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The Knowledge and Compliance of Fluid Restriction of Heart Failure Patients in Hospital

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ABSTRACT

Introduction: Fluid overload is a classic clinical picture of patients with heart failure. The implementation of this fluid restriction requires compliance from the patient. One of the factors that influence compliance is knowledge. This study aims to describe the knowledge and compliance of fluid restriction in patients with heart failure.

Methods: This study used an analytic descriptive design. The population in the study were heart failure patients in the Gardena Room of Ibnu Sina Gresik Hospital in July 2024 as many as 30 people. A sample of 28 people was taken with purposive sampling technique. Data collection using questionnaires and observation sheets. The collected data were processed and analyzed using bivariate analysis with SPSS program.

Results: The results showed that respondents were mostly male (64.3%), between 46 and 55 years old (46.4%), worked as farmers (32.1%), junior high school garduate (42.9%), and had suffered from heart failure for ≤ 1 (50%). The most of the respondents' knowledge about fluid restriction was in the low category (57.1%) and patient compliance in fluid restriction was in the non-compliant category (78.6%),

Conclusion: Many heart failure patients do not know and do not comply with fluid restriction. The hospital should make policies and health education media to improve the knowledge and compliance of heart failure patients in fluid restriction.

Keywords: Compliance; Fluid Restriction; Heart Failure Patients; Knowledge

INTRODUCTION

Heart failure is a health problem with high mortality and morbidity rates in developed and developing countries including Indonesia. Congestive heart failure is a chronic disease that can reduce the quality of life of patients and this is related to demographic characteristics and comorbid diseases. The presence of disease comorbidities can affect heart failure treatment and worsen symptoms and conditions of heart failure (Daryani, Pramono, Agustina, & Suwarni, 2021). The problem that often occurs in patients with heart failure is fluid overload or hypervolemia

because the heart is unable to pump blood throughout the body. This condition can be triggered by inadequate self-care management of heart failure patients, which increases the risk of recurrence and rehospitalization (Meilani & Ernawati, 2024).

One of the causes of rehospitalization is fluid overload (Andayani, 2019). Fluid overload is a classic clinical picture of patients with heart failure. The implementation of this fluid restriction requires compliance from the patient (Fitriana, 2024). Compliance can occur in any form, as long as individuals show obedient attitudes and behavior towards something over someone, for example compliance with regulations (Handayani, 2022). One of the impacts that arise if the patient is not compliant in fluid restriction is that he will experience hypervolemia or fluid overload disorders (Andayani, 2019). One of the factors that influence compliance is knowledge (Komariyah et al., 2024). According to Notoatmodjo (2014) someone who has good knowledge experience can lead to good action towards compliance.

Based on data from the Global Health Data Exchange (GHDx) in 2020, the number of cases of congestive heart failure in the world reached 64.34 million cases with 9.91 million deaths (Lippi & Sanchis-Gomar, 2020). According to WHO (World Health Organization), heart disease has become the highest cause of death worldwide since the last 20 years globally. Nearly six million Americans have heart failure, and more than 870,000 people are diagnosed with heart failure each year. According to the Indonesian Ministry of Health (2020), heart failure is the second leading cause of death in Indonesia. In addition to the high number of patients with heart failure, the mortality rate due to this disease is also high. As many as 17.2% of the total number of heart failure patients in Indonesia died during the first treatment in the hospital (Indonesian Ministry of Health, 2021). This occurs in patients who have a history of heart attack or not. 11.3 percent of patients died within a year of treatment (Block, 2018). Based on data from the Institute for Health Metrics and Evaluation (2019), deaths from heart or cardiovascular disease in Indonesia were 251.09 per 100,000 people in 2019 (Indonesian Ministry of Health, 2021). Data on fluid restriction compliance of heart failure patients Indonesia is still not available, but from several studies, data on compliance of heart failure patients can be known, such as Handayani's research in 2022 which showed that out of 72 heart failure patients at the Pertaminan Central Hospital, 46 (63.9%) of them were not compliant with fluid restriction (Handayani, 2022).

The main symptoms in heart failure patients that require monitoring are shortness of breath, edema of the extremities, and weight gain because these conditions can signal an impending exacerbation and worsening of heart failure. Fluid balance in patients with heart failure is something that needs to be considered. This is because in heart failure patients when consuming excess fluid can affect the performance of the heart to pump excess fluid in the body (Shams, Malik, & Chhabra, 2025). Fluid restriction affects fluid balance in heart failure patients. Monitoring fluid balance by calculating fluid needs per day, recording and summing up the fluids that have been consumed shows a better trend in improving the fluid balance of heart failure patients (Putradana, Mardiyono, & Rochana, 2021). This aims to reduce the increase in fluid levels in the body (Ukhwah, 2024)so that it does not affect the performance of the heart in pumping excess fluid in the body (Kristiyan, Kurniawati, & Junait, 2024). Hypervolemia that occurs in patients with heart failure can occur due to the accumulation of fluid in the blood vessels, causing edema and patients experiencing limitations in carrying out activities and resulting in an imbalance in fluid volume levels in the body (Ukhwah, 2024).

Compliance for fluid restriction is a factor needed to maintain fluid balance in the body

(Komariyah et al., 2024). Patient compliance with fluid restriction requires self-control ability, namely the ability of individuals to control their behavior when there is no control from the environment. Self-control is strongly influenced by the knowledge of heart failure patients on fluid restriction. Sufficient knowledge will provide cooperative, participatory and proactive behavior (Andayani, 2019). This study aims to describe the knowledge and compliance of fluid restriction in patients with heart failure.

METHOD

This study design is descriptive with a survey approach. The population in this study were heart failure patients in the Gardena Room of Ibnu Sina Gresik Hospital in July 2024 as many as 30 people. Researchers used purposive sampling technique in determining the sample and obtained 28 respondents who could meet the inclusion criteria of this study. Research inclusion criteria include patients diagnosed with heart failure, age 25 - 55 years and patients can read and write. While patients who experience decreased consciousness and unstable vital signs are not included in this study. Data in this study were taken using a knowledge questionnaire instrument about fluid restriction containing 10 items quoted from Handayani (2022) with reability test Cronbach's alpha was 0.918. While the instrument to measure patient compliance in fluid restriction uses a record sheet and a fluid restriction compliance observation sheet modified from Andayani (2019). The criteria for respondent compliance in fluid restriction were measured based on the family recording input and output in 24 hours (family record sheet), fluid balance and no congestive signs (tightness, extremity edema, increased blood pressure, wheezing, ronchi) seen from the observation sheet.

The data collection process begins with the research licensing process, then the researcher coordinates with the ward for patient data. Patients who meet the inclusion and exclusion criteria then explain the purpose, benefits, risks and procedures of the study and for patients who agreed to take part in the study asked to sign inform consent. Then the researcher distributed knowledge questionnaires and the next day the researcher observed the respondent's compliance in fluid restriction. The data that has been collected then processed and analyzed using bivariate analysis using SPPS version 16. This research has gone through ethical testing at the Ethics Committee for Health Research at RSUD Ibnu Sina with No 420/2740/437.76/2024.

RESULTS

The results showed that the characteristics of the respondents were mostly male as many as 18 people (64.3%), between 46 and 55 years old, 13 respondents (46.4%), worked as farmers, 9 respondents (32.1%), had a junior high school education, 12 respondents (42.9%), and had suffered from heart failure for ≤ 1 year as many as 14 respondents (50%). Table 2 shows that most respondents have knowledge about fluid restriction in the deficient category as many as 16 respondents (57.1%) and most respondents have compliance in fluid restriction in the non-compliant category as many as 22 respondents (78.6%).

DISCUSSION

Demographic characteristic of the respondents shows that most respondents had knowledge about fluid restriction in the poor category. Knowledge can be influenced by several factors including age, education, and occupation. Data from the age of respondents showed that most respondents were aged 46-55 years. Ages 46-55 include pre elderly age. The age factor can affect a person's level of knowledge due to the respondent's limitations in remembering the knowledge they have is decreasing (Andayani, 2019). In addition, data were obtained in the form of 10 respondents

Table 1. Demographic characteristic of the respondents

Variables	n	%
Gender		
Male	18	64.3%
Female	10	35.7%
Age		
25-35	4	14.3%
36-45	11	39.3%
46-55	13	46.4%
Occupation		
Housewife	4	14.3%
Farmer	9	32.1%
Fisherman	0	0
Civil servant	3	14.3%
Private sector employee	4	17.9%
Self Employed	6	21.4%
Pendididkan		
Elementary school	10	35.7%
Junior High School	12	42.9%
Senior High School	4	14.3%
University	2	7.1%
Duration of Heart Failure		
≤ 1tahun	14	50.0%
1-5 tahun	8	28.6%
≥ 5 tahun	6	21.4%

Table 2. Knowledge level and fluid restriction compliance of the respondents

Variables	n	%
Knowledge level		
Good	4	14.3%
Fair	8	28.6%
Low	16	57.1%
Compliance level		
No	22	78.6%
Yes	6	21.4%

who had elementary school education, and 12 respondents with junior high school education. A person's education can increase knowledge, namely something that a person experiences that will increase knowledge about something that is non-formal through formal and sufficient education, the exposure to information obtained is higher so that knowledge will also increase. Demographic data also shows that 11 respondents work as farmers. A good work environment will lead to human or group behavior in meeting knowledge needs. So that a conducive work environment can also increase knowledge (Notoatmodjo, 2014).

The results showed that most respondents had compliance in fluid restriction in the non-compliant category. The results of the researcher's observations showed that respondents with positive ronchi were 5 respondents (17.9%) and respondents with signs of edema were 6 people (21.4%). This was supported by Kato, Nagatomo, Kawai, Kitai, & Mizuno (2024) that one of the factors for the re-hospitalization of coronary heart disease patients is non-compliance or violation of fluid restrictions.

Based on age of respondent, the most respondents were aged 46-55 years. Ages 46-55 include pre elderly age. If the age is above 40 years, all risk factors will increase. With increasing age, the heart and blood vessels undergo changes both structurally and functionally. With increasing age, the aortic and arterial systems become angular and misaligned. This change is due to the loss of elastic fibers in the arterial lining. This aging-related change process increases stiffness and thickness, called atherosclerosis, which is one of the causes of heart failure (Purbianto, 2015).

In this study, the most respondent was male. Male are at higher risk of heart disease than female because female have the hormone estrogen which protects the mechanism of blood flow to and from the heart. The estrogen hormone can reduce cholesterol in the blood that can cause calcification in the blood vessels which will then block blood flow, thus reducing the risk of heart failure. In addition, males have more risk factors for cardiovascular disease due to unhealthy lifestyles such as smoking, excessive alcohol consumption, unhealthy diet, obesity and stress (Handayani, 2022)

Based on the research that has been done, it shows that the majority of respondents are patients who have experienced heart failure for less than a year. This is in line with research

conducted by Ramadhan, Nuraeni, & Manurung (2025) in which some respondents experienced heart failure for 1 year (30.1%). The longer the patient has heart failure, the heart will experience a decrease in function and a decrease in cardiac output which causes the heart to work strongly to meet the body's needs, thus affecting compliance (Osser et al., 2024). Another factor for fluid restriction control that influences the implementation of fluid restriction education and the implementation of recording daily fluid records is that respondents forget to record and measure the amount of fluid in and out so that respondents cannot monitor excess fluid. Fluid monitoring is important because it is an indicator of non-pharmacological therapy and maintains clinical stability.

CONCLUSION

Most respondents have fluid restriction knowledge in the low category and most respondents have compliance in fluid restriction in the non-compliant category. Nurses are expected to provide fluid restriction education to heart failure patients routinely either during treatment or during preparation for discharge.

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