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Balance Disorders in the Elderly with the Implementation of Ginger Lemongrass Warm Compress Therapy and Balance Exercise at UPT PSTW Jember: Case Study

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ABSTRACT: The ageing process in the elderly involves many changes and decreases in body function during ageing. The problem that is often experienced by the elderly is falls. This is because falls in the elderly are closely related to body balance. One of the factors that causes falls due to balance disorders is pain in the joints. Pain management and balance training are alternatives that can be done by the elderly to prevent the risk of falls. This study aimed to describe the effectiveness of giving warm compress of lemongrass ginger to the elderly as well as the effectiveness of balance exercise to the elderly with balance disorders at PSTW Jember. This research method uses a single instrumental case study with the Berg Balance Scale (BBS) and the PQRST mnemonic to measure the pain felt by the elderly. The results showed an increase in the BBS score and a decrease in the pain scale in the elderly. Applying a warm compress of lemongrass ginger provides a hot and spicy effect from the ginger, which can cause vasodilation of blood vessels, resulting in increased blood circulation and reduced pain. Meanwhile, balance training increases lower extremity muscle strength so that elderly people can support their bodies more strongly when making movements

Keywords: Balance Exercise, Elderly, Ginger, Lemongrass, Warm compress

INTRODUCTION

The ageing process is a natural process in the human body characterized by a decline or change in physical, psychological and social conditions in interacting with others. Indonesia has entered an ageing population structure in 2021, where around 1 in 10 residents are elderly. Susenas data for March 2023 shows that 11.75 per cent of the population is elderly, of which 63.59 percent of elderly people are classified as young elderly (60-69 years), 27.76 percent are middle elderly (70-79 years), and 8.65 percent are elderly old (80 years and over) (statistik, 2023). As we age, the body will experience various changes, including changes in the nervous and musculoskeletal systems, which are essential to maintaining body balance (Miftah & Lubis, 2023). n the elderly, many

changes and decreases in body function are experienced, such as instability and falls. These falls can result in serious injuries such as soft tissue damage and thigh and wrist fractures, which can reduce quality of life or even death. Other problems, such as joint pain, limited mobility, physical discomfort, and slow recovery time, can disrupt seniors' health. This is because falls in the elderly are closely related to body balance; one of the factors that causes falls due to balance disorders is joint pain (Miftah & Lubis, 2023).

The research results show that preventive measures for falls in the elderly can be carried out by providing intervention for the pain they feel and maintaining balance. An intervention that can be carried out for pain management in the elderly is providing non-pharmacological therapy in the form of warm compresses (Anggriani et al., 2021). The results of other research indicate that there is a significant difference between giving warm water compress therapy and ginger compress therapy in reducing joint pain in the elderly in the Wening Wardoyo Ungaran social rehabilitation unit, where giving warm compress of ginger therapy is more effective than giving regular warm water compress therapy (Radharani, 2020). Another study entitled The effect of giving warm compresses boiled with lemongrass on reducing the pain scale in the elderly with joint pain at the Karitas Cibeber nursing home in Cimahi City was proven to be effective in reducing the intensity of the pain scale (Wahyuningsih et al., 2023). So, these two ingredients are combined to increase the reduction in pain intensity in the elderly (Fatmawati & Ariyanto, 2021). Another intervention that can be carried out to prevent the risk of falls in the elderly is by practising balance in the form of Balance exercise, which has been proven to be effective in increasing the Time Up Go Test score, which is an indicator for assessing the risk of falls in the elderly (Sholehudin & Elmaghfuroh, 2023). Balance exercise is a physiotherapy intervention that can overcome problems in the elderly that affect balance. Balance exercise is a physical activity that increases body stability by increasing lower extremity muscle strength (Priyanto et al., 2019).

Based on the research results above, researchers tried to combine the two ingredients, ginger and lemongrass, to give warm compresses to the elderly. This case study research aims to describe data on elderly people who experience pain and balance disorders and the implementation of ginger lemongrass warm compresses(Mintarsih et al., 2022; Sridani et al., 2021). to see how effective warm compresses of ginger and lemongrass are in reducing pain felt by the elderly, as well as describing the implementation of balance exercises to improve body balance in the elderly as an effort to prevent the risk of falls(Urakov et al., 2023; Vagedes et al., 2022).

METHOD

The research design used is a descriptive case study with a single case. The research subjects used were elderly people who met the inclusion and exclusion criteria in this study, where the inclusion criteria were elderly people aged 60-69 years who experienced balance disorders. The exclusion criteria were elderly people who had complete dependence or total care. This research was conducted at PSTW Jember, focusing on implementing warm compresses of lemongrass ginger and balance exercises for seven days. The instruments used in this research were assessment sheets, the Berg Balance Scale assessment sheet (Heinemann et al., 2014) and the PQRST Mnemonic

(Blanchard et al., 2015; Loughran et al., 2024). He data analysis used in this case study research describes data on elderly people with balance disorders and the implementation of lemongrass ginger warm compresses and balance exercises on elderly people who experience balance disorders(Chepisheva, 2023; Cuevas-Trisan, 2017; Tarasconi et al., 2024). This research has passed the ethical test of the Faculty of Health Sciences, Muhammadiyah University of Jember, with number 0023/KEPK/FIKES/XII/2024.

RESULT AND DISCUSSION

Data on Elderly People Who Experience Pain and Balance Disorders

Elderly Mr. M, 67 years old, lives at Wisma Melati PSTW Jember, complaining of leg pain. The elderly person said he had fallen three years ago, and since then, the elderly person has experienced pain in his legs and balance problems due to the pain he felt(Elhamrawy et al., 2024; Ghous et al., 2024). The physical examination results showed compos mentis consciousness, pulse 85 times/minute, respiration rate 22 times/minute, and elderly blood pressure 166/90 mmHg. Muscle strength in the lower extremities was 3, with complaints of pain on a scale of 6 in both. The Timed Up Go Test (TUG) results showed a score of 20 seconds with a risk of repeated falls and a Berg Balance Scale (BBS) with a score of 8, which means high balance disorders. Meanwhile, the Activity Daily Living (ADL) examination results showed that the elderly were partially dependent. The cognitive function assessment results, measured using the Mini-Mental State Exam (MMSE), showed mild cognitive dysfunction(Leale et al., 2024; Mirando et al., 2024).

Implementation of Ginger and Lemongrass Warm Compresses for Elderly People Who Experience Pain

Applying lemongrass ginger warm compresses every day for seven days for 10-15 minutes reduces pain in the elderly(Boshi et al., 2024). The results began to appear on the third day and continued to decrease on the seventh day. The development of pain reduction in the elderly who were given lemongrass ginger warm compresses can be seen in Figure 1.

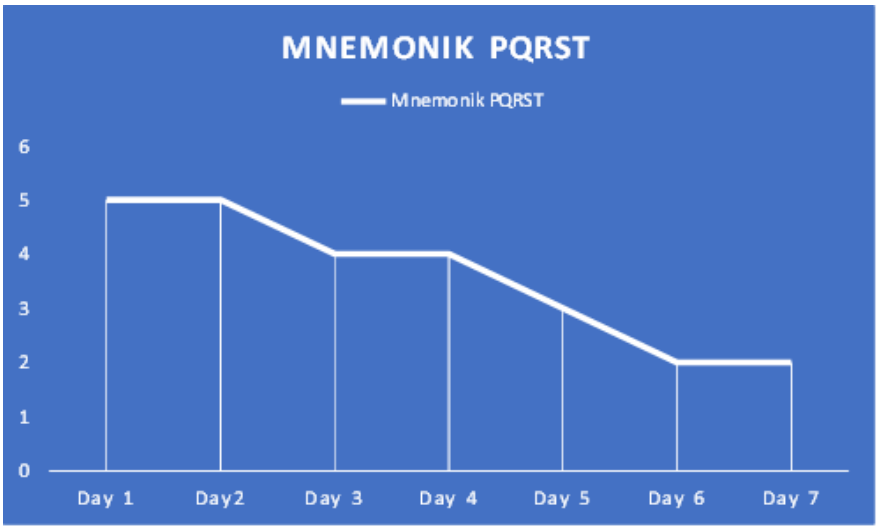

Figure 1. Development of pain scale in the elderly

Figure 1 shows that the scale of pain in the elderly decreases day by day after they are given a warm lemongrass ginger compress.

Implementation of Balance Exercises for Elderly People Who Experience Balance Disorders(Ramírez et al., 2023)

Implementing balance exercise for the elderly is carried out every day for seven days, with an exercise duration of 10 minutes after giving a lemongrass ginger warm compress. The success of balance exercise is evaluated by an increase in the BBS score in the elderly. The development of BBS scores in the elderly can be seen in Figure 2.

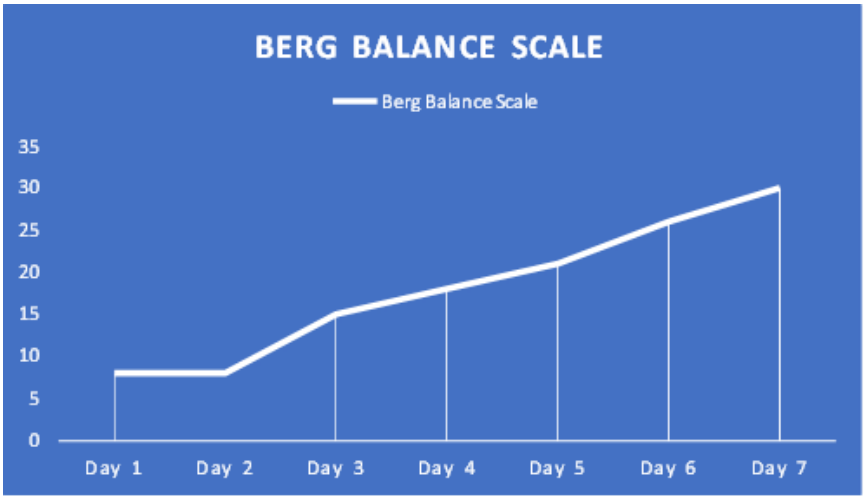

Figure 2. Development of BBS scores in the elderly

Based on Figure 1, it can be seen that day by day, there is an increase in the elderly's BBS score after being given the implementation of the balance exercise.

Implementing a lemongrass ginger warm compress on Mr M, who has balance disorders, experiences a gradual and significant decline(Gaspar et al., 2021; Kostro et al., 2024; Lee et al., 2024). There were no effects on the first and second days after administration; on the third day, these effects began to appear, marked by a decrease in the pain scale in the elderly Mr M with a value of four. So that the effects are gradual, other research states that lemongrass ginger warm compresses are applied for 1-7 minutes within 15-20 minutes, which has been proven effective in reducing the pain scale (Sitorus et al., 2021). The effect of implementing the lemongrass ginger warm compress on the first and second days still did not occur. After applying the lemongrass ginger warm compress on the third and fourth days, the effects began to be seen from the response that Mr M said that the pain scale on the third and fourth days was four. Ginger compresses are beneficial for reducing pain because they contain 6- gingerdion, 6-gingerol, and zingerol, which functions to suppress prostaglandins by inhibiting COX-2 activity, which inhibits the production of PGE2 and leukotrienes. Furthermore, TNF in human synoviocytes and joints effectively reduces pain intensity in the elderl (Radharani, 2020). The benefits of lemongrass plant contains essential oils which have chemical properties and pharmacological effects, namely a spicy and warm taste as an anti-inflammatory and pain reliever, which is an analgesic and improves blood circulation and is indicated for reducing joint pain, muscle pain, body aches and pain (Olviani et

al., 2020). hen, on the fifth day, the effect of the lemongrass ginger warm compress showed a significant reduction, where Mr M said the pain scale he felt was three, and on the sixth and seventh days after giving Mr Lemongrass warm compress. M said that his legs were getting better because the effect of the lemongrass ginger warm compress was with a score of two. According to other researchers, a warm compress mixed with ginger and lemongrass was proven to be effective in reducing the pain intensity of rheumatoid arthritis in the elderly, which was proven to be effective in reducing the intensity of pain, with the results obtained showing that there was an effect on reducing the pain scale of the elderly with rheumatoid arthritis after being given the ginger compress or lemongrass (Sitorus et al., 2021).

Implementing balance exercise on Mr M with balance disorders experienced a gradual and significant decrease in line with the administration of lemongrass ginger warm compresses, so these two implementations were interconnected with Mr M's balance disorders. M. On the first and second days after carrying out the balancing exercise, there were no effects because Mr M still felt pain in both legs; on the third day, there was a marked increase in Mr M's ability to do balance exercises so that the score on the third day was fifteen with the interpretation of high balance disorders. In contrast, previously, on the first and second days, it was eight with the interpretation of high balance disorders. The effect is in line with the application of a lemongrass ginger warm compress to treat pain in Mr M. Other research states that body balance disorders in the elderly are the inability of the elderly body to maintain balance when the body is standing, thereby increasing the risk of falls and the risk of repeated falls. Balance exercise is a physical exercise that can improve body balance (Aprilia et al., 2023). The implementation of the balancing exercise was carried out seven times in 7 days, which was done after giving a lemongrass ginger warm compress.

After carrying out balance exercises on the third and fourth days, the effects began to be seen, and there was a significant increase in the response given by Mr M with objective data. Mr. M was able to do balance exercises as evidenced by the value of the Berg Balance Scale (BBS) on the third day, which was fifteen with an interpretation of medium balance disorders, which then increased on the fourth day with a value of eighteen with an interpretation of medium balance disorders. Balance exercise is a physical exercise that can help elderly people maintain body balance and prevent falls. This exercise increases lower extremity muscle strength so that elderly people can support their bodies more strongly when making movements (Supendi et al., 2023). Then, on the fifth to the seventh day, there was a significant increase; Mr. M proved this increase by starting to get used to doing balance exercises and also the value of the Berg balance scale (BBS) on the fifth day is twenty-one with the interpretation of moderate balance disorders and requires assistance to walk like a cane. On the sixth day, the Berg balance scale (BBS) value was twenty-six and continued to increase on the seventh day to thirty with the interpretation of low balance disorders.

The research results show that the ideal intervention of Balance Exercise, carried out three times a week for five weeks, is the optimal frequency, can improve the postural balance of the elderly, and prevent falls (Cuevas-Trisan, 2017). However, the basis for this provision is the research results where the Balance Exercise intervention in nursing care for the risk of falls in the elderly was carried out six times a week. It was found that there were no incidents of repeated falls in the elderly, and lower extremity muscle strength increased, as well as increased body stability with the results of the interpretation of balance in both elderly people increasing (Estévez-Pedraza et al.,

2022; Li et al., 2024). The evaluation results of the implementation of balance exercises show the effectiveness of increasing balance in the elderly, which was confirmed in research(Janbozorgi et al., 2024; Kamel et al., 2024; Tirasci et al., 2024). It was explained that balance exercise is a physical exercise that can improve body balance, reducing the risk of falls and repeated falls. Moreover, according to (Supendi et al., 2023) balance exercise is a physical exercise that can help elderly people maintain body balance and prevent falls(Blandin et al., 2024; Wang et al., 2024). This exercise increases lower extremity muscle strength so seniors can support their bodies more strongly when making movements.

CONCLUSION

Based on the results of the implementation carried out by the author on Mr Those, who experienced balance disorders at UPT PSTW Jember, it can be concluded that.:

1. Data on elderly people with balance disorders with a pain scale of 5 as seen from a BBS score of 8
2. Implementation of a lemongrass ginger warm compress showed a change in the pain scale score on the third day and reached average values on the fifth day
3. The implementation of balance exercise also caused a change in the BBS score on the third day, which was 15 and interpreted as medium balance disorders. It continued to increase until the seventh day, when it was 30 and interpreted as low balance disorders.

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