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The Effect Of Progressive Mobilization On The Event Of Decubitus In Patients With Mechanical Ventilation In Icu Room Of Mangusada Hospital

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ABSTRACT
ICU patients who are fitted with breathing equipped, especially mechanical ventilation, tend to have limited activity or immobilization. Long-term immobilization is a high-risk factor that causes pressure ulcer. Appropriate prevention is needed because pressure ulcer has a detrimental impact on body functions and quality of life. This study aimed at identifying the effect of progressive mobilization on pressure ulcer incidents in patient with mechanical ventilation in the Intensive Care Unit at Mangusada Hospital.
The design of this study was PreExperiment (one group pretest and posttest design) with the number of samples was 6 respondents which were chosen through the Purposive Sampling technique. The instrument used in this study was a standard procedure of Richmond Agitation Sedation Scale (RASS) and observation sheet of Decubitus.
The result of the test indicated most of the respondents experienced grade I pressure ulcer (decubitus) before being given progressive mobilization therapy and after the therapy, all respondents (100%) did not show pressure ulcer (decubitus) incident. Wilcoxon test showed that there was an effect of progressive mobilization on pressure ulcer incidents in patient with mechanical ventilation in the Intensive Care Unit at Mangusada Hospital (p-value = 0,042). Based on the results of this study, it is expected that this study can be used as an evidence-based practice nursing, especially about pressure ulcer.

Keywords: Pressure Ulcer, Progressive Mobilization, Mechanical Ventilation

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BACKGROUND

Intensive Care Unit (ICU) is an inpatient unit in a hospital that has special staff and equipment to manage patients with illness, trauma or life-threatening complications (Musliha, 2010). Patients treated in the ICU have a vulnerability to helplessness, weakness and dependence on the use of assistive devices such as breathing apparatus or mechanical ventilation (Sunatrio, 2010). ICU patients who are attached to assistive devices tend to have limited activity (mobilization) to immobilization (Zomorodi & Darlaopley, 2012). The European Pressure Ulcer Advisory Panel & National Pressure Ulcer Advisory Panel (2009) revealed that clients who experience decreased mobility for a long time have a high risk of developing pressure sores (Potter & Perry, 2013). Decubitus is a localized damage to the skin and or underlying tissue caused by pressure that usually occurs in protruding bone areas (National Pressure Ulcer Advisory Panel, 2014). The incidence of pressure sores in the Intensive Care Unit (ICU) is still a serious concern worldwide with the incidence prevalence ranging from 1% to 56%. The incidence of decubitus in Europe ranges from 8.3%-22.9%, in North America as much as 50%, in Australia and Jordan there are 29% cases (Tayyib, Coyer, & Lewis, 2013). The incidence of decubitus studies in the ASEAN region, Japan, Korea, China ranged from 2.1% -18%.

The prevalence of pressure sores in Indonesia is still quite high, with a percentage of 33.3% (Lestari, 2010). The incidence of pressure sores in the ICU room at the Mangusada Hospital Bali in patients who were on mechanical ventilators from 2018 to June 2019 reached 7%. Proper prevention of pressure sores is very necessary in the delivery of nursing services. The American Association of Critical Care Nurses (AACN) introduced several pressure ulcer management techniques (decubitus), one of which is progressive mobilization intervention. Research related to the effect of progressive mobilization has been carried out by Ningtyas, Pujiastuti, & Indriyawati (2017) which states that there is a difference in pressure sores after being given progressive mobilization with a p-value <0.05.

Based on the results of a preliminary study conducted in the ICU room of Mangusada Hospital, it was found that the incidence of pressure sores in patients who were on mechanical ventilators had increased. In June 2019 it was found that out of eight patients who were on mechanical ventilation, two patients showed signs of pressure sores such as redness of the sacrum that feels warm to the touch and delayed skin discoloration when applied with finger pressure. This study aims to determine the effect of progressive mobilization on the incidence of pressure sores in mechanically ventilated patients in the ICU room of Mangusada Hospital.

Decubitus is an injury to the skin and/or underlying tissue, usually caused by a protrusion of bone, as a result of pressure or a combination of pressure with shear and/or friction (Potter & Perry, 2013). Clinical manifestations of pressure ulcers for the first time are characterized by skin erythema or redness, there are characteristics where when pressed with a finger, the signs of erythema will return or persist. This is followed by edema of the skin, and the temperature in the area increases or is warm to the touch. Signs of pressure ulcers can progress to muscle and bone tissue (European Pressure Ulcer Advisory Panel & National Pressure Ulcer Advisory Panel, 2009). The incidence of pressure ulcers is divided into six with characteristics based on the degree of visible wounds found in the patient (National Pressure Ulcer Advisory Panel, 2014). Progressive mobilization is a series of plans made to prepare patients to be able to move or move places in stages and continuously (Zakiyyah, 2014). There are five stages or levels in the implementation of progressive mobilization known as the Richmond Agitation Sedation

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Scale (RASS).

Changes in the position of bed rest in immobilization conditions that are carried out every 2 hours regularly and continuously can prevent patients from prolonged stress on certain body parts which can result in injury (Irawan, 2010). Hastuti, Nosi, & Bahar (2013) stated that mobilization was associated with the incidence of pressure sores in patients in the intensive care unit of the Ibnu Sina Hospital Makassar ($p = 0.003 < 0.05$). Bujang et al., (2013) explained that there was an effect of bed transfer on the incidence of pressure sores in stroke patients who experienced hemiparesis ($p = 0.011$). Bed shift (given mobilization) affects the occurrence of pressure sores in stroke patients who experience hemiparesis ($p = 0.01$) (Zulaikah, 2015).

METHODS

This research is a Pre Experiment research with one group pretest and posttest design. The sample was selected as many as 6 patients who were on a ventilator in the ICU room of Mangusada Hospital through the purposive sampling technique using inclusion and exclusion criteria. Data were analyzed using Wilcoxon analysis.

RESULTS

Characteristics of Respondents Based on Age

Table 1. Characteristics of Respondents Based on Age

	Mean±SD	Min-Max
Age (Year)	55,17 ± 6,047	47-62

In the table above, it can be seen that the average age of the respondents is 55 years with the highest age being 62 years and the lowest age being 47 years.

Characteristics of Respondents by Gender

Tabel 2. Characteristics of Respondents by Gender

Category	f	%
Male	3	50,0
Female	3	50,0
Total	6	100

In the table above, it can be seen that the gender of the respondents has the same proportion, as many as 3 (50%) men and 3 (50%) women.

Degree of Decubitus Patients With Mechanical Ventilation Before Given Progressive Mobilization Therapy in the ICU Room of Mangusada Hospital

Tabel 3. Degree of Decubitus Patients With Mechanical Ventilation Before Given Progressive Mobilization Therapy in the ICU Room of Mangusada Hospital

Category	**f**	**%**
No Decubitus	2	33,3
Grade I	4	66,7
Grade II	0	0
Grade III	0	0
Grade IV	0	0

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Grade V	0	0
Grade VI	0	0
Total	6	100

In the table above, it can be seen that before being given progressive mobilization therapy, most of the respondents experienced grade I pressure sores, as many as 4 people (66.7%).

Degree of Decubitus Patients With Mechanical Ventilation After Given Progressive Mobilization Therapy in ICU Room Mangusada Hospital

Tabel 4. Degree of Decubitus Patients With Mechanical Ventilation After Given Progressive Mobilization Therapy in ICU Room Mangusada Hospital

Category	f	%
No Decubitus	6	100
Grade I	0	0
Grade II	0	0
Grade III	0	0
Grade IV	0	0
Grade V	0	0
Grade VI	0	0
Total	6	100

In the table above, it can be seen that after being given progressive mobilization therapy, most of the respondents did not experience pressure sores, as many as 6 people (100%).

The Effect of Progressive Mobilization on the Incidence Rate of Decubitus in Patients With Mechanical Ventilation in the ICU Room of Mangusada Hospital

Tabel 5. The Effect of Progressive Mobilization on the Incidence Rate of Decubitus in Patients With Mechanical Ventilation in the ICU Room of Mangusada Hospital

Category	Pre		Post		*P-Value*
	n	%	n	%	
No Decubitus	2	33,3	6	100	0,046
Grade I	4	66,7	0	0	
Grade II	0	0	0	0	
Grade III	0	0	0	0	
Grade IV	0	0	0	0	
Grade V	0	0	0	0	
Grade VI	0	0	0	0	

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The results of the analysis using the Wilcoxon test found that the p-value = 0.046 which means the p≤value 0.05, then Ho is rejected and shows that there is an effect of giving progressive mobilization to the incidence of pressure sores in patients with mechanical ventilation in the ICU room of Mangusada Hospital

DISCUSSION

Degree of Decubitus Patients With Mechanical Ventilation Before Given Progressive

Mobilization Therapy in the ICU Room of Mangusada Hospital In this study, the results showed that before being given progressive mobilization therapy, most of the respondents had grade I pressure sores, as many as 4 people (66.7%). Mechanical ventilation is a therapeutic aid used to help patients who are unable to maintain adequate oxygenation and the elimination of carbon dioxide (Handayani, 2017). Patients with assistive devices tend to have limited activity (mobilization) to immobilization which has an impact on the incidence of pressure ulcers (European Pressure Ulcer Advisory Panel & National Pressure Ulcer Advisory Panel, 2009; NPUAP, 2014; Zomorodi, Topley, & McAnaw, 2012). The decubitus is an injury to the skin and/or underlying tissue, usually caused by a protrusion of bone, as a result of pressure or a combination of pressure with shear and/or friction (Potter & Perry, 2013). The development of decubitus wounds is influenced by two factors, namely intrinsic and extrinsic factors. (National Pressure Ulcer Advisory Panel, 2014) This theory is in line with the opinion which states that the incidence of pressure sores in critical/acute care units tends to be higher than in long-term care units caused by many factors such as the duration of immobilization and lack of intervention in care (Bhoki, Mardiyono, & Sarkum, 2014). Immobilization or the absence of the body's ability to move causes a gravitational force that will put pressure on the area below it. This pressure will cause interference with the blood supply to the depressed area. If it lasts for a long time, it can cause insufficiency of blood flow, anoxia, or tissue ischemia and can eventually lead to cell death (Djuwartini, 2017). The findings in this study are in line with Djuwartini's research (2017) in his research which found that most of the respondents who were treated in the ICU and Murai RSU Anutapura Palu experienced grade I decubitus, as many as 6 respondents (100%) with a p-value = 0.014. Based on the results of the research above, the researcher believes that pressure sores can occur due to the influence of individual age. In this study, it was found that the average respondent was 55 years old. With increasing age, there will be physiological changes in body organs, one of which is the integumentary system. This will affect the elasticity of the skin and make the skin prone to injury.

Degree of Decubitus Patients with Mechanical Ventilation After Given Progressive Mobilization Therapy in the ICU Room of Mangusada Hospital

The results showed that after being given progressive mobilization therapy, most of the respondents did not experience pressure sores, as many as 6 people (100%).

Mobilization is a basic human need that is needed by individuals to carry out daily activities in the form of joint movement, attitude, gait, exercise, and activity abilities (Potter & Perry, 2013). Mobilization has benefits for improving blood circulation, venous stasis, preventing contractures, supporting respiratory function (Kozier, 2010).

In line with the above theory, mobilization (change of position) in conditions of immobilization on a regular and continuous basis can prevent patients from prolonged stress on certain body parts which can result in injury (Irawan, 2010). Correct positioning is very important with the main goal of maintaining skin integrity which can reduce

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pressure, promote good body alignment and prevent compressive neuropathy. Mobilization is carried out to prevent pressure sores in the protruding bone area to reduce pressure due to holding the patient in one sleeping position. Giving mobilization will reduce pressure, thereby reducing the occurrence of pressure sores (Huda, 2012).

The findings in this study are in line with research by Djuwartini (2017) in his research which stated that after being given mobilization exercises, all patients treated in the ICU and Murai RSU Anutapura Palu had no decubitus, as many as 6 respondents (100%) with a p-value= 0.014. This result is also in line with the research conducted by Sari & Sitorus (2013) which stated that the majority of respondents who were given mobilization were 8 people (80%) research subjects who did not have decubitus with a value of p = 0.001.

Based on the findings in the research above, the researcher assumes that the mobilization process that is carried out obediently, regularly and continuously will provide an opportunity for blood vessels to provide oxygen and nutrients to the skin tissue. Giving mobilization will make the skin get breathing space and free from pressure, so that the incidence of pressure sores can be reduced.

Analysis of the Effect of Progressive Mobilization on the Incidence Rate of Decubitus in Patients With Mechanical Ventilation in the ICU Room of Mangusada Hospital

The results showed that there was an effect of progressive mobilization on the incidence of pressure sores in mechanically ventilated patients in the ICU room at Mangusada Hospital with p-value = 0.046 ($p \leq 0.05$) and Z score = -2,000.

Mobilization is the ability of individuals to move freely, easily, and regularly with the aim of meeting activity needs to maintain their health (Hidayat, 2009). A similar statement is also in line with the above theory. Zakiyyah (2014) explains that progressive mobilization is a series of plans made to prepare patients to be able to move or move places gradually and sustainably. Progressive mobilization given to the patient causes a good hemodynamic response. The performance of the lungs in the process of distribution of ventilation and perfusion will improve during mobilization. The process of blood circulation is also enhanced by body position and changes in body gravity during progressive mobilization. Giving progressive mobilization will affect the process of perfusion, diffusion, and distribution of blood flow and oxygen throughout the body so that this will reduce the incidence of pressure sores or even not occur (Vollman, 2010).

The findings in this study are in line with research that states that progressive mobilization levels I and II can reduce the risk of pressure sores in patients with a p-value = 0.000 (Ningtyas et al., 2019). Another study conducted by Bujang, Aini, & Purwaningsih (2013) stated that there was a significant effect between the provision of mobilization and the incidence of pressure sores with a p-value = 0.011.

Based on the findings of this study, the researcher believes that progressive mobilization will reduce pressure on the body with bony prominences that are very susceptible to pressure sores. Giving progressive mobilization allows the body to get good blood and oxygen circulation so that pressure and obstacles that trigger injury can be avoided.

CONCLUSION

There is an effect of giving progressive mobilization on the incidence of pressure sores in patients with mechanical ventilation in the ICU room of Mangusada Hospital.

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CONFLICTS OF INTEREST

The authors have no conflicts interest to disclose.

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