

CHAPTER I

INTRODUCTION

1.1 Background

Chronic Kidney Disease (CKD) is a condition where the kidneys undergo structural and functional changes lasting more than 3 months, with or without a decrease in glomerular filtration rate (eGFR <60 mL/min/1,73m²) (Anggraini & Fadila, 2023). CKD is irreversible, meaning that in advanced conditions, it cannot recover. CKD that has reached stage V or end stage is known as End Stage Renal Disease (ESRD).

ESRD is caused by various factors, including diabetes, hypertension, primary glomerulonephritis, hereditary polycystic kidney disease, chronic tubulointerstitial nephritis, secondary glomerulonephritis or vasculitis, and neoplasia (Kronik, 2023). The management of ESRD requires hemodialysis as the primary therapy to replace kidney function. Patients with ESRD undergoing hemodialysis are at risk of experiencing intradialytic blood pressure changes.

One factor influencing intradialytic blood pressure changes is Interdialytic Weight Gain (IDWG). IDWG is an increase in fluid volume observed as weight gain, used as a reference to measure the amount of fluid intake during the interdialytic period. Patients' pre- and post-hemodialysis weights are routinely measured to determine fluid increase in the body, and IDWG is subsequently calculated based on post-hemodialysis dry weight (Febrianti, 2023).

Interdialytic Weight Gain (IDWG) itself is influenced by several factors, namely fluid intake, social and family support, self-efficacy, thirst, and stress (Rachmayani, 2015). If these factors are not controlled, they can lead to an increase in IDWG, which in turn can trigger intradialytic blood pressure changes. Low IDWG results in a low ultrafiltration rate, which can lead to intradialytic hypertension. Conversely, high IDWG necessitates a high ultrafiltration rate, potentially causing intradialytic hypotension.

Indonesia ranks 7th globally in the highest incidence of ESRD in 2021, with a rate of 314 pmp (per million population). Over a 10 year period from 2011 to 2021, Indonesia experienced a rapid increase in ESRD incidence. In 2011, there were 176 pmp, and in 2021, it increased to 314 pmp (Noussia, 2021). Data from the Indonesian Renal Registry (IRR) (2018) showed that there were 66,433 new patients and 132,142 active patients undergoing dialysis. The highest prevalence of new patients in 2018 was in West Java province, followed by East Java, with 9,607 new patients (Hustrini et al., 2022).

In Indonesia, there is still no definitive data on the incidence of intradialytic blood pressure changes, which are suspected to play a role in the morbidity and mortality of ESRD patients. Studies on intradialytic blood pressure changes have not received much attention, so the exact causes of these changes are not yet widely known. However, several factors that can potentially influence blood pressure fluctuations during hemodialysis procedures, such as Interdialytic Weight Gain (IDWG), hemodialysis

session duration, hemoglobin levels, the number of antihypertensive medications used, and blood flow rate, are often associated with patient conditions and underlying pathophysiological processes.

Although the relationship between these factors and intradialytic blood pressure changes has been widely studied, the results obtained still show inconsistencies and lead to debate in the medical world. The complexity of the physiological response of ESRD patients to hemodialysis therapy is one of the reasons. Therefore, more in depth and comprehensive studies are needed to clarify the causal relationship between these variables and blood pressure dynamics during dialysis. This step is important as part of a strategy to prevent cardiovascular complications and to reduce the high morbidity and mortality rates still observed in the population of ESRD patients undergoing routine hemodialysis.

According to the results of a preliminary study on December 31, 2024, at Lavalette Hospital, by randomly observing 15 hemodialysis patients, it was found that 8 patients had IDWG <4% (mild), 6 patients had IDWG 4-6% (moderate), and 1 patient had IDWG >6% (high). Of these 15 patients, 8 experienced intradialytic hypertension, and 7 experienced intradialytic hypotension.

Based on the background regarding the high incidence of intradialytic blood pressure changes and the large number of patients experiencing increased IDWG, as well as the limited research on the relationship between IDWG and intradialytic blood pressure changes, the

researcher is interested in conducting research on the relationship between IDWG and intradialytic blood pressure changes.

Although some studies have investigated factors affecting intradialytic blood pressure, research specifically exploring the direct relationship between IDWG and intradialytic blood pressure changes in Indonesia, particularly at Lavalette Hospital, is still very limited. By understanding the relationship between IDWG and intradialytic blood pressure changes, preventive interventions can be implemented earlier, thereby minimizing the risk of hypotension/hypertension and improving patients' quality of life.

Based on the explanation above, and the limitations of previous studies that have not specifically investigated the relationship between IDWG and intradialytic blood pressure in a local context, the researcher feels it is necessary to conduct this study. Hopefully, the results of this research can serve as a basis for strategies to prevent complications during hemodialysis and improve the safety of ESRD patients.

1.2 Problem Formulation

Based on the background described, the problem statement for this research is: "Is there a relationship between Interdialytic Weight Gain (IDWG) and intradialytic blood pressure changes in End Stage Renal Disease patients undergoing hemodialysis?"

1.3 Research Objectives

1.3.1 General Objective

To determine the relationship between Interdialytic Weight Gain (IDWG) and intradialytic blood pressure changes in End Stage Renal Disease patients undergoing hemodialysis at Lavalette Hospital.

1.3.2 Specific Objectives

1. To identify the level of Interdialytic Weight Gain (IDWG) in End Stage Renal Disease patients undergoing hemodialysis at Lavalette Hospital
2. To identify intradialytic blood pressure changes in End Stage Renal Disease patients undergoing hemodialysis at Lavalette Hospital
3. To analyze the relationship between Interdialytic Weight Gain (IDWG) and intradialytic blood pressure changes in End Stage Renal Disease patients undergoing hemodialysis at Lavalette Hospital.

1.4 Research Benefits

1.4.1 Theoretical Benefit

The result of this research can be used as a basis for development in nursing science, especially regarding the importance of fluid intake restriction to minimize Interdialytic Weight Gain (IDWG) as a strategy to manage intradialytic blood pressure changes.

1.4.2 Practical Benefits

1. For Educational Institution

The result of this research can be used as a basis for implementing community service education programs regarding the importance of

fluid intake restriction to reduce Interdialytic Weight Gain (IDWG) as an effort to control intradialytic blood pressure changes.

2. For Research Site

The result of this research can be used as a basis for determining policies related to the services and care provided to End Stage Renal Disease patients.

3. For Future Researchers

The research results can be utilized as a source of information and reference for other researchers who will conduct studies on Interdialytic Weight Gain (IDWG) and intradialytic blood pressure changes in End Stage Renal Disease patient.