



The Effect of the Use of Position Clocks on the Risk of Pressure Wounds in Patients at HCU Bali Mandara Hospital

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Abstract

Introduction: Pressure ulcers are localized injuries to the skin and/or underlying tissue, primarily caused by prolonged pressure, especially among patients with limited mobility. These ulcers can lead to pain, infection, extended hospital stays, and increased healthcare costs. Pressure ulcer prevention is a critical component of nursing care. One effective non-pharmacological intervention is the use of a clock position, a visual aid designed to remind nurses or caregivers to reposition patients regularly, ideally every two hours. This study aimed to determine the effect on the usage of clock position towards the risk of developing pressure ulcers in bedridden patients at the High Care Unit (HCU) of RSUD Bali Mandara.

Method: The study utilized a pre-experimental design with a one-group pre-test and post-test approach. A total of 32 respondents were selected using purposive sampling. The Braden Scale was utilized to assess the risk of pressure ulcers. The intervention was conducted in three days using the clock position method, which involved rotating patients' positions every two hours (supine, right lateral, left lateral) with a 30° head elevation. Data was analyzed using the Wilcoxon Signed Ranks Test.

Results: The result showed that most respondents were initially at high to severe risk of pressure ulcers, but after the intervention, the majority shifted to moderate and low-risk categories. Statistical analysis showed a p-value of 0.001 ($p < 0.05$), indicating a significant effect of the clock position intervention in reducing the risk of pressure ulcer.

Conclusion: In conclusion, a systematic intervention of clock position is effective in lowering the risk of pressure ulcers in bedridden patients. This intervention can be integrated as part of standard nursing care in intensive care settings.

Protocol registration: This research has previously passed ethical review with the number: 017/EA/KEPK.RSBM.DISKES/2025

Keywords: Clock Position, Pressure Ulcer, Intensive Care, Braden Scale, Bedridden

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INTRODUCTION

Each year the hospital receives a variety of patients with different diagnoses of the disease. The difference in the diagnosis of the patient's disease also requires different treatment methods, ranging from mild treatment to intensive care. Regarding intensive care, patients who are treated require life support, intensive care and monitoring, and long-term care (Potter & Perry, 2021). This results in patients who are treated in the intensive care unit, especially patients with full dependence on lying down for a long period of time, which can cause several complications, one of which is pressure sores (Primalia, 2020).

According to the World Health Organization (WHO), the prevalence of pressure wounds in the world is 21% or around 8.50 million cases per year, the prevalence of pressure wounds varies, ranging from 5-11% in acute care, 15-25% in long-term care and 7-12% in home care, the prevalence of pressure wounds in international studies worldwide reaches 63.6% (Wardani & Nugroho, 2022). Data from the Indonesian Ministry of Health, the incidence of pressure injuries in Indonesia is 8.2 per 1000 population. This figure increased by 0.7% compared to the previous five years. The highest prevalence was found in South Sulawesi (12.8%) and the lowest in Jambi (4.5%) (Mugiarti, 2022).

Pressure sores are local injuries to the skin and/or tissues underneath, usually occurring above the protrusion of the bones because of pressure or due to a shift (Simanjuntak, 2020). Pressure wounds are

caused by several factors, namely immobilization, frictional force, skin moisture, and decreased sensory function of body movements over a long period of time. Immobilization and friction forces result in pressure especially on the area of bone protrusion. This pressure causes ischemia and hypoxemia in the affected tissues, given that blood flow to the site is reduced. Moisture increases skin maceration and causes the epidermis to erode more easily and inhibits blood flow. Inhibited blood flow will block oxygenation and nutrients to tissues that contribute to necrosis in skin tissue to deeper tissues (Amirsyah, 2020).

This causes the process of healing pressure wounds to take a long time and becomes a serious problem because it can affect the patient's quality of life, slow down the patient's rehabilitation program, aggravate primary illness and can cause patients to experience severe infections until death. In addition, pressure wounds also have an impact on causing family financial problems because they have to spend considerable money on wound care, while from the hospital side with patients with pressure injuries will increase the LOS (Length of Stay) so that it will cause the quality of hospital services to decrease and increase the cost of treatment charged to the hospital (Alimansur & Santoso, 2019).

One of the preventive measures for pressure wounds in bedridden patients is to adjust the position. Positioning measures in bedridden patients must be carried out as quickly and as early as possible with the aim of maintaining tissue integrity to reduce pressure that can cause complications in the form of compression wounds (Simanjuntak, 2020). Position adjustment given to bedridden patients to prevent pressure injuries is generally done every 2-3 hours with a right and left tilt position. However, given a position setting of 2-3 hours with the right and left tilted positions, obstacles were found in the form that when the position adjustment was carried out, the patient's hemodynamics were unstable, especially in blood pressure and heart rate and made the patient uncomfortable with the position. This is supported by a study that has been conducted by Simanjuntak (2020) entitled "The Effectiveness of Left-Tilted Mobilization in Efforts to Prevent Pressure Injury in Sepsis Patients in the Intensive Care Installation Room". Therefore, efforts that can be made to overcome these obstacles can be made by adjusting the position using the position clock or Clock Method.

Clock Position or clock method is one of the methods of changing position using a clockwise reference starting from the clock direction of the number 12. The existence of a change in position is useful for smoothing blood flow in areas at risk of pressure to prevent tissue death that can cause pressure wounds (Anjarwati, 2024). In patients with bedridden injuries, position adjustment is carried out with Using a position clock, namely by doing a right tilt position, tilting the tilt, and lying on your back with a head up position of 30 degrees. In addition to tilting right and tilting left, the supine position with a head up of 30 degrees can help circulatory circulation run well so that hemodynamics is stable and oxygen absorption is especially in the area of both pressures so that ischemia and hypoxemia in the affected tissues do not occur.

A preliminary study conducted from January to October 2024 in the HCU Room of Bali Mandara Hospital found 35 patients with bedlessness. The average length of patient stay at HCU is ten days. The assessment of pressure wounds at HCU Bali Mandara Hospital was carried out after three days of treatment and was assessed based on observations of the presence or absence of pressure wounds. The number of pressure injuries recorded in that period was quite high at 9.2%. Based on the results of the researcher's assessment on November 25 to 26, 2024 using the braden scale, as many as ten patients treated had a braden score of 10-12 with a high-risk category. Based on observations, nurses only prevent pressure wounds with one intervention, namely patient mobilization to prevent pressure injuries and have a positive impact on patient development. The mobilization carried out at the HCU of Bali Mandara Hospital in patients lying down is such as positioning by tilting right and tilting left.

METHOD

This study is a quantitative research that uses a pre-experimental research design with a one-group pre-post-test design, namely, observation is carried out through a pretest first, then given treatment or intervention, then posttest is given so that it can be known the changes that occur before and after being given treatment or intervention. In this study, the design used to determine the effect of the use of position clocks on the risk of pressure wounds in patients is the design of one group pre-post test.

RESULTS

In this study, a bivariate analysis was conducted to analyze the effect of the use of position clocks on the risk of pressure wounds in patients at HCU Bali Mandara Hospital. The test in this study used the non-parametric Wilcoxon test to compare the risk score of pre-test and post-test pressure wounds.

Table 1. Results of Risk Analysis of Pressure Wounds Before and After Intervention Using Position Clocks

Variabel	N	Min	Sd	Max	Z	P Value
Pressure injury risk score before intervention	32	6	1,414	13	-4,967 ^a	0,001
Pressure wound risk score after intervention		8	1,497	16		

Based on table 5.3, it shows that the results of the non-parametric statistical test of the Wilcoxon Signed Rank Test were obtained by all 32 respondents with a positive change with an average rating of 16.50. This shows that there is a consistent and significant increase after the action of giving position hours with the average value of the pressure injury risk score before being given therapy is 9.53 with a minimum score of 6 and a maximum of 13, after being given therapy it has increased to 13.2 with a minimum score of 8 and a maximum of 16. In the Wilcoxon Signed Rank Test statistical test, the p value is 0.001 and the value is less than <0.05 , so it can be concluded that H_0 is rejected and H_a is accepted, which means that there is an influence of the use of position clocks on the risk of pressure injuries in the HCU room of Bali Mandara Hospital.

DISCUSSION

The results of the study showed that the use of a position clock had a significant effect on reducing the risk of pressure wounds in patients with bedriddenness. Based on the results of the Wilcoxon Signed Ranks Test, all respondents (100%) experienced a change in the pressure injury risk score that was positive, with a significance value of $p = 0.001$ ($p < 0.05$). The results of the Wilcoxon test were obtained that the average value of the pressure injury risk score before being given therapy was 9.53 with a minimum score of 6 and a maximum of 13 and after being given therapy increased to 13.2 with a minimum score of 8 and maximum 16. In the Wilcoxon statistical test, the p value is 0.001 and the value is less than <0.05 , so it can be concluded that H_0 is subtracted and H_a is accepted. This means that there is an influence of the influence of the use of position clocks on the risk of pressure wounds in the HCU room of Bali Mandara Hospital. Prior to the intervention, most patients were in the high- to severe risk category.

After a structured position change according to the position clock method (supinated, right tilt, left tilt with a head elevation of 30° every 2 hours), most patients experienced a reduced risk of being in the moderate and mild categories. This suggests that systematic management of patient positions can reduce pressure on areas prone to pressure wounds, improve tissue perfusion, and prevent ischemia. Position clocks as visual aids also provide clarity and consistency for nursing personnel in the implementation of interventions, as well as support documentation of more monitored and scheduled patient position changes. With proper and consistent application, this method becomes an effective, efficient, and low-cost non-invasive intervention to prevent pressure wounds in intensive care rooms. The use of a position clock as a visual guide for a patient's position change has been shown to be effective in reducing the risk of pectoral injuries.

This is in line with the basic principle of pressure wound prevention, which is to minimize continuous pressure on vulnerable areas of the body. The results showed that before the intervention most patients were in the high and severe risk categories, while after the intervention most of them moved to the medium and mild risk categories. This significant change indicates that the position clock can help improve blood circulation and reduce local pressure on the area of bone bulges. In addition, position hours make it easier for health workers to monitor the time of changes in the patient's position in a scheduled and consistent manner.

The success of this method also suggests that simple but consistent interventions can have a major impact in preventing chronic complications such as pressure sores. These results are consistent with previous research by Mayangsari (2020), which stated that periodic changes in position are able to prevent pressure wounds. This research adds a new contribution in the form of a structured position clock method, which can be used as a standard protocol in the intensive care room.

CONCLUSION

There was a significant and significant effect of the use of a position clock on the risk of pressure wounds in patients at HCU Bali Mandara Hospital with a p value of 0.001. In the Wilcoxon statistical test, the p value is 0.001 and the value is less than <0.05 , so it can be concluded that H_0 is subtracted and H_a is accepted, which means that there is an influence of the use of position clocks on the risk of pressure injuries in the HCU room of Bali Mandara Hospital.

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