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An Application of Semi-Fowler Positioning to Overcome Nursing Problems Ineffective Breath Patterns in Clients with Chronic Kidney Disease: a Case Study

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ABSTRACT

Chronic Kidney Disease (CKD) or chronic kidney failure is a disease due to decreased kidney function that causes the body to fail to maintain fluid and electrolyte balance metabolism, resulting in urea retention and other nitrogen waste accumulation in the body. This research aims to analyze given this position to lower oxygen consumption and increase maximum lung expansion, the ineffectiveness of the client's breath pattern is more optimal in CKD patients in the Adenium Room of DR. Soebandi Jember Hospital. This type of research is descriptive using the case study approach method. The subject in this case study was one patient affected by CKD with the ineffectiveness of breath patterns. Semifowler position intervention is performed where the position of the head and body is raised by 45°. Result: The application of a semi-fowler position (45° sitting position) for 3x24 hours according to the standard of procedure helps reduce shortness of breath and helps optimize RR in the client so that the problem of ineffectiveness of breath patterns can be resolved. Interventions in regulating the angle of sleep position can meaningfully produce good respiration, so it can be considered one of the interventions to optimize the ineffectiveness of breath patterns.

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I. INTRODUCTION

According to the Kidney Disease Outcomes Quality Initiative (KDOQI), the definition of Chronic Kidney Disease is defined as damage that occurs to the

kidney organs and can cause the resulting glomerular rate to be less than 60 ml/minute / 173m³; this event lasts for three months or more, and is sedentary and irreversible or irreversible. Because of its

irreversible nature, sufferers have to undergo treatment for life. Chronic renal failure causes a decrease in kidney function, resulting in body toxins that should be removed by the kidneys not coming out, thereby increasing urea levels and damaging tissues and cells (Siregar, 2020; Nurbadriyah, 2021).

It is estimated by the Annual Data Report United States Renal Data System, every year there will be a double increase in the prevalence of Chronic Kidney Disease (CKD) by 20-25%, especially in 1998-2008 (Wahyuni et al., 2019). According to the Indonesia Renal Registry or IRR, in Indonesia 14,833 people suffered from kidney failure in 2010 and 22,304 people in 2012 (Wakhid et al., 2019). Meanwhile, according to the Ministry of Health of the Republic of Indonesia in 2018, there were 0.29% of cases of kidney failure in East Java (Dwi et al., 2019). Riskesdas results in 2013 found an increase in the incidence of kidney failure in line with the increase in the age of patients, where at the age of 35-44 years occurred with a percentage of 0.3%; aged 45-54 years occurred with a percentage of 0.4%; Ages 55-74 years occur with a percentage of 0.5% and the highest over 75 years as much as 0.6%. In addition, it was found in men to have a higher prevalence (0.3%) while in women (0.2%) (Wakhid et al., 2019)

2. METHODS

Case studies use descriptive case study design. The population in this study was CKD patients in the Adenium Room of Dr. Soebandi Jember Hospital. The number of respondents was one respondent. This research was conducted in June 2022. They were measuring instruments using oximetry. The data collection tool uses nursing care sheets and observation sheets. The inclusion criteria in this sample were CKD patients, cooperative, shortness of breath RR above 22x/min, and oxygen saturation <95%. This case study was conducted after getting approval from the head of the room, clinical supervisor, and respondents. The data collection procedure is carried out by assessing nursing diagnoses and interventions, implementing (positioning fowlers), and conducting evaluations. The case study process was carried out when the respondent experienced shortness of breath and SpO₂ was less than equal to 95%, before positioning the fowler, the respondent measured his shortness of breath and oxygen saturation, after which the respondent positioned fowler for 15 minutes and observed and observed his respiratory status. The evaluation was conducted after 15 minutes of ± in the position of the fowler, reviewing the

respondents' shortness of breath and oxygen saturation.

3. RESULTS

The implementation of nursing that is carried out to overcome the ineffectiveness of breath patterns is to conduct a vital sign examination, provide oxygen therapy to provide a semi-fowler position to maximize ventilation, and teach non-pharmacological techniques. Teaching non pharmacology techniques with the client's response says he is more able to control his breathing pattern and the client sees his breath pattern effective again when shortness of breath occurs. In addition to the semi-fowler position, the implementation has been carried out by applying the deep breath technique in the hope that the client's breathing pattern will be effective again and not complain of shortness of breath.

The semi-fowler position is a half-sitting or sitting position where the head reaches higher or is raised to 30-45o. The position is performed to maintain comfort

and facilitate the client's respiratory function. This technique can stimulate the parasympathetic nerves and later muscles become comfortable. This relaxation technique can increase the amount of oxygen, increase metabolism, produce energy in physiological processes, and lower the level of fatigue (Sutinah & Azhari, 2020).

The implementation on the first day is to evaluate the frequency of breathing, oxygen saturation and type of breathing, providing a comfortable and low-stimulus environment. On the second day of implementation, it was carried out evaluating the decrease in shortness of breath, evaluating relaxation techniques that the sufferer had used and effectively, creating a calm environment with sufficient lighting and room temperature to produce a relaxed state, explaining the intention of relaxation, advocating taking a safe and comfortable position, demonstrating and asking the client to perform breath relaxation techniques table 1.

Table 1. monitoring of implementation

Indicator	Pre-test	Post Test		
		1 st Day	2 nd Day	3 rd Day
SPO ₂ (Oksigen saturation)	95%	97% with cannula oxygen	98% with cannula oxygen	98% with cannula oxygen
Respiratory Rate	28 times per minute	24 times per minute	22 times per minute	22 times per minute

4. DISCUSSION

This study is in line with Singal's (2013) study stating that semi-fowler positions are more effective in reducing the respiratory frequency and oxygen saturation in patients with nursing problems and ineffective breathing patterns compared to fowlers or other positions. This position allows oxygen to relieve airway narrowing and meet O₂ in the blood. Positioning semi fowler can improve oxygen input for asphyxiated patients. In line with the study, it was found that (64%) of patients were better in the 30-45o position, (24%) in the 60o position, and (12%) patients were better at 90o. Similar previous studies have shown a significant effect of semi-fowler positioning on the shortness of breath in patients with ineffective breath pattern fatigue problems with sig values. 0,006 (α 0,05). In theory, breathing exercises will lead to increased blood circulation to the respiratory muscles. Smooth blood flow will bring nutrients (calcium and potassium) and oxygen to the respiratory muscles. This strength of the more trained respiratory muscles will improve lung compliance and prevent the alveoli from collapsing or statics. In line with the research by Yulia (2019), the results have the advantage that after breath intervention in the setting of position of

semi-fowler the value of respiration rate in patients with the nursing diagnosis of ineffective breath patterns decreases. Setting the correct position can make lung function close to normal, preventing disease recurrence and death. The results that researchers have obtained are also in line with research that has been carried out by Dahlia (2018) which states that the semi-fowler position is more effective in lowering the respiratory rate (RR) because in the semi-fowler position the diaphragm muscles are attracted to the bottom so that lung expansion is more optimal and oxygen is easier to enter the lungs. In addition, the position of the sei fowler can maintain comfort and facilitate respiratory function.

This is in contrast to Dimas's research (2020) which states that positioning fowlers can decrease shortness of breath and increase patient oxygen saturation. In contrast to the research that Khasanah has carried out, (2019) which states that placing the patient in the fowler position can improve the patient's respiratory status, in this case SpO₂ and RR can be better than the lower head position. It can be interpreted that the position of the body that is getting upright, the better the respiratory status. It is also not in line with the research that Kubota, Endo and Kubota (2013) have conducted which shows that a slight flexion of the

upper body in the fowler position will activate respiratory function and increase the contribution of vagal nerve activity to the cardiovascular system.

5. CONCLUSION

Based on the study results, it was shown that positioning fowlers in CKD (Chronic Kidney Disease) patients with shortness of breath could increase oxygen saturation in patients. There was a change in SpO₂ (oxygen saturation). Giving a fowler position addresses the priority problem of expanding the ng thorax and lung.

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