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Characteristics of Patients with Stable Angina Pectoris in the Inpatient Department of Anutapura Regional General Hospital, Palu, 2023-2024

I Wayan Erlangga Diraputra[1], Misriyani[1], Maria Rosa Da Lima Rupa[1*]
[1] Department of Medical Education, Faculty of Medicine, University of Alkhairaat, Palu, Jl. Diponegoro 94221, Central Sulawesi
[*]Authors Correspondence: misriyani85@gmail.com

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ABSTRACT

Coronary heart disease usually presents with stable angina pectoris which is chest discomfort or symptoms similar to angina caused by physical activity and improves with rest or nitroglycerin. The objective is to determine the characteristics of stable angina pectoris patients in the inpatient installation of RSUD Anutapura Palu in 2023-2024. The methods descriptive observational using secondary data, with a cross sectional design to determine the characteristics of stable angina pectoris patients at the inpatient installation of RSUD Anutapura in 2023-2024 as many as 53 patients. Data analysis using frequency distribution test. The number of samples of this study were 53 patients and the results showed patients with risk factor characteristics aged 41-50 years (39.6%), male (54.7%), hypertension (71.7%), dyslipidemia (75.5%) and no diabetes mellitus (79.2%). no diabetes mellitus (79.2%). Characteristics of stable angina pectoris patients based on age at the inpatient installation of RSUD Anutapura Palu in 2023-2024 with data obtained on a sample of 53 people found the most results in the age group 41-50 years with male gender, suffering from hypertension, dyslipidemia and patients who did not suffer from diabetes mellitus.

INTRODUCTION

Coronary heart disease (CHD) is a type of heart disease that occurs when the coronary arteries are unable to supply sufficient blood to the heart. This condition is also referred to as coronary artery disease or ischemic heart disease.[1] Coronary heart disease commonly presents as stable angina pectoris, which is characterized by chest discomfort or similar symptoms triggered by physical activity and relieved by rest or nitroglycerin. It often serves as an early sign or warning of coronary artery disease.[2]

The causes of CHD can be divided into two categories: non-modifiable and modifiable risk factors. Non-modifiable factors include sex, age, family history, and genetic factors. Modifiable risk factors include smoking, obesity, and blood cholesterol levels.[3] The incidence of CHD increases after the age of 35 in both men and women. The lifetime risk of developing CHD after the age of 40 is approximately 49% in men and 32% in women.[4]

According to data from the World Health Organization (WHO) in 2019, approximately 17.9 million people died from cardiovascular diseases in that year.[5] In Indonesia, deaths due to coronary heart disease reached 245,343 out of a total population of approximately 250 million.[6] Central Sulawesi shows a higher prevalence compared to the national average of 1.9%.[7] Based on data from the Central Sulawesi Provincial Health Office in 2018, the number of deaths due to heart disease reached 394 people, with the highest number occurring in Palu City, accounting for 56 deaths.[8]

Based on this background, the researcher is interested in identifying the characteristics of

patients with stable angina pectoris in the inpatient department of Anutapura Regional General Hospital, Palu, during the period of 2023–2024. This study was conducted at Anutapura Regional General Hospital because it is a referral hospital with complete facilities for managing coronary heart disease. The objective of this study is to analyze the characteristics of patients with stable angina pectoris, including age, sex, hypertension, dyslipidemia, and diabetes mellitus, during the period of 2023–2024.

MATERIAL AND METHOD

Research Design

This study was an observational descriptive study using secondary data with a cross-sectional design to identify the characteristics of patients with stable angina pectoris.

Time and Place of Research

The study was conducted at Anutapura Regional General Hospital, Palu, covering the period of 2023–2024.

Population and Sample

The population in this study included all patients diagnosed with stable angina pectoris who were hospitalized at Anutapura Regional General Hospital, Palu, during 2023–2024. The total sample consisted of 53 patients who met the study criteria.

Data Presentation

Data were analyzed using frequency distribution analysis and presented in the form of tables and descriptive narratives to illustrate the characteristics of the patients.

RESULTS AND DISCUSSIONS

Table 1. Frequency Distribution of Patients Diagnosed with Stable Angina Pectoris Based on Age Risk Factors Characteristics

Age	n	%
18-30	0	0%
31-40	2	3.8%
41-50	21	39.6%
51-60	16	30.2%
61-70	11	20.8%
71-80	3	5.7%
Total	**53**	**100%**

Based on Table 1, the frequency distribution of patients according to age as a risk factor showed that the highest proportion was found in the 41-50 years age group, followed by those aged 51-60 years, while the lowest proportion was observed in the 18-30 years age group.

Table 2. Frequency Distribution of Patients Diagnosed with Stable Angina Pectoris Based on Gender as a Risk Factor

Gender	n	%
Male	29	54.7%
Female	24	45.3%
Total	**53**	**100%**

Based on Table 2, the frequency distribution of patients according to gender as a risk factor showed that the majority were male with 29 patients (54.7%), while female patients accounted for 24 patients (45.3%).

Table 3. Frequency Distribution of Patients Diagnosed with Satable Angina Pectoris Based on Hypertension as a Risk Factor

Hypertension	n	%
Hypertension	38	71.7%
Not Hypertension	15	28.3%
Total	**53**	**100 %**

Based on table 3, the frequency distribution of patients according to hypertension as a risk factor showed that the majority of patients had hypertension, totaling 38 patients (71.7%).

Table 4. Frequency Distribution of Patients Diagnosed with Stable Angina Pectoris Based on Dysplipidemia as a Risk Factor

Dyslipidemia	n	%
Dyslimpidemia	40	75.5%
Not Dyslipidemia	13	24.5%
Total	**53**	**100**

Based on table 4, the frequency distribution of patients according to dyslipidemia as a risk factor showed that the majority of patients had dyslipidemia, totaling 40 patients (75.5%).

Table 5. Frequency Distribution of Patients Diagnosed with Stable Angina Pectoris Based on Diabetes Mellitus as a Risk Factor

Diabetes Mellitus	Frequency	%
DM	11	20.8%
No DM History	42	79.2%
Total	**53**	**100**

Based on table 5, the frequency distribution of patients according to diabetes mellitus as a risk factor showed that the majority of patients did not have diabetes mellitus.

DISCUSSION

Based on Table 1, the frequency distribution of patients according to age characteristics in the inpatient department of Anutapura Regional General Hospital, Palu, during 2023–2024, with a total sample of 53 patients, showed that the highest proportion was in the 41–50 years age group, totaling 21 patients (39.6%), while the lowest proportion was in the 31–40 years age group (3.8%).

This finding may be explained by the fact that age influences the risk of developing cardiovascular diseases, as aging causes structural and functional changes in the heart and blood vessels. As age increases, individuals become more susceptible to coronary heart disease; however, it rarely causes serious conditions before the age of 40 and increases up to fivefold between the ages of 40 and 60 years.[8]

The heart and blood vessels lose their elasticity due to the progressive fragility of the vascular walls. Therefore, the older a person becomes, the higher the risk of developing coronary heart disease.[9]

This study is consistent with research conducted by Melyani et al. in 2023, titled *"The Relationship Between Age and the Incidence of Coronary Heart Disease in Outpatients at RSUD dr. Doris Sylvanus, Central Kalimantan Province."* In that study, based on a sample of 99 respondents, it was found that 58 respondents (58.6%) were aged over 40 years, while 41 respondents (41.4%) were under 40 years.[10]

Based on the data in Table 2, the frequency distribution of patients according to gender characteristics in the inpatient department of Anutapura Regional General Hospital, Palu, during 2023–2024, showed that among 53 patients, the majority were male, totaling 29 patients (54.7%), while female patients accounted for 24 patients (45.3%).

Gender differences can be explained by variations in endogenous sex hormone concentrations. Testosterone is associated with cardiovascular disease risk in older men. With increasing age, sex hormone-binding globulin levels increase, while free testosterone declines more rapidly than total testosterone. The age-related decline in testosterone levels has been linked to an increased risk of hypertension, which is a predisposing factor for future cardiovascular disease. In fact, testosterone can activate both vasodilatory and vasoconstrictive pathways; however, it is predominantly pro-hypertensive and more likely to promote vasoconstriction, sodium retention, and cardiac hypertrophy.[11]

According to Lima Dos Santos et al., women develop cardiovascular disease approximately 10 years later than men because estrogen provides protective effects against heart disease. Estrogen also helps maintain arterial flexibility and has beneficial effects on blood lipids, particularly in premenopausal women.[12]

This study is consistent with research conducted by Nur Afifah Usri et al. in 2022, titled *"Characteristics of Risk Factors for*

Coronary Heart Disease Patients at Ibnu Sina Hospital, Makassar, in 2020." Based on a sample of 40 respondents, the results showed that the majority were male, totaling 21 respondents (52.5%), while female respondents accounted for 19 respondents (47.5%).[13]

Based on the data in Table 3, the frequency distribution of patients according to hypertension characteristics in the inpatient department of Anutapura Regional General Hospital, Palu, during 2023–2024, with a total of 53 patients, showed that the majority had hypertension, totaling 38 patients (71.7%), while 15 patients (28.3%) did not have hypertension.

High blood pressure can lead to coronary heart disease due to increased pressure on arterial walls, which causes endothelial damage and contributes to atherosclerosis. As the heart must work harder due to elevated blood pressure, the left ventricular muscle thickens, reducing the heart's pumping ability and increasing cardiac workload.[14]

This study is consistent with research conducted by Winda Sinthya Naomi et al. in 2021, titled *"Risk Factors for the Incidence of Coronary Heart Disease (Case Study at RSUD Prof. Dr. W. Z. Johannes Kupang)."* Based on a sample of 40 respondents, the results showed that 30 patients (61.25%) had hypertension, while 10 patients (38.75%) did not have hypertension.[15]

Based on the data in Table 4, the frequency distribution of patients with stable angina pectoris according to dyslipidemia characteristics in the inpatient department of Anutapura Regional General Hospital, Palu, during 2023–2024, with a total sample of 53 patients, showed that the majority had dyslipidemia, totaling 40 patients (75.5%), while 13 patients (24.5%) did not have dyslipidemia.

Lipid abnormalities are a major factor in the pathogenesis of atherosclerotic cardiovascular disease. Lipoproteins consist of esterified and unesterified cholesterol, phospholipids, triglycerides, and apolipoproteins with varying ratios, densities, and sizes. Their function is to transport lipids in the blood. Based on their density, lipoproteins are divided into six main classes: chylomicrons, very low-density lipoproteins (VLDL), intermediate-density lipoproteins (IDL), low-density lipoproteins (LDL-C), high-density lipoproteins (HDL-C), and lipoprotein(a) [Lp(a)]. LDL-C and HDL-C are commonly referred to as "bad" and "good" cholesterol, respectively.

Increased levels of LDL-C are associated with the early development of atherosclerosis and coronary heart disease, whereas low levels of HDL-C are associated with an increased risk of coronary heart disease. HDL-C has antioxidant, antithrombotic, and anti-inflammatory properties. Levels of VLDL-C and triglycerides (TG) are major determinants of LDL-C reduction profiles. When plasma triglyceride levels increase, the lipid profile shifts from large LDL particles to small, dense LDL-C particles. This occurs because elevated triglyceride levels are associated with higher concentrations of atherogenic dense LDL-C particles and lower concentrations of HDL-C.[16]

This finding is consistent with a study conducted by Nurhidayah et al. in 2022, titled *"Analysis of Combination Drug Use in Coronary Heart Disease Patients at Hasanuddin University Hospital, Makassar."* Based on a sample of 130 respondents, the results showed that 109 patients (83.3%) had dyslipidemia, while 21 patients (16.7%) did not have dyslipidemia.[17]

Based on the data in Table 5, the frequency distribution of patients according to diabetes mellitus characteristics in the inpatient department of Anutapura Regional General Hospital, Palu, during 2023–2024, with a total sample of 53 patients, showed that 11 patients (20.8%) had diabetes mellitus, while 42 patients (79.2%) did not have diabetes mellitus.

Diabetes mellitus is one of the factors that can exacerbate the occurrence of cardiovascular disease. Chronic hyperglycemia and insulin resistance, which are hallmarks of diabetes, contribute to the development of atherosclerosis. Hyperglycemia increases oxidative stress, inflammation, endothelial dysfunction, and dyslipidemia, all of which accelerate the atherosclerotic process.[18]

The results of this study may be influenced by factors contributing to discrepancies between theory and findings, such as the relatively small sample size, which may not fully represent the overall characteristics of diabetes as a risk factor. Therefore, this study is not consistent

with research conducted by Ida Rahmawati et al. in 2020, titled *"The Relationship Between Diabetes Mellitus and Coronary Heart Disease in Patients Attending the Cardiology Clinic."* Based on a sample of 292 respondents, the results showed that 183 patients (62.7%) had diabetes mellitus, while 109 patients (37.3%) did not have diabetes mellitus.[19]

CONCLUSION

Based on the study conducted on the characteristics of patients with stable angina pectoris in the inpatient department of Anutapura Regional General Hospital, Palu, during 2023–2024, the following conclusions can be drawn:

1. The characteristics of patients with stable angina pectoris based on age showed that the highest proportion (39.6%) was found in the 41–50 years age group.
2. Based on gender, the majority of patients were male, accounting for 54.7%.
3. Based on hypertension as a risk factor, the majority of patients (71.7%) had hypertension.
4. Based on dyslipidemia as a risk factor, the majority of patients (75.5%) had dyslipidemia.
5. Based on diabetes mellitus as a risk factor, the majority of patients (79.2%) did not have diabetes mellitus.

RECOMMENDATIONS

It is recommended that the hospital conduct evaluations regarding the completeness of patients' medical records, such as smoking history, family history, and measurements of height and weight.

Individuals with risk factors for stable angina pectoris are advised to maintain a healthy lifestyle, particularly those in high-risk groups, including older age groups, males, individuals with a history of hypertension, dyslipidemia, and diabetes mellitus.

AUTHOR CONTRIBUTIONS

Conceptualization, I.W.E.D, M.R.D.L.R, M; Methodology, M.M.P.P,; Validation, M.R.D.L.R, M.; Formal Analysis, I.W.E.D; Investigation, I.W.E.D, Resources, I.W.E.D.; Data Curation, I.W.E.D.; Writing-Original Draft Preparation, I.W.E.D., M.R.D.L.R and M.; Visualization, I.W.E.D. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declares that there is no conflict of interest.

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