Original Research Paper

Characteristics of Hypertension Patients at Lanto Dg Pasewang Jeneponto Regional General Hospital 2022-2023

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Abstract

Background: Cardiovascular diseases, including hypertension (blood pressure ≥140/90 mmHg), contribute to heart and vascular damage. Risk factors include non-modifiable factors (age, gender, family history) and modifiable factors (smoking, behavior, alcohol). **Objective:** This study aimed to identify the characteristics and risk factors of hypertensive patients at RSUD Lanto DG Pasewang Jeneponto. **Methods:** A descriptive study using secondary data from medical records of hypertensive patients at RSUD Lanto DG Pasewang Jeneponto was conducted in September 2024. Data were analyzed descriptively by age, gender, hypertension grade, body mass index (BMI), and comorbidities. **Results:** A total of 93 patients were included. Most patients were aged 61–70 years (31.2%), followed by 51–60 years (26.9%). Females (59.1%) were more affected than males (40.9%). The majority (92.5%) had grade 2 hypertension. Based on BMI, 63.4% were normal, 21.5% overweight, and the rest underweight, obese, or grade 2 obese. Comorbidities included heart disease (76.3%), diabetes (14%), and kidney failure (9.7%). **Conclusion:** Most hypertensive patients at RSUD Lanto DG Pasewang Jeneponto were aged 60–70 years, female, had normal nutritional status, grade 2 hypertension, and a history of heart disease.

Keywords: *Hypertension; Diabetes Mellitus; Heart Disease; Kidney Disease.*

Introduction

The cardiovascular system consists of the heart and its blood vessels. Cardiovascular diseases, also known as heart disease, include numerous conditions that can affect heart health. Hypertension, characterized by systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg, is one of the major global health problems. This disease is not only a problem in developed countries but also in developing countries and is considered the leading cause of death globally. Hypertension is a non-communicable disease causing increased blood pressure due to vascular disorders, resulting in disrupted oxygen and nutrient supply to organs in need [1,2].

Long-term effects of hypertension can cause heart disease. Vascular and heart damage occurs due to excessive vascular load caused by increased pulse rate over time due to high blood pressure. According to the World Health Organization (WHO), 2015 data showed approximately 1.13 billion people worldwide suffer from hypertension, meaning one in three people worldwide is diagnosed with hypertension. The number of hypertension sufferers continues to increase annually and is projected to reach 1.5 billion by 2025. The estimated number of hypertension cases in

Indonesia is 63,309,620 with hypertension-related deaths at 427,218 [3].

Hypertension causes can be categorized into two factors: unchangeable factors such as age, gender, and family history; and changeable factors such as smoking habits, high-fat eating patterns, and cholesterol. Additionally, behavioral factors such as smoking habits, behavior types, and alcohol consumption habits [4].

However, there is no cure for essential hypertension, the most common chronic disease form. Best practices for prevention and control remain routine screening for early diagnosis, followed by non-pharmacological and pharmacological treatments. These practices require hypertension patient involvement in initiating and continuing actions aimed at controlling their blood pressure throughout life and preventing cardiovascular complications. Specifically, uncontrolled hypertension has been associated with patient non-compliance with recommended self-management practices. Self-management hypertension recommendations according to The European Society of Hypertension include lifestyle modification and drug therapy. Non-pharmacological management in reducing hypertension incidence can be implemented by modifying lifestyle [5].

Chronic hypertension or uncontrolled hypertension can cause further increased blood pressure, which then increases left ventricular afterload and peripheral vascular resistance, thus in the long run causing increased heart load. This can lead to left ventricular hypertrophy, which then affects heart function and can cause cardiovascular disorders. With this, patients or individuals with high blood pressure can become a major factor that increases the risk of heart disease, meaning high blood pressure is related to heart disease [6,7].

Research on hypertension patient characteristics at RSUD Lanto DG Pasewang Jeneponto is very important considering the increasing prevalence of hypertension in Indonesia, including in Jeneponto, South Sulawesi. As the main health facility in Jeneponto Regency, RSUD Lanto DG Pasewang has a strategic position to provide a representative picture of the health profile of Jeneponto Regency community, particularly hypertension patients. However, minimal research specifically analyzing hypertension risk factors at RSUD Lanto DG Pasewang Jeneponto shows an information gap that needs to be filled to support more effective health interventions. This research not only focuses on describing patient characteristics but also explores major risk factors contributing to hypertension incidence, thus providing in-depth insights into care patterns, community awareness, and challenges in hypertension management in Jeneponto Regency. The urgency of this research lies in its ability to provide a strong scientific basis for formulating evidence-based health policies, improving intervention program effectiveness, and optimizing strategies for early detection and hypertension management. Thus, this research was designed to answer the main question: *What risk factors contribute to hypertension incidence in patients at RSUD Lanto DG Pasewang Jeneponto?* The research findings are expected to significantly impact reducing disease burden in Jeneponto Regency and sustainably improving hypertension patients' quality of life.

Materials and Methods

Study Design

This research uses purposive sampling method, where samples are taken based on certain considerations made by researchers by determining inclusion and exclusion criteria. The research design used is descriptive research conducted by finding information

related to hypertension incidence risk factors obtained through secondary data from medical records.

Sample

The research population included all patients at RSUD Lanto DG Pasewang Jeneponto diagnosed with hypertension during September 2024. The sample size in this research was 93 patients, calculated using Slovin's formula to obtain a representative sample size. Inclusion criteria included medical records complete with age, gender, hypertension degree, body mass index, and disease history. Exclusion criteria were hypertension patients with immune disorders or irregular medication control.

Data Collection Techniques

Data were collected after obtaining official permission from the Regional Hospital (RSUD) Lanto DG Pasewang Jeneponto. Data sources used were medical records of patients who had received treatment at the hospital during the research period. Information collected included age, gender, hypertension level, body mass index, and disease history. Data collection was conducted by examining medical records of patients meeting inclusion and exclusion criteria carefully.

Data Analysis Techniques

Data analysis was conducted descriptively to describe risk factors in hypertension patients. Data obtained from medical records were processed using Microsoft Excel software to calculate frequencies and percentages of each studied variable. Analysis results were then presented in frequency distribution and percentage tables to facilitate data interpretation.

Ethical Consideration

This research has been approved by the Research Ethics Committee (KEP) of Universitas Muslim Indonesia with ethical recommendations valid until September 30, 2025. The ethical approval letter has reference number 512/A.1/KEP-UMI/IX/2024. Research implementation was conducted by adhering to research ethics principles, including maintaining patient data confidentiality and ensuring data use solely for research purposes per granted approval.

Result

This research was conducted at RSUD Lanto DG Pasewang Jeneponto with implementation time during September 2024. The purpose of this research was to determine hypertension patient characteristics at RSUD Lanto DG Pasewang Jeneponto. Based on secondary data obtained from medical records of patients diagnosed with hypertension, the following results were obtained:

Table 1. Characteristics of Hypertension Patients

Variable	Frequency	Percentage (%)
Age		
<40 years	9	9.70
41-50 years	18	19.40
51-60 years	25	26.90
61-70 years	29	31.20
>70 years	12	12.90
Gender		
Male	38	40.90
Female	55	59.10
Hypertension Degree		
Grade 1	7	7.50
Grade 2	86	92.50
Body Mass Index (BMI)		
Underweight	3	3.20
Normal	59	63.40
Overweight	20	21.50
Obesity 1	10	10.80
Obesity 2	1	1.10
Disease History		
Diabetes Mellitus	13	14.00
Kidney Disease	9	9.70
Heart Disease	71	76.30
Total	**93**	**100**

Source: Secondary Data, 2024

Table 1 shows that the majority of hypertension patients were aged 61-70 years (31.2%), followed by 51-60 years (26.9%), 41-50 years (19.4%), >70 years (12.9%), and <40 years (9.7%). Gender characteristics showed females predominated (59.1%) over males (40.9%). Hypertension degree results showed most patients (92.5%) had grade 2 hypertension, while 7.5% had grade 1

hypertension. Nutritional status characteristics showed most patients had normal BMI (63.4%), followed by overweight (21.5%), obesity 1 (10.8%), underweight (3.2%), and obesity 2 (1.1%). Disease history characteristics showed most patients had heart disease history (76.3%), followed by diabetes mellitus (14.0%), and kidney disease (9.7%).

Discussion

Age of Hypertension Patients

Results showed most hypertension patients were aged 61-70 years (31.2%). This aligns with Tenri Risna's (2021) research on hypertension patients at Tabaringan Health Center, Makassar. That research showed patients in the elderly group with >45 years age interval were 66 people (85.8%), and the >65 years group was the hypertension-vulnerable age group [8].

This study provides recent evidence reflecting the large-scale hypertension problem among people primarily over 60 years without other serious health diagnoses. Elderly age is crucial due to high hypertension prevalence observed in this group, contributing to increased morbidity and mortality rates in this population. An important age threshold is 65 years when many people retire from work. This study provides recent evidence reflecting the large-scale hypertension problem among people primarily over 60 years without other serious health diagnoses. Elderly age is crucial due to high hypertension prevalence observed in this group, contributing to increased morbidity and mortality rates in this population. An important age threshold is 65 years when many people retire from work [9].

Gender of Hypertension Patients

This research showed hypertension patient gender was dominated by females (59.1%). This aligns with Rusmauli Lumban et al.'s (2021) research identifying hypertension patient characteristics at Full Bethesda General Hospital, Medan in 2021. That research showed the highest proportion of hypertension patients by gender was female (54.28%) [10].

Hypertension prevalence is higher and the number of people with hypertension is greater among women in the elderly population. Additionally, hypertension in women is often less controlled; thus, the number of hypertension patients with high blood pressure (>140/90 mmHg) is twice as high in women compared to men. Multimorbidity is also more common in elderly women. These characteristics indicate that hypertension in elderly women is common, increases rapidly, and shows an unfavorable risk profile. Specifically, elderly women with hypertension have more risk factors and multimorbidity [11].

Hypertension in women is also prone to occur because women experience menopause and decreased endocrine systems like estrogen and progesterone. Women who have not experienced menopause are protected by estrogen hormones, which play a role in increasing High-Density Lipoprotein (HDL) levels, which are means to transport cholesterol from arteries and tissues to the liver for recycling, thus keeping arteries clean. Therefore, in women, RAAS is significantly influenced by estrogen status. Angiotensin I is a bioactive peptide that works through mast-associated G protein-coupled receptors to counteract the vaso-injurious effects of Angiotensin II and promote vasodilation, improved endothelial function, and inhibit vascular smooth muscle cell proliferation and migration. The vasodilator action of this peptide differs between men and women, and sex hormones like estradiol can modulate the extent of this response [12].

Nutritional Status of Hypertension Patients

Results showed most hypertension patients had normal nutritional status (63.4%). Research by Agus Nurika et al. (2022) also showed similar results, where nutritional status of elderly

hypertension patients in Girisekar village, working area of Panggang II Health Center, Gunungkidul Regency was mostly in normal nutritional status category (43.98%)[13].

This research did not show a high prevalence related to overweight status with hypertension incidence. This could occur because patients have had hypertension for a long time or due to comorbidities requiring long-term medication use. Long-term medication use can disrupt organ function, such as digestive systems, affecting food absorption and causing patients to experience weight loss[14].

Although not found in this research, the relative risk of suffering hypertension in obese people is 5 times higher compared to people with normal weight. Additionally, Body Mass Index (BMI) is directly related to blood pressure, especially systolic pressure. Many studies have proven the relationship between nutritional status and hypertension incidence in the elderly, and it is suspected that weight gain plays an important role in the mechanism of hypertension occurrence in the elderly [15,16].

Degree and Disease History of Hypertension Patients

Results showed most hypertension patients had grade 2 hypertension (92.5%). This aligns with Vina Nahdia et al.'s (2022) study on Hypertension Characteristics in Elderly Patients at Islamic Hospital Jakarta Sukapura in 2020. That research showed the most common hypertension type in elderly patients was grade 2 hypertension (68.7%) [17].

This aligns with the theory explaining that with increasing age, a person's blood pressure tends to increase. This is caused by changes in blood vessel structure, resulting in narrowed lumen and decreased elasticity of blood vessel walls. As compensation, blood pressure increases. Age is one factor affecting hypertension occurrence. Blood pressure will increase with age, especially after age 40. This is caused by structural changes in large blood vessels, making the lumen narrower and blood vessel walls stiffer, resulting in increased systolic blood pressure[18].

This research showed disease history of hypertension patients was mostly with heart disease history (76.3%). Research by Windy G et al. (2018) showed most elderly hypertension patients had coronary heart disease history (40%) and research by Anni Syntya (2021) showed cardiovascular diseases increase blood pressure risk 2-3 times in elderly patients[19,20].

Conclusion

Based on the data results and discussion explanations in this research, it can be concluded that hypertension patients at RSUD Lanto DG Pasewang Jeneponto are mostly aged 60-70 years, female, with normal nutritional status, mostly have grade 2 hypertension, and mostly have heart disease history. Recommendations from this research include the expectation for further research on the effectiveness of nutritional interventions and specific dietary patterns in hypertension management, especially for patients with grade 2 hypertension, the expectation for longitudinal studies focusing on heart disease risk factors in hypertension patients, and further research on differences in response to hypertension therapy and health outcomes from the research results that have been conducted.

Acknowledgment

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