

APPLICATION OF PROGRESSIVE MOBILIZATION TO FUNCTIONAL STATUS AND MUSCLE STRENGTH IN POST SECTIO PATIENTS WITH ECLAPMSIA IN THE ICU ROOM OF RADEN MATTAHER HOSPITAL

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ABSTRACT

Patients with Sectio Caesarea in some cases have worsened so they have to be rushed to the ICU to get intensive care. This case study aims to obtain an overview of the application of progressive mobilization to improve functional status and muscle strength in post-sectio patients with eclampsia in the ICU. This case study uses a descriptive design. The application of progressive mobilization performed on patients has been successfully implemented up to level 3. The results of this case study found that progressive mobilization can increase muscle strength from 0 to 56 and functional status from 0 to 65, and can reduce the risk of ICU-AW, speed up the length of release ventilator. Progressive mobilization is effective in increasing muscle strength, and functional status, and can improve the improvement of hemodynamic status and oxygenation status, and prevent the occurrence of ICU-AW. Progressive mobilization can be implemented immediately to shorten the length of stay in the ICU.

Keywords: ICU Patients, Progressive Mobilization, Functional Status, Muscle Strength, Eclampsia, Sectio Caesarea.

BACKGROUND

Intensive care is one of the nursing services for patients with acute or chronic illnesses in emergency, critical situations that require monitoring of vital functions, more specifically intensive therapy and immediate action that cannot be given in general care rooms. Patients in the intensive care unit require various forms of advanced life support because of their critical condition, and may remain bedridden for long periods.

Based on the latest survey data, Indonesia's Maternal Mortality Rate (AKI) was 305/100,000 live births in 2015, while from 2019 to 2020 it was found that the MMR had increased to 406/100,000 live births. The most common causes of maternal death in Indonesia are due to hypertension/pre-eclampsia/eclampsia, bleeding and infection. Research on the Sample Registration System (SRS) in 2016 Hypertension in pregnancy ranks first as the cause of death in Indonesia by 33%. 2,3

Pregnant women who suffer from hypertension, pre-eclampsia, or eclampsia cannot give birth to their babies normally vaginally because of the high risk of severe bleeding,

circulation disorders, decreased consciousness and even death of the mother and fetus/infant. Termination of pregnancy is carried out when the mother's hemodynamics and metabolism are stable, namely 6-8 hours after one or more of these conditions improve, namely after administration of anti-seizure drugs, after the last seizure, after administration of anti-hypertensive drugs, when the patient is conscious and responsive . If the fetus is alive, a caesarean section can be carried out to save the mother and child

Critical patients in the Intensive Care Unit (ICU) generally experience bed rest and require breathing aids, namely mechanical ventilators. Patients with mechanical ventilation require special attention given the large use of mechanical ventilation in ICUs around the world and the risk of Intensive Care Unit Acquired Weakness (ICU-AW). ICU-AW is described as muscle wasting associated with high mortality, poor patient condition, and delayed healing. ICU-AW is exacerbated by long periods of bed rest due to sedation and immobilization.^{6,7,8}

One of the efforts made by nurses to improve the patient's functional and hemodynamic status is to mobilize. Mobilization of bedridden patients in the ICU can be started from 24-48 hours after the patient is admitted to the ICU. Mobilization can prevent a decrease in the size of muscle mass, muscle atrophy and improve blood circulation. Early mobilization of critically ill patients is a candidate intervention to reduce the incidence and severity of ICU-AW.⁹

In research conducted by Zang et al., 2019, early mobilization can shorten the stay in the ICU and hospital, reduce the duration of mechanical ventilation, increase long-term functional independence, and reduce mortality, significantly reduce the incidence of ICU-AW shortening the length of ICU (WMD = 1.82 days) and hospital (WMD = 3.90 days) and improved the Medical Research Council score (Muscle Strength) and Barthel Index score on discharge from hospital (Functional Status). In addition, early mobilization also reduces complications such as Deep Vein Thrombosis, ventilator-associated pneumonia, and pressure sores due to prolonged bed rest. However, early mobilization does not reduce ICU mortality, increase grip strength, and shorten the duration of mechanical ventilation

RESEARCH METHODS

This case study uses a descriptive design, namely a case study that produces descriptive data in the form of written or spoken words from certain people and treatments that can be observed. This case study describes the application of progressive mobilization to improve the functional status and muscle strength of patients in the ICU.

This case study is one person who was treated in the ICU with:

1. Inclusion Criteria : (1)adults (>18 years) (2) Patients who can follow an exercise program at Level 1 or 2 or 3 or 4, (3) Hemodynamic status is stable,
2. Exclusion Criteria : (1)Patients with neurological conditions (eg, brain injury, stroke, or spinal cord injury); (2) Patients receive additional interventions, such as, neuromuscular electrical muscle stimulation, continuous lateral rotation of the bed, lateral position in bed, inspiratory muscle training/diaphragmatic electrical stimulation/breathing exercises, chest physiotherapy/airway clearance, massage therapy, and stroke rehabilitation; (3) amputee patients; (4) Patients have contraindications for mobilization; or (5) they have a cognitive impairment with an inability to understand commands and perform tests.
3. Yield Size : (1)Muscle Strength (MRC); (2) Barthel Index (BI) to assess the patient's functional status; Richmond Agitation-Sedation Scale (RASS) to determine exercise level

RESEARCH RESULT

1. Assessment

A 31 year old female patient with a diagnosis of Post Sectio Caesarea + eclampsia entered the ICU at Raden MattaHER Hospital on February 24 2022 00.31 WIB, moved from the operating room after undergoing Sectio Caesarea for indications of Eclampsia. When transferred to the ICU the patient had an ETT attached, an NGT was attached to the left nasal cavity. After entering the ICU, the ETT is connected to a ventilator in SIMV mode, PS 12, I : E Ratio = 1 : 1.9. FiO₂ 100%, PEEP 8, SPO₂ 99%, RR 36x/I, N 124x/i, S 36oC. Tidal Volume 425, BP 165/81 mmHg, MAP 109, there is a surgical wound in the lower abdomen which is bandaged. Consciousness is difficult to assess because it is still under the influence of drugs, isochor pupils, light reflexes +/+, pain is difficult to assess.

In assessing muscle strength using MRC, patient's muscle strength is 0 and functional status using BI is 0.

2. Implementation Results

Evaluation results obtained in patients with a diagnosis of ineffective breathing patterns associated with difficulty breathing (weakness of respiratory muscles) were resolved on the third day with client data stating that they were not short of breath, did not use breathing apparatus, RR 22x/i, SPO₂ 100%. For nursing problems physical

mobility disorders resolved on the third day with data that clients can sit without the help of a nurse, SAS score 4 (cooperative client), can mobilize properly.

After implementing the application of progressive mobilization on the client, the results are obtained:

At the first meeting after level 1 progressive mobilization the results obtained were muscle strength (MRC) 0, functional status 0, on the breathing apparatus it was found that the client when starting mobilization used a ventilator with SIMV mode then changed mode to CPAP at 10.00 WIB, then the ventilator is released at 13.00 WIB and the client uses NRM 15L.

At the second meeting after level 2 mobilization the results obtained were total muscle strength (MRC) 44, functional status 35, on the client's breathing apparatus initially using NRM 15L to SM 5L.

At the third meeting, after level 3 mobilization, the results obtained were total muscle strength (MRC) 56, functional status 65, initially the client used SM 5L to breathe spontaneously.

DISCUSSION

Progressive mobilization consists of 5 different levels which are carried out taking into account the patient's condition to carry out exercises at a certain level. The application of progressive mobilization carried out for 3 days proved that there was an effect on muscle strength and functional status in patients, besides that hemodynamic status and duration of ventilator use also changed. In progressive mobilization levels 1 and 2 hemodynamic status and oxygenation status are affected, as evidenced by changes in blood pressure from 165/81 mmHg to 120/85 mmHg, whereas in oxygenation status the results show that oxygenation saturation is stable and the patient can breathe without a ventilator after level mobilization. 1. After 24 hours, re-evaluate the patient's condition so that he can carry out mobilization at a later stage

The results of this study are in line with the research conducted (Suyanti et al., 2019) where progressive mobilization level 1 in the Head of Bed position, gravity will pull the diaphragm down so that there is better lung expansion (distributing oxygen in the lungs) so that the oxygen bound by hemoglobin increases then there is an increase in oxygen saturation values. In addition, changes in body position and increased exercise improve blood circulation, relieve respiratory muscle atrophy, and reduce the risk of ventilator-associated pneumonia, deep vein thrombosis, and pressure sores.

According to (Zhang et al., 2020) maintenance of muscle strength is significantly correlated with increased functional capacity. Immobility is an important risk factor for functional impairment; therefore, the main view is that critically ill patients should receive mobilization therapy as soon as possible. In the research conducted, it was found that muscle strength was also affected by progressive mobilization, this was evidenced by the MRC score from 0 to 56 in 3 days. On the first day the MRC score was still 0, then on the 2nd day another measurement was carried out and the MRC score was 44, and on the 3rd day it was 56. In addition, early mobilization also reduces the risk of ICU-AW. The MRC assessment is divided into 12 parts, namely left and right, the maximum score for each part is 5,

In the research conducted, the Bathel Index (BI) score was 0 to 65 in 3 days of nursing care. This is in line with research conducted by (Wang et al., 2020) that early mobilization significantly increases the Barthel Index score, indicating that patients are better able to care for themselves. Early mobilization can reduce muscle stiffness, disuse atrophy, and other types of dysfunction and improve joint function, muscle coordination, and everyday living abilities through targeted daily living training. In addition, research was conducted (Schujmann et al., 2020) that progressive mobilization programs appear to be able to keep patients at a higher activity level, provide maintenance of previous functionality on discharge from the hospital and ensure a greater likelihood of return to functional independence. 1,6.

Limitations

Limitations or constraints in research in conducting case studies in the field are as follows:

1. Related to the search for clients according to inclusion and exclusion criteria. It is quite difficult to find clients who fit the inclusion criteria because most of the clients treated in the ICU are more predominant with head injuries.
2. In terms of time, the length of the study adjusted to practice hours, making it difficult to implement timely progressive mobilization.
3. Achievements are not optimal because they are not implemented up to level 5

CONCLUSION

Progressive mobilization is effective in increasing muscle strength and functional status, and can improve hemodynamic status and oxygenation status, and prevent the occurrence of ICU-AW.

SUGGESTION

1. For Hospitals

It is expected to be able to improve the performance of nurses and medical personnel so that they are able to improve nursing care, especially in carrying out the application of Progressive Mobilization in patients in the ICU room to prevent ICU-AW, improve functional status, shorten the duration of ventilator use and improve hemodynamic status in patients in the ICU room. In addition, progressive mobilization can also reduce the number of deaths that occur in the ICU, as well as shorten the duration of hospitalization.

1. For the Development of Nursing Science and Technology

It is hoped that this scientific paper will contribute to the development of nursing technology in implementing nursing care in a professional and comprehensive manner, as well as provide input to improve the quality of nursing services, especially Progressive Mobilization for patients in the ICU room.

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