

Hemodialysis Intervention to Improve Patient Quality of Life in Mr. A with Chronic Renal Failure

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Abstract

Patients with chronic renal failure require treatment that can replace kidney function in the human body. One such treatment is hemodialysis, which aims to filter fluids, electrolytes, and metabolic waste in order to improve the patient's quality of life. This study aims to describe the nursing care provided to patients with chronic renal failure undergoing hemodialysis, with a focus on improving their quality of life. This research used a qualitative case study approach, with instruments such as observation sheets, interviews, and document analysis. The research subject was a patient, Mr. A, who was diagnosed with chronic renal failure at Gunung Jati General Hospital, Cirebon City. The results showed that the management of nursing problems such as ineffective renal perfusion and hypervolemia was successfully carried out, as indicated by the absence of edema, a more stable increase in body weight, and a decrease in serum creatinine levels. Despite the improvement, the patient still requires hemodialysis to maintain kidney function. This study confirms the importance of continuous care through hemodialysis in improving the quality of life of patients with chronic renal failure. The findings also highlight the important role of nursing interventions in managing complications and improving patient health outcomes.

Keywords: Chronic Renal Failure, Hemodialysis, Quality of Life.

INTRODUCTION

The kidneys will experience progressive and ongoing damage known as "chronic renal failure", a condition that can cause irreversible changes in kidney function (Felayati, 2018). According to the National Kidney Foundation, chronic kidney disease is a condition in which the kidneys are damaged and unable to perform their normal functions for an extended period (Budi et al., 2023). Kidney disease is one of the health issues in the world, with a high financial burden (Kusuma, 2022). One of the signs and symptoms of kidney disease is the presence of uraemia in the blood. Uremia results from the body's inability to maintain metabolism and balance of fluids and electrolytes due to impaired renal function, which is progressive and irreversible (Wiliyanarti & Muhith, 2019).

Chronic renal failure is currently one of the most severe problems worldwide. According to data from the Centers for Disease Control and Prevention /CDC in 2021 states that in the United States, 1 in 7 adults, which means 15% or 37 million adult residents, are estimated to have kidney failure, 9 out of 10 adult kidney failure sufferers do

not know how they got kidney failure, 2 out of 5 adult kidney failure sufferers with more severe stages also do not know how they got kidney failure (Waluyo, 2023).

According to PERNEFRI data, the prevalence of GKG in Indonesia is 12.5%, meaning that around 18 million adults in Indonesia experience GKG. Based on gender, the highest prevalence is male (0.3%), while in women (0.2%), at the age level, the highest prevalence is age > 75 years (0.6%). Riskesdas data (2018) showed that the prevalence of Indonesians with GBK was 0.38%, an increase from the 2013 data of 0.2%. The highest prevalence was in North Kalimantan province, which was 0.64%. The number of diagnoses of CKD in hemodialysis (HD) patients in Bali province was 1,433 people (Cahyani et al., 2022)..

A survey conducted by the Indonesian Nephrology Association (Pernefri) in 2018 showed that 239,086 patients in Indonesia were undergoing hemodialysis. Data on hemodialysis patients in each Indonesian province was reported to reach 30,554 people, with North Sumatra ranked sixth highest and followed by West Java (Waluyo, 2023).

There are two methods for treating GKG cases; one is kidney transplantation, and the other is hemodialysis or dialysis. Hemodialysis is the process of cleaning the blood by collecting waste or metabolic waste in the human body (Mahmud & Heryadi, n.d.). In patients with chronic kidney failure, hemodialysis can prevent death. The primary technique used in dialysis is hemodialysis, which is the process of separating macromolecules from ions and low molecular weight compounds in solution by utilizing differences in their diffusion rates through a semipermeable membrane (Cahyani et al., 2022).

In Indonesia, the most common management for patients with renal failure is replacement therapy. Hemodialysis is the most often used replacement therapy, as much as 78% compared to other therapies. Hemodialysis can prevent death, but it cannot cure the disease or restore the patient's original condition, so the patient must adhere to it (Khoiriyah et al., 2020).

Hemodialysis is one of the treatments that can be done to replace kidney function by filtering blood using a particular machine (Fund, 2020). Hemodialysis is a procedure that can sustain life for patients with end-stage kidney disease (Guimarães et al., 2024). However, this hemodialysis procedure also has side effects or complications such as hypotension, especially in chronic kidney failure patients who also have diabetes, hypertension, especially in chronic kidney failure patients who also have a history of hypertension, nausea, and even vomiting that occurs due to the accumulation of toxins in the blood and as a result of decreased blood pressure, anemia, muscle cramps, and skin problems such as xerosis (dry skin) which can cause pruritus (itchy skin) (Faizah, 2022).

Compliance with therapy in hemodialysis patients is one of the essential things to note because if the patient is not compliant in doing hemodialysis, there will be a buildup of harmful substances from the body of metabolic products in the blood. So that the patient feels pain throughout the body and if this is allowed to cause death (Khoiriyah et al., 2020).

Non-compliance in performing hemodialysis can have a negative impact, including patients experiencing many disease complications that interfere with their quality of life, physical, psychological and social disorders, fatigue or extraordinary fatigue that causes

frustration; these conditions will cause a decrease in the quality of life of chronic kidney failure patients undergoing hemodialysis therapy (Khoiriyah et al., 2020).

Non-compliance in hemodialysis patients includes 4 (four) aspects, namely non-compliance in following the hemodialysis program (0% - 32.3%), non-compliance in the treatment program (1.2% - 81%), non-compliance with fluid restriction (3.4% - 74%) and non-compliance with the diet program (1.2% - 82.4%). Non-adherence can affect the client's quality of life, increase healthcare costs, and increase morbidity and mortality. Several factors can influence compliance, including patient beliefs, attitudes and motivation, knowledge, perceptions, patient expectations, family social support and health worker support (Khoiriyah et al., 2020).

Based on the background of the problem, this research aims to explain nursing care in patients with chronic renal failure using hemodialysis or dialysis interventions to improve the quality of life of patients who experience damage to kidney function in the body. Thus, the benefit of this research is to provide a deeper understanding of the importance of patient compliance in undergoing hemodialysis therapy to improve quality of life. This study is also expected to help medical personnel in designing more effective nursing interventions and providing care that is focused on the individual needs of patients with chronic renal failure. In addition, this study can contribute to the development of educational programs that can improve patient compliance in following hemodialysis therapy, as well as prevent complications that can reduce patient quality of life.

RESEARCH METHOD

This research uses a qualitative approach with case study as the primary method. The subject of this study used one person, a patient with chronic renal failure. The data collection methods used were observation, interview, and physical examination. Observation is done by observing the patient for signs and symptoms of hypervolemia due to a history of chronic renal failure. Interviews were conducted with Allo anamnesa, namely the family accompanying the patient and the patient himself (Auto anamnesa). While the physical examination was done head to toe, the interviewer collected data using established hemodialysis patient assessment guidelines. Data analysis is carried out from data collection until the data is collected. The researcher compiles a nursing care plan and implements and evaluates the nursing care given to the patient.

RESULT AND DISCUSSION

The results of the assessment were obtained in the patient Mr A, with a medical diagnosis of chronic renal failure in the hemodialysis room of Gunung Jati Hospital, Cirebon City, on March 26, 2024. The patient complained that the body felt weak, the urine released in 24 hours was 150ml, an increase in body weight of 3.5kg within 4 days and swollen legs.

Based on the physical examination results, edema was found on both legs; the patient looked weak. The blood pressure was 127/68 mmHg, pulse 76x/min, respiratory frequency 20x/min, temperature 36.5oC, past post-HD weight 74kg, and current weight 77.5kg. The laboratory examination found that the urea value was 126.0 mg/dL and

creatinine 11.7 mg/dL, indicating an increase in urea and creatinine values that exceeded normal limits.

Based on the objective and subjective data that has been obtained, it can be concluded that the priority nursing problems include Ineffective renal perfusion disorders and hypervolemia. The nursing care process is carried out from assessment to evaluation by the SDKI, SLKI, and SLKI standards. Mr A was carried out for 4 hours, and the results obtained were improved body weight, decreased edema, and improved creatinine serum values.

Chronic Kidney Disease (CKD) is an irreversible kidney disorder with abnormalities in kidney structure and function. The body can no longer maintain metabolism and balance of fluids and electrolytes, causing uremia (Novitasari et al., 2015). Chronic renal failure (CKD) is kidney damage beyond a period of 3 months and abnormalities in kidney structure and function (Pasaribu, 2020). Increased serum and creatinine levels, abnormalities in serum and diet, electrolytes, histology, and kidney structure characterize impaired renal function (Cahyani et al., 2022)..

The assessment results were based on interviews and observations before implementation, and the author found an increase in body weight, urea values, and creatinine values. The patient said there was an increase in body weight within 4 days from 74kg, which increased to 77.5kg, and the patient's urine output in 24 hours was only 150ml. The results of laboratory tests carried out before the patient did dialysis or hemodialysis found a uranium value of 126.0mg / dL and a creatinine value of 11.7mg / dL, which means an increase in the value of ureum and creatinine from the limit of average values in the patient's body, and on physical examination of the patient found that the patient's legs had edema.

Interventions performed on patients are hemodialysis or dialysis to improve the patient's quality of life. The patient's damaged kidneys will be replaced with a dialyzer that can replace kidney function and filter metabolic waste in the blood.

Hemodialysis is one of the treatments (replacement treatment) in patients with terminal-stage chronic kidney failure, where kidney function is replaced by a device called a dialyzer (artificial kidney); in this dialyzer, the process of transferring soluble substances in the blood into dialysis fluid or vice versa occurs (Sitanggang et al., 2021). Hemodialysis is a process in which another solution changes the composition of blood solutes through a semipermeable membrane; hemodialysis has proven to be very beneficial and improves patients' quality of life (Wiliyanarti & Muhith, 2019).

The implementation focuses on reducing fluid, serum, and creatinine in the patient's blood by performing hemodialysis or dialysis, conducting physical examinations, taking vital signs, and reviewing laboratory results.

Hemodialysis is performed by flowing blood into an artificial kidney tube (dialyzer) consisting of two blood compartments consisting of an artificial permeable membrane with a dialysate compartment (Karo-Karo et al., 2020).. The dialysate compartment is filled with pyrogen-free dialysate components, contains a solution with electrolyte components similar to normal serum, and does not contain residues of nitrogen metabolism (Karo-Karo et al., 2020). Dialysis fluid and separated blood will experience a change in

concentration as solutes move from high concentration to low concentration; separated blood will experience a change in concentration until the concentration of solutes in both compartments is the same (diffusion) (Cahyani et al., 2022).

After the implementation of hemodialysis or dialysis for 4 hours, the evaluation results showed that the body weight improved, no edema was found, and there was a decrease in creatinine urea values. The results of physical and laboratory examinations after implementation were obtained: body weight was 74kg, no edema was found, blood pressure 117/62, pulse 71x/min, respiratory frequency 19x/min, temperature 36.6oC, ureum value 74.0mg/dL, creatinine value 6.23 mg/dL.

This proves that hemodialysis can improve the patient's quality of life by replacing the function of the kidneys that are no longer functioning with a dialyzer device that has a function similar to kidney function, namely filtering fluids, electrolytes, and metabolic waste substances in the blood contained in the patient's body.

Patients undergoing hemodialysis can experience psychological stressors (Zhang et al., 2024). These psychological stressors include fluid restrictions, restrictions on food consumption, sleep disturbances, uncertainty about the future, restrictions on recreational activities, decreased social life, restrictions on time and place of work, and economic factors (Mait et al., 2021). Patients will lose freedom due to various rules and will be very dependent on health workers; this condition results in unproductive patients, and their income will decrease or even disappear. So that this can affect the quality of life (Sari et al., 2022).

According to Kastrouni, the longer the patient undergoes hemodialysis, the more compliant the patient will be. This is because usually, the respondents have reached the acceptance stage and are likely to get a lot of health education from nurses and doctors about the disease and the importance of carrying out HD regularly and improving the quality of life (Sari et al., 2022).

CONCLUSION

Nursing care provided to Mr. A, a patient diagnosed with chronic kidney failure, demonstrated significant clinical success. The primary nursing problems of ineffective renal perfusion and hypervolemia were resolved, as evidenced by the absence of edema, improved body weight, and decreased levels of creatinine and urea. Hemodialysis played a crucial role in enhancing the patient's quality of life by compensating for the diminished kidney function. The dialyzer, a key component in the hemodialysis process, replaced the kidneys' role in filtering fluids, electrolytes, and metabolic waste from the blood. This allowed the patient to maintain better overall health and manage the complications associated with kidney failure.

Despite these improvements, the patient continues to rely on regular hemodialysis sessions, twice a week, to maintain kidney function and prevent the buildup of harmful substances in the body. Nursing care also successfully addressed the issue of hypervolemia, with no signs of edema present, although the patient's urine output remains low due to impaired kidney function. The ongoing dialysis ensures that excess fluids, electrolytes, and metabolic waste are effectively removed, compensating for the kidneys' diminished

capacity. This study highlights the importance of continuous hemodialysis and nursing interventions in improving the health and quality of life of patients with chronic kidney failure. The research contributes to the body of knowledge on the management of chronic kidney disease by demonstrating how effective nursing care can mitigate complications and optimize patient outcomes in hemodialysis treatment..

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