

# CHAPTER I

## INTRODUCTION

### 1.1. Background

Health is a condition in which the body is free from disease. Health Law No. 36 of 2009 states that health or healthy is where the body is in a healthy state both mentally, physically, spiritually and socially.<sup>1</sup> Disease is negative event that has a big impact on human life. A disease from a biological point of view is a disorder in various organs of the human body. From a societal perspective, the state of illness is meant as a deviation from behavior from the normative social situation.<sup>2</sup>

A persistent increase in arterial blood pressure is known as hypertension. According to the WHO, a person suffers from hypertension if the systolic pressure is 160 mmHg or higher and the diastolic pressure is 90 mmHg or higher over a long period of time.<sup>3</sup> As the population grows, the number of hypertensive patients will also increase. It is estimated that about 29% of the global population will suffer from hypertension by 2025. The disease kills 1.5 million people annually in Asia. Cerebrovascular accidents, cardiovascular events, and kidney failure are the leading causes of death in hypertensive patients.<sup>4</sup>

Kidney health and hypertension are closely related. Kidney failure and kidney disease are caused by hypertension. Blood pressure will increase and can result in hypertension when kidney function is impaired. Hypertension and chronic kidney disease are closely related because they can both contribute to and worsen their respective conditions. High blood pressure can lead to high kidney pressure, which can damage the nephrons (interglomerular pressure increases) and result in proteinuria (protein in the urine).<sup>5</sup>

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<sup>1</sup> Ministry of Health of the Republic of Indonesia. (2015). Definition of Healthy Available. At: [www.depkes.go.id](http://www.depkes.go.id). Retrieved February 25, 2023.

<sup>2</sup> Marimbi Hanum. (2009). *Sociology and Anthropology of Health*. Yogyakarta: NuhaMedika.

<sup>3</sup> World Health Organization. 2015. *Global Status Report on Noncommunicable Disease*.

<sup>4</sup> Dipiro J.T., Wells B.G., Schwinghammer T.L. and Dipiro C. V., 2015, *Pharmacotherapy Handbook*, Ninth Edit., McGraw-Hill Education Companies, Inggris

<sup>5</sup> Suwitra K. 2009. *Chronic Kidney Disorders*. Textbook of Internal Medicine. Jakarta: Interna Publishing.

Chronic kidney failure, also known as chronic kidney disease, is a persistent and irreversible decline in kidney function resulting in uremia and azotemia when the kidneys are unable to maintain a balance of metabolism, fluids, and electrolytes.<sup>6</sup> More specifically, kidney disease, including abnormalities in blood or urine composition, abnormalities in imaging tests, and glomerular filtration rates of less than 60 milliliters per minute per 1.73 square meters, can also be defined as chronic kidney failure if it lasts for more than three months and manifests as structural or functional abnormalities with or without decreased glomerular filtration rates.<sup>7</sup>

Chronic kidney failure therapy aims to slow the progression of chronic kidney disease and minimize the development or severity of complications. The <sup>6</sup> prevalence of chronic kidney failure disease is between 10-16% in the world, the most cases are experienced by geriatrics.<sup>7</sup> Patients diagnosed with hypertension who undergo hemodialysis have been found in many cases in the community, but management to overcome the appropriateness of drug use is still not appropriate. In the case of hypertensive patients undergoing hemodialysis, it is necessary to measure blood pressure and present various treatment options to treat hypertension in patients undergoing hemodialysis.<sup>8</sup> Blood pressure targets in hypertensive patients with complications of kidney failure are <130/80 mmHg.<sup>9</sup>

Drug use evaluation (EPO) is a comprehensive hospital program which is a quality assurance process that is carried out continuously and in a structured manner. organizationally recognized, indicated to guarantee the appropriate, safe and effective drug use. Evaluation of drug use is also one of the techniques for managing the formulary system in hospitals.<sup>10</sup>

A hadith states that in taking or consuming medicine must be precise, safe and rational. Because if the medicine is right for a disease, it will be cured by seizing Allah. In the use of drugs, it is very necessary to evaluate so that drugs become safe, effective and also rational. The management of therapy in patients with chronic kidney failure who undergo hemodialysis

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<sup>6</sup> Dipiro, J. T., Talbert, L. R., Yee, G. C., Matzke, G. R., Wells, B. G., & Posey, L. M., 2008, *Pharmacotherapy A Pathophysiologic Approach Seventh Edition*, The McGraw-Hill Companies, Inc, United States of America.

<sup>7</sup> Dziedzic M., Bednarek-skublewska A., Solski J. and Kapka-skrzypczak L., 2014, Plasma and erythrocyte relationship of catecholamines in haemodialysis patients, *Annals of Agricultural and Environmental Medicine*, 21 (3), 562–566.

<sup>8</sup> Shafi T., Waheed S. and Zager P.G., 2015, Management of Hypertension in In-Center Hemodialysis Patients - An Opinion-Based Update, *National Institute of Health*, 27 (2), 146–153.

<sup>9</sup> Joint National Committee, 2004, *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*, Seventh. Chobanian, A. V, ed., NIH Publication, United States of Amerika.

<sup>10</sup> Charles J.P Siregar, 2004, *Hospital Pharmacy Theory and Application*. Jakarta : EGC Medical Book Publisher.

requires special attention regarding the accuracy of drugs, patient accuracy and dosage accuracy.<sup>11</sup>

In a hadith narrated by Muslim it is said: "*Jabir bin 'Abdullah (may Allah be pleased with him), from the Messenger of Allah (peace and blessings of Allaah be upon him), said: "Every disease has a cure. If the medicine is right for a disease, it will be cured with the permission of Allah 'Azza wajalla"* (H.R. Muslim).

Based on the description above, this study was conducted to determine the evaluation of the use of antihypertensive drugs in patients with chronic kidney failure who underwent hemodialysis at hospital x.

## **1.2. Problem Formulation**

The formulation of the problem in this study is:

1. What is the picture of the use of antihypertensive therapy in patients with chronic kidney failure at Dr. Moewardi Hospital in 2022-2023?
2. How is the evaluation of therapy on the use of antihypertensive drugs in patients with chronic kidney failure at Dr. Moewardi Hospital in 2022-2023?

## **1.3. Research Objectives**

The objectives of this study are:

1. To know the use of antihypertensive therapy given to patients with chronic kidney failure who undergo hemodialysis at Dr. Moewardi Hospital in 2022-2023.
2. To determine the evaluation of therapy in the use of antihypertensive therapy in patients with chronic kidney failure at Dr. Moewardi Hospital in 2022-2023.

## **1.4. Research Benefits**

### **a. Theoretical Benefits**

The results of this study are expected to provide an overview and knowledge about the pattern of use of antihypertensive drugs in patients with chronic kidney failure as a source of reading and reference both to readers and to those who will conduct further research.

### **b. Practical Benefits**

It can be used as a source of information for health workers related to the use of antihypertensive drugs in patients with chronic kidney failure. The results of the study can provide an overview and information related to the use of antihypertensive drugs in patients

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<sup>11</sup> Akbar, D. L., & Budiyo, B. (2020). The concept of health in the Qur'an and hadith. *Al-Bayan: Journal of Qur'an and Hadith*, 3(2), 157-173.

with chronic kidney failure which is widely used, especially at Hospital X. Through this research, researchers can apply and utilize the knowledge gained during education in addition to adding knowledge and insight.

### 1.5. Originality of Research

Research on the evaluation of the administration of antihypertensive drugs in patients with kidney failure who undergo hemodialysis in the hospital has been carried out by several researchers as seen in table 1 below

**Tabel 1. Authenticity Research**

Research Title	Research Method	Variable	Result	Research Differences
Evaluation of the use of antihypertensive drugs in outpatients with chronic renal failure with hemodialysis at Dr. Soeradji Tirtonegoro General Hospital, Klaten in 2017. <sup>12</sup>	Retrospective descriptive	<b>Depend on:</b> Data taken from medical records <b>Independent:</b> Patients with chronic kidney failure with hypertension undergoing hemodialysis, patients with blood pressure >140/90 mmHg, patients undergoing outpatient treatment	The accuracy of chronic kidney failure outpatient with hemodialysis at dr. Soeradji Tirtonegoro Klaten, a patient in the use of antihypertensive drug therapy in 2017, obtained the results of drug inaccuracies in 5 cases with a percentage of 9.08%. There were 2 cases of inappropriate drug combinations (3.63%) and irrational therapy in 3 cases (5.45%)	<b>Depend on:</b> Patients with an age range of 20-50 years <b>Independent :</b> Patients undergoing hemodialysis diagnosed with chronic kidney failure with hypertension
Evaluation of drug use in chronic kidney failure patients undergoing hemodialysis at Toto Kabila Regional Hospital in the period 2017-2018. <sup>13</sup>	Retrospective Descriptive	<b>Depend on:</b> Secondary data obtained from medical records and registration books <b>Independent:</b> Patients over 18 years old, diagnosed with chronic kidney failure and undergoing hemodialysis therapy, outpatient, drug therapy	Patients with chronic kidney failure who underwent hemodialysis at Toto Kabila Hospital for the period of January 2017-October 2018 obtained results of 100% patient accuracy, 86.05% correct medication, 13.95% inappropriate medication, 83.72% correct indication, 16.28 correct indication, 51.16% correct dose and 48.84% improper dose.	<b>Dependent :</b> Patients with an age range of 20-50 years <b>Independent :</b> Patients undergoing hemodialysis who are diagnosed with chronic renal failure with hypertension

<sup>12</sup> Afifah Farah, Surya Amal. 2019. Evaluation of the Use of Antihypertensive Drugs in Outpatients with GGK with Hemodialysis at dr. Soeradji Tirtonegoro Klaten Hospital in 2017. Pharmaceutical Journal of Islamic Pharmacy (2019). Pharmacy Department of Unida Gontor.

<sup>13</sup> Teti Sutriyati Tuloli, Madania, Moh Adam Mustapa, Evania P. Deaf. 2019. Evaluation of Drug Use in Patients with Chronic Kidney Failure Undergoing Hemodialysis at Toto Kabila Hospital for the 2017-2018 Period. Polytechnic of Hope with Tegal. Vol 8 (2) 2019 pp 25-32.

Research Title	Research Method	Variable	Result	Research Differences
Evaluation of antihypertensive therapy in chronic kidney disease with hemodialysis patients. <sup>14</sup>	Retrospective Descriptive	<p><b>Depend on:</b> Study gathering with medical records</p> <p><b>Independent:</b> Hemodialysis with antihypertensive therapy patient age between 41-75 years</p>	The analysis of antihypertensive therapy including accurate drugs is 83,51%, patients is 100% and dosage were is 97,72% respectively.	<p><b>Dependent :</b> Patients with an age range of 20-50 years</p> <p><b>Independent :</b> Patients undergoing hemodialysis who are diagnosed with chronic renal failure with hypertension</p>



<sup>14</sup> Nadia Husna, Niken Larasati, 2019. Evaluation of Antihypertensive Therapy in Chronic Kidney Disease With Haemodialysis Patients.