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# APPLICATION OF FOOT MASSAGE THERAPY TO OVERCOME INEFFECTIVE BREATHING PATTERNS IN CHRONIC KIDNEY DISEASE (CKD) PATIENTS



Cross Mark

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## ABSTRACT

**Introduction:** One of the clinical manifestations of Chronic Kidney Disease (CKD) is shortness of breath due to interference with the kidneys which results in disruption of the formation of red blood cells. A decrease in the number of red blood cells will interfere with its function to carry oxygen to peripheral tissues so that it can cause shortness of breath. Shortness of breath alone and can cause problems with ineffective breathing patterns. Nursing actions that can be taken in this case include foot massage therapy which aims to reduce shortness of breath. Research objective: to determine the effectiveness of foot massage therapy on ineffective breathing patterns in Chronic Kidney Disease (CKD) patients. **Method:** This scientific work uses the case report method which describes the case of Mrs. M with the problem of ineffective breathing pattern nursing in the Adenium Room RSD dr. Soebandi Jember. The intervention was foot massage for 30 minutes in 3 days. **Discussion:** After the foot massage therapy was carried out within 3 days of treatment, it showed a change in respiratory frequency from scale 2 (severely increased) to scale 4 (simply decreased). Non-pharmacological therapy foot massage can help reduce symptoms of shortness of breath because it can increase the hormone endorphins can affect blood vessels so that blood vessels can widen and will improve blood and lymph circulation which can increase oxygen supply and reduce shortness in patients. **Conclusion:** Actions of foot massage therapy can provide a change in the patient's breathing pattern as seen from the previous respiratory rate from 25 x/minute to 20x/minute, dyspnoea has decreased considerably.

**Keywords:** Chronic Kidney Disease (CKD), foot massage, breathing patterns

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## INTRODUCTION

*Chronic Kidney Disease*(CKD) or chronic kidney failure is an irreversible dysfunction which is the body's ability to maintain metabolism by removing toxic substances from the body (Susanti, 2020). Signs and symptoms of Chronic Kidney Disease (CKD) such as urinating at night, decreased appetite, feeling tired, pale face, itching, edema and feeling short of breath when breathing (Siregar, 2020). Chronic Kidney Disease (CKD) can also cause anemia because the hormone erythropoietin comes from the kidneys which affects the formation of red blood cells. A decrease in the number of red blood cells will disrupt its function of carrying oxygen to peripheral tissues so that it can cause shortness of breath (Yuniarti, 2021).

According to WHO (2018) in Zulfan (2021) there are 1.7 million deaths due to kidney failure each year. Chronic Kidney Disease (CKD) occurs at the age of 35-44 years around 0.3%, then at the age of 45-55 years (0.4%), aged 55-75 years (0.5%) and mostly at the age > 75 years that is (0.6%). The prevalence of Chronic Kidney Disease (CKD) experienced a higher decline in kidney function in men (62.4%) compared to women (37.5%) (Nasution et al., 2020). Research conducted by Nurseskasatmata et al, (2019) patients with Chronic Kidney Disease (CKD), the average patient with Chronic Kidney Disease (CKD) has signs of shortness of breath, there are 80 patients who come to the ER experiencing shortness of breath. Shortness of breath in patients with Chronic Kidney Disease (CKD) can be

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reduced by doing foot massage therapy. Foot massage or foot massage is the therapy of massaging certain points on the foot area. foot massage has benefits such as reducing shortness of breath, increasing endurance and being able to relax the body (Arianto, et al., 2018). Foot massage can stimulate the limbic system to produce Corticotropin-Releasing Factor (CRF) then Corticotropin-Releasing Factor (CRF) stimulates the pituitary gland and secretes endocrine, then there is an increase in endorphins in the brain and can create a feeling of physical relaxation. Endorphins can also suppress cortisol secretion and can also relax the body psychologically. This endorphin can affect blood vessels so that blood vessels can widen and will improve blood and lymph circulation which can increase oxygen supply and reduce tightness in patients (Saragih in lestari, 2022). Based on this background, it is necessary to analyze nursing care in patients with Chronic Kidney Disease and foot massage therapy intervention.

## METHOD

The research method used was the case report method which was carried out on the patient Ny. M in the Adenium Room RSD dr. Soebandi Jember. This scientific work uses a comprehensive approach to nursing care by implementing 5 processes of nursing care including assessment, diagnosis, planning, implementation and also evaluation of nursing which was

carried out for 3 days, from 07 February 2023 to 09 February 2023. The data source for this study was obtained from primary data is by observing and asking questions with clients and families, and secondary data is obtained through patient medical record data. Data collection techniques, namely observation and question and answer, were carried out to determine changes in breathing patterns in Chronic Kidney Disease (CKD) patients with diagnoses and ineffective breathing patterns. Measurement seen from, respiratory rate, SpO<sub>2</sub>, accessory respiratory muscles, and additional breath sounds. The intervention was carried out based on research by Putri et al (2021) and Jing et al (2022) regarding therapeutic massage on hemodynamic status and vital signs, especially on breathing patterns.

## RESULT

In this case the client is a woman named Mrs. M, who is 43 years old, is being treated in the Adenium Room at RSD dr. Soebandi with a medical diagnosis of CKD + Renal Anemia + HT + HF. Mrs. M routinely controls HD once every 2 weeks since August. The application of foot massage therapy for 30 minutes in 3 days, namely February 7, 8 and 9 2023, resulted in a decrease in RR in patients. The patient also said that shortness of breath began to decrease, this can be seen from the improved RR results, no nostril breathing and rapid chest movements.

**Table 1. Results of observations**

Parameter	Measurement results 8/02/2023		Measurement results 9/02/2023		Measurement results 10/02/2023	
	Before	after	before	after	Before	after
Dyspnea	1	1	1	2	2	3
Use of accessory muscles for breathing	4	4	4	4	4	4
Nostril breathing	2	2	3	3	4	4
Breathing frequency	2 (25x/minute)	2 (24x/minute)	2 (24x/minute)	3 (22x/minute)	3 (21x/minute)	4 (20x/minute)
SpO <sub>2</sub>	3 (96%)	3 (97%)	3 (97%)	4 (98%)	4 (98%)	4 (99%)

## DISCUSSION

According to Siregar (2020) Chronic Kidney Disease (CKD) is divided into 5 degrees, namely stage 1, stage 2, stage 3, stage 4 and stage 5. In Mrs. M, Mrs. M has experienced stage 5 Chronic Kidney Disease (CKD) due to having undergone dialysis or undergoing routine hemodialysis. Based on gender, the results of the case studies show that the patient is female. In the 2018 IRR (Indonesian Renal Registry) study, 43% of women had Chronic Kidney Disease (CKD) while men had 57%. This is due to the influence of hormonal differences, lifestyle such as consumption of salt and cigarettes. By age, Mrs. M is 43 years old, which is in accordance with the research of Hamidi, et al.

Nursing evaluation is the final stage of a nursing process to assess the patient's condition compared to the predetermined outcome criteria and to determine whether the therapy provided can achieve the predetermined outcome criteria (Pangkey et al, 2021). The first day after the intervention the patient's breathing pattern had not improved in the patient's SpO<sub>2</sub> at 96%, RR 24x/minute with nostril breathing. On the second day there was a change in the patient's breathing pattern, before the intervention data obtained RR 24x/min, SpO<sub>2</sub> 97%. After the intervention there were changes, namely RR 20x/min, SpO<sub>2</sub> 98%, and nostril breathing began to decrease. On the third day there was also a change in the patient's breathing pattern, from before the intervention data RR 23x/min, SpO<sub>2</sub> 97%, to RR 20x/min, SpO<sub>2</sub> 98%.

Based on the intervention, there was a change in breathing pattern after foot massage therapy, this shows that there is an effect of foot massage therapy on the patient's breathing pattern. Research conducted by Putri et al., (2021) regarding the effect of foot massage therapy on the patient's hemodynamic status, especially breathing patterns, found foot massage therapy to be effective in reducing the average value, RR and oxygen saturation within 30 minutes of intervention ( $p < 0.05$ ). This is also in accordance with research

research conducted by Jing et al., (2022) regarding *Effects of Foot Reflexology on Vital Signs* with 13 studies with 819 patients included in the criteria, it was concluded that short-term follow-up results showed that foot reflexology had a positive effect on signs, especially respiratory frequency and increased SpO<sub>2</sub>. Research conducted by Najafiana (2022) on the effect of foot massage on vital signs in hypertensive patients found changes in decreased respiratory frequency and increased SpO<sub>2</sub> ( $p < 0.05$ ).

## CONCLUSION

The study conducted on Mrs. M found the status of breathing patterns in the form of respiratory frequency, SpO<sub>2</sub>, and nostril breathing. Nursing Problems in Mrs. M is an ineffective breathing pattern. Nursing Intervention performed on Mrs. M is progressive muscle relaxation therapy (I.05187) in the diagnosis of ineffective breathing patterns. The intervention is foot massage therapy which is done to overcome breathing patterns. Nursing Implementation on Mrs. M is carried out for 3x24 hours according to the planned intervention. Nursing Evaluation on Mrs. M carried out for 3 days found that there was a change in respiratory frequency from scale 2 (severely increased) to scale 4 (severely decreased) in patients after foot massage therapy.

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