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Research Article

The most frequent diagnosis on patients undergoing hemodialysis

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ABSTRACT

Background: Hemodialysis is a routine medical intervention for patient with chronic renal failure. Patients may responds differently when they undergoing this procedure. Investigating nursing diagnosis and collaborative diagnoses during hemodialysis procedure need to be explored. The objective of this research is to determine the sequence of nursing diagnosis and the collaborative diagnosis identified among kidney disease patients who are undergoing hemodialysis.
Methods: This case study research involving 62 respondents. Research was conducted between June and July 2015. The respondents' cases were studied to determine what nursing diagnoses and collaborative diagnoses, using a six-step diagnostic reasoning method.
Results: Result of this study showed 27 nursing diagnoses and 7 collaborative diagnoses experienced by the patients. The six most commonly experienced nursing diagnoses were: activity intolerance (100%), nausea (96.8%), risk for impaired skin integrity (91.9%), impaired urinary elimination (82.3%), insomnia (77.4%), and sexual dysfunction (58.1%).
Conclusions: There were 27 nursing diagnoses and 7 collaborative diagnoses that were experienced by patients who were undergoing hemodialysis.

Keywords: Diagnosis, Hemodialysis

INTRODUCTION

The rise in the number of patients with chronic kidney failure will result in a rise in the number of patients undergoing hemodialysis. In 2009, in the United States of America, 570,000 people underwent dialysis treatment or kidney transplants, while in Great Britain it is estimated that there were approximately 50,000 patients with kidney diseases.[1]

As seen in data from the National Insurance Program (ASKES), Indonesia is one of the countries that has a relatively high rate of patients suffering from chronic kidney disease. In 2010, there were 17,507 patients; in 2011 there were reported 23,361 cases, and in 2013, there were 24,141 patients reported.[2]

The data from Basic Health Research (RISKESDAS) in 2013 indicated that the prevalence of chronic kidney disease in West Sumatra was 0.2 and it was estimated that the number of cases would rise every year.[3]

Based on data of the development and service of the hemodialysis unit at RSUP Dr. M. Djamil General Hospital in Padang, in 2011, there were 112 patients, while in 2012 there was an increase to 126 patients, and in 2013 there were 133 patients undergoing routine hemodialysis.

The rising number of hemodialysis patients calls for attention, especially for this particular population. Attention can be shown in the increase in nurses and nursing services for this population. Nurses play a major role in the nursing care. The quality of nursing care indicates whether the nurse understands the problems experienced by every patient undergoing hemodialysis. Every patient is unique and responds differently to the hemodialysis treatment. Individual patient responses present situations where the nurse must make conclusions regarding the nursing or collaborative diagnoses experienced by the patient.

At the present time, the most commonly encountered problem of this population has not yet been identified. The identification of this problem is a diagnostic process that involves several stages. These stages are part of the diagnostic reasoning process. There are various methods of diagnosis, however basically an accurate diagnosis must lead to appropriate nursing intervention that addresses the patients' problems.

Hemodialysis is a therapeutic process that replaces poor functioning of the kidneys with the use of a semipermeable membrane that functions as a nephron to remove metabolism waste products and correct imbalances of liquids and electrolytes in patients who suffer from kidney failure.[4] The hemodialysis process can be conducted two or three times every week and requires three to five hours for each session. The results of the Dialysis Consensus state that adequate hemodialysis can be achieved with a total of 10-12 hours per week.[6.]

For patients with chronic kidney disease, hemodialysis will not change the course of the kidney disease and reinstate kidney function. Patients will continue to experience a number of problems and complications.[5] Hemodialysis patients can be categorized as patients with unique conditions because they must spend a considerable amount of time in the hospital, that is, two to three sessions each week to wash their blood, where each session requires four to five hours. This routine must be continued for the remainder of their lives and requires considerable time and expense.

The hemodialysis nursing practice is an advanced nursing practice that is conducted by dialysis nurses, including practicing nurses and specialist clinical nurses who have certification in dialysis training.[7]

Hemodialysis nurses have an important role as providers of nursing care, health advocates, consultants, and educators who assist patients to achieve a better quality of life and to prevent the occurrence of complications that may affect the improvement of the quality of life of hemodialysis patients.[7]

Hemodialysis nurses must have the professional capabilities to prepare the patient prior to hemodialysis, monitor the condition of the patient throughout hemodialysis process and teach the patients about correct diet and limitations of liquids, and provide support for self-care, while overseeing the entire process.[8] Comprehensive nursing care is expected to reduce and prevent complications experienced by the patient during the process of the therapy to improve the quality of life of the hemodialysis patient.

The nursing profession uses the nursing process as the conceptual and practical framework in caring for patients. The nursing process consists of assessment, diagnosis, planning outcomes, planning intervention, implement-tation, and evaluation.[9]

Experience indicates that nurses often have difficulties diagnosing patients. This may be caused by an improperly structure of nursing assessment. The researcher's experience indicates that assessments conducted by nurses are not always sequential or related to nursing diagnoses. Often nurses have specific data, but do not know how that data supports a nursing diagnosis or the nurse may suspect a diagnosis, but does not know what data is needed to support that diagnosis.[10]

METHODS

Research place and sample

This research project is descriptive and quantitative with a cross-sectional approach. It was conducted at Dr. M. Djamil General Hospital in Padang from June through July 2015. A convenience sampling technique was used for chronic kidney failure patients who were undergoing hemodialysis at Dr. M. Djamil Hospital in Padang and who were willing to participate in the research project.

The inclusive criteria for participants were that the chronic kidney failure patient was undergoing hemodialysis and was in a stable condition. The exclusive criteria were that the chronic kidney failure patient who was undergoing hemodialysis at the time of the data collection was experiencing a decline in consciousness.

Recruitment of respondents

Recruitment of prospective respondents was conducted by (third party) nurses who were responsible for treating the patients. Prospective respondents were given information pamphlets and explanations about this research project. The responsible nurses informed the researchers which prospective respondents were willing to participate in the research project. The researchers then met with the patients and prepared the informed consent statements for signature.

Data collection

Data was collected after the patients signed the informed consent statements by a member of the research team through an assessment process that consisted of a

physical examination, observation and interview. The researchers used a six-step diagnostic reasoning method and recorded the collected data on data collection sheets as material that supported a nursing diagnosis.

Assessment was made in accordance with the patient's condition, for example, if the required data had already been recorded, then the patient was not reassessed, unless clarification was needed.

The 6 steps method of diagnostic reasoning consists of [11]:

1. Classify data and use the Intan's Screening Diagnoses Assessment (ISDA) or the book *The fast Method of Formulating Nursing Diagnoses for Diagnostic reasoning in Nursing* if necessary to find the possible nursing diagnoses and collaborative problems
2. Activate possible nursing diagnoses and collaborative problems
3. Read or learn from appropriate references about those possible nursing diagnoses and collaborative problems and determine:

a) If the diagnoses are confirmed
b) If the diagnose are ruled out
c) If more assessment is needed related to those nursing diagnoses and/or collaborative problems

4. Using the Poster "The Map of Nursing Diagnoses ' for nursing diagnoses which have an 'A' category
5. Continue focus assessment if necessary (for nursing diagnoses and collaborative problems of category A and C)
6. Label the diagnoses.

Data analysis

Results of the data assessment were then analysed in the order of the diagnosis that was most frequently experienced by patients to the least frequently experienced diagnosis.

Ethical consideration

Ethic approval sought through Ethic committee in Faculty of Medicine Gadjah Mada University, Indonesia.

RESULTS

Demographic Characteristics

The results of the research regarding the respondents' characteristics showed that the majority of the respondents were between 56-65 years of age (32.3%), female (51.6%), had achieved high school education (45.2%), married (90.3%), employed (53.2%), and had undergone hemodialysis for <1 year (35.5%). The frequency distribution of the respondents' characteristics can be seen in Table 1.

Table 1: Frequency distribution of demographic characteristics.

Characteristics of respondents	f	%
Age (years)		
<25	-	-
26-35	10	16.1
36-45	8	12.9
46-55	16	25.8
56-65	20	32.3
>65	8	12.9
Gender		
Male	30	48.4
Female	32	51.6
Marital Status		
Married	56	90.3
Widowed/divorced	4	6.5
Single	2	3.2
Education		
Elementary School	13	20.9
Junior High School	17	27.4
Senior High School	28	45.2
University	4	6.5
Employment		
Employed	33	53.2
Unemployed	29	46.8
Length of time HD (year)		
<1	22	35.5
1– 3	21	33.9
>3	19	30.6

Nursing diagnoses and collaborative diagnoses that arise for patients undergoing hemodialysis

Nursing diagnoses and collaborative diagnoses that arose amongst the research study of 62 chronic kidney failure patients who were undergoing hemodialysis can be seen in Table 2.

In the Table 2 it can be seen that the six diagnoses that are most frequently experienced by chronic kidney failure patients undergoing hemodialysis are Activity Intolerance (100%), Nausea (96.8%), Risk for Impaired Skin Integrity (91.9%), Impaired Urinary Elimination (82.3%), Insomnia (77.4%), and Sexual Dysfunction (58.1%). The collaborative diagnosis that is most often identified is PC: Hypernatremia (54.8%).

DISCUSSION

Research results indicate that the chronic kidney failure patient respondents undergoing hemodialysis experience more nursing diagnoses (27 kinds) in comparison to collaborative diagnoses (7 kinds).

One nursing diagnosis that was experienced by all respondents was Activity Intolerance. All of the respondents complained that they were limited in conducting activities because of physical problems related to their disease. This limitation restricted their

ability to engage in their daily activities. These findings were concurrent with research conducted by Pakpour in evaluating the quality of life of chronic kidney failure patients who are undergoing hemodialysis.[12] Pakpour found that the limitation of physical activity had the worst score of amongst all of the domains because it shortened the patients' working and activity time and limited the range and difficulty of physical activity that was possible.[12]

Activity Intolerance amongst kidney failure patients who are undergoing hemodialysis is caused by the reduction of iron (Hb) levels in the blood as a result of a decrease in erythropoietin (EPO) production by the kidneys because the body is unable to absorb iron and there is a loss of blood because of other reasons. Anemia can become worse in hemodialysis patients because it is virtually impossible that all of the patient's blood can be returned to the body after hemodialysis. Some of the patient's red blood cells are left behind in the dialyser or bloodline; however the amount of this loss is insignificant.[13]

Research by Yong et al and Santos et al found that the symptoms of physical disorders that chronic kidney disease patients who underwent hemodialysis often complained about were sleep disorders, fatigue, pruritus, weakness in the lower extremities that eventually disrupted the patient's ability to conduct daily activities.[14,15] Research by Stefanovic showed that from a total of 58 female patients undergoing hemodialysis, 46 (79.3%) of them experienced sexual dysfunction. The prevalence of sexual dysfunction amongst female patients undergoing hemodialysis is very high, reaching almost 80%. Not only female patients, but also male patients experienced sexual or erectile dysfunction.[16]

Almost all respondents (82.3%) experienced the nursing diagnosis Impaired Urinary Elimination. This result is in concurrence with research conducted by Veerappan et al, which found that urine elimination disorder was common in chronic kidney failure patients who experienced interdialytic weight gain (IDWG) and whose urine output influenced their quality of life.[17] Patients who had less interdialytic weight gain had a higher quality of life, as did patients who had a higher volume of urine.

The increase of body weight that exceeded the recommended limit of 1.5 kg had an effect on cardiovascular function and the respiratory system.[18] Nausea and vomiting were also frequent problems experienced by patients undergoing hemodialysis. There are several factors that cause patients to become nauseous and lethargic after hemodialysis, such as hypotension, an excess of liquid intake between two sessions of hemodialysis, a problem related to dry weight, hypertension medication, anemia, and the use of acetates in hemodialysis. The collaborative diagnosis that was most often experienced was PC: Hypernatremia. A collaborative diagnosis is a diagnosis where the nurse identifies the presence of a risk of physiological complications.[19] According to Carpenito, one of the signs of hypernatremia is the rise of blood pressure.[19] As almost all of the respondents had higher than normal blood pressure, it is understandable that PC: Hypernatremia was the collaborative diagnosis that was most frequently identified by the researchers.

Table 2: List of nursing diagnoses and collaborative diagnoses of chronic kidney failure patients undergoing hemodialysis.

Nursing diagnosis	Frequency	Percentage
Activity Intolerance (D4 C4)	62	100
Nausea (D12 C1)	60	96.8
Risk for Impaired Skin Integrity (D11 C2)	57	91.9
Impaired Urinary Elimination (D3 C1)	51	82.3
Insomnia (D4 C1)	48	77.4
Sexual Dysfunction (D8 C2)	36	58.1
PC: Hypernatremia	34	54.8
Acute Pain (D12 C1)	31	50
Imbalanced Nutrition: Less Than Body Requirements (D2 C1)	29	46.8
PC: Hypokalemia	23	37.1
PC: Hypoxemia	20	32.3
Chronic Pain (D12 C1)	16	25.8
Risk for Falls(D11 C2)	15	24.2
Risk for Acute Confusion (D5 C4)	13	20.9
Impaired Swallowing(D2 C1)	12	19.4
Noncompliance (D10 C3)	11	17.7
Hyperthermia (D11 C6)	10	16.1
PC: Acidosis Metabolic	10	16.1
Ineffective Role Performance (D7 C3)	7	11.3
Risk for Spiritual Distress (D10 C3)	7	11.3
Impaired Comfort (D12 C1,2,3)	6	9.7
Constipation (D3 K2)	6	9.7
Risk for Impaired Religiosity (D10 C3)	5	8.1
Risk of Vascular Trauma (D11 C2)	5	8.1
PC: Decreased Cardiac Output	5	8.1
PC: Acidosis Respiratory	4	6.5
Fatigue (D4 C3)	3	4.8
Impaired physical mobility (D4 K2)	2	3.2
Impaired skin integrity (D11K2)	2	3.2
Risk for Infection (D11K1)	2	3.2
PC: Dysrhythmia	2	3.2
Risk for shock (D4K4)	1	1.6
Deficient fluid volume (D2 C5)	1	1.6
Decreased cardiac output (D4 C4)	1	1.6

Explanation: D = Domain; C = Class.

CONCLUSION

In conclusion, this research finds that there are more occurrences of nursing diagnoses amongst chronic kidney failure patients who are undergoing hemodialysis than occurrences of collaborative diagnoses. The identification of the six most frequently experienced nursing diagnoses can be used to design a clinical pathway for chronic kidney failure patients who are undergoing hemodialysis.

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