32	30-33	32	34-32	33	33
MAP	108,3-95,6	104	94-100,6	97	96-101,6	103	99	88,3-97	92	87-104,3	96	86-97,6	92	93



DISCUSSION

In terms of hemodynamic status, the mean values of systolic blood pressure, diastolic blood pressure, and mean arterial pressure (MAP) decreased after the administration of Qur'anic murottal therapy. This finding is consistent with the study by Widaryati (2016), which examined murottal therapy in patients with head injury and reported a decrease in systolic and diastolic blood pressure after the intervention. Similarly, Rihiantoro, Nurachmah, and Hariyati (2008) found that music therapy in comatose patients in the ICU reduced MAP, heart rate, and respiratory rate, indicating an improvement in hemodynamic stability.

The findings in Table 1 showed a significant difference in hemodynamic status before and after Qur'anic murottal therapy, particularly in systolic blood pressure, diastolic blood pressure, heart rate, respiratory rate, oxygen saturation, and MAP. These results indicate that Qur'anic murottal therapy had a positive effect on stabilizing several hemodynamic parameters. However, no meaningful changes were observed in body temperature and central venous pressure (CVP). This suggests that the effect of murottal therapy may be more prominent in cardiovascular and respiratory parameters than in temperature regulation or central venous pressure.

These findings differ from Widaryati's study, which reported no significant effect of murottal therapy on systolic and diastolic blood pressure in patients with head injury. This difference may be related to the characteristics of the respondents and the duration of the intervention. In that study, the respondents were patients with head injury, and the murottal intervention was only administered for one day. Ernawaty stated that the reduction of blood pressure may be more effective when Qur'anic murottal therapy is administered for approximately 3–7 days.

The effectiveness of Qur'anic murottal therapy on hemodynamic status may be influenced by several factors, including age, sex, education level, occupation, duration of hemodialysis, pain frequency, and comorbid diseases. Patients aged 46–55 years tend to have higher systolic blood pressure, diastolic blood pressure, and MAP. Blood pressure generally increases with age due to reduced elasticity of the arterial blood vessels.

Sex may also influence hemodynamic status. Male patients tend to have higher hemodynamic values compared with female patients. According to Smeltzer and Bare, men are more likely to have lifestyle habits that may affect health, such as smoking, drinking coffee, consuming alcohol, and using stimulant beverages, which may increase blood pressure and contribute to systemic diseases, including kidney dysfunction. However, Sugiharjo stated that women may also be at higher risk of hypertension due to decreased estrogen levels, which can contribute to increased blood pressure.

Respondents with lower educational backgrounds tended to have higher hemodynamic values compared with those with higher education levels. This is in line with Riskesdas findings, which showed that hypertension is more common among people with lower education levels. Higher education may improve a person's ability and knowledge in adopting healthy behaviors, particularly in preventing hypertension. Therefore, the higher the level of education, the greater the ability to maintain a healthy lifestyle.

Respondents who were unemployed also tended to have higher hemodynamic values. Some patients had to stop working because of chronic kidney disease. Complications related to hemodialysis may cause weakness, requiring patients to rest more and limit their activities at home. According to Warren, individuals with low physical activity have a 30%–50% higher risk of developing hypertension compared with active individuals.

Pain may also contribute to increased hemodynamic status. Patients undergoing hemodialysis may experience pain, cramps, and discomfort, particularly in the legs, either during hemodialysis or while sleeping. This discomfort can cause psychological tension, stimulate the adrenal glands to release adrenaline, and increase cardiac workload, resulting in increased blood pressure or hypertension.

Hemodynamic status also tends to be higher in respondents with hypertension as a comorbid disease. Calhoun and Harding stated that poor sleep quality may disrupt hormones involved in blood pressure regulation, affecting the cardiovascular system, including the heart and blood vessels. Tessy also explained that the severity of the effect of hypertension on the kidneys depends on the level of blood pressure and the duration of hypertension. The higher and longer the blood pressure remains uncontrolled, the greater the complications that may occur, especially in the kidneys.

This study used Qur'anic murottal therapy as a non-pharmacological intervention to stabilize hemodynamic status in patients treated in the ICU. Qur'anic murottal therapy is a form of music or sound therapy using the recitation of Qur'anic verses, which

may provide a relaxation effect for listeners. Sound stimulation is transmitted through the ossicles in the middle ear and cochlear fluid to the auditory nerve and autonomic nervous system. The auditory nerve then sends signals to the auditory cortex in the temporal lobe. This stimulation may trigger the release of endorphins, which increase comfort and relaxation. Relaxation can reduce sympathetic nervous system activity, decrease muscle tension, and improve physiological responses. Measurable indicators of this relaxation response include decreased blood pressure, heart rate, and respiratory rate.

CONCLUSION

Based on the studies discussed above, the application of Qur'anic murottal therapy in patients treated in the intensive care unit may be effective in helping stabilize hemodynamic status. Qur'anic murottal therapy can be considered a complementary nursing intervention to support the stabilization of hemodynamic parameters in ICU patients.

For patients, Surah Ar-Rahman murottal therapy may be used as a non-pharmacological complementary therapy to support pharmacological treatment in stabilizing hemodynamic status. The intervention should be provided with full assistance from nurses, especially for critically ill patients. The findings of this study are expected to encourage further research so that murottal therapy can be developed as a supportive intervention in addition to pharmacological therapy.

For future researchers, this study can be used as a basis or reference framework for further studies. Future research is recommended to use a larger sample size, a longer intervention duration, and a stronger research design to evaluate the effectiveness of Surah Ar-Rahman murottal therapy on hemodynamic status in critically ill patients.

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