Journal of Public Health and Pharmacy
ISSN: 2775-4952
Website: https://jurnal.unismuhpalu.ac.id/index.php/jphp

Study of Treatment in Heart Disease Patients Installation in Undata Hospital, Central Sulawesi

Niluh Puspita Dewi[1]*, Indah Kurnia Utami[2], Al'vira Gunawan[3], Muh. Thamrin Tahir[4], Syafika Alaydrus[5], Nani Astria Polontalo[6]
[1]Department of Pharmacology and Clinical Pharmacy, STIFA Pelita Mas Palu, Central Sulawesi, Indonesia, niluhpuspitadewi978@gmail.com
[2]Department of Pharmacology and Clinical Pharmacy, STIFA Pelita Mas Palu, Central Sulawesi, Indonesia, indahkurniautamiii@gmail.com
[3]College of Pharmacy Pelita Mas Palu, Central Sulawesi, Indonesia, alviragunawans@gmail.com
[4]Pharmacy Installation, Undata Hospital Palu, Central Sulawesi, Indonesia, clinpharm.2010@yahoo.com
[5]Department of Pharmacology and Clinical Pharmacy, Diploma in Pharmacy STIFA Pelita Mas Palu, Central Sulawesi, Indonesia, syafikalaydrus39@gmail.com
[6]Department of Pharmaceutical Biology, Pharmacy Academy Bina Farmasi, Palu, Central Sulawesi, Indonesia, naniastria@gmail.com

***Corresponding Author**: niluhpuspitadewi978@gmail.com

ARTICLE INFO

Received: 6 February, 2024
Accepted: 10 March, 2024
Volume: 4
Issue: 1
DOI: 10.56338/jphp.v4i1.4951

KEYWORDS

Study of Treatment;
Heart Disease;
Undata Hospital

ABSTRACT

Introduction: Heart diseasesis a disorder of heart functionsdue to lack of bloods in the heart muscles due to narrowingsof the coronary artery. The purposesof this study was to describe t he characteristics and use of heart disease drugs based on parameters of rationality of drug use in Undata Hospital, Central Sulawesi Province including gender, age, heart drug class, complementary drug class, length of hospitalization, laboratory data, comorbidities, appropriate indications, the right drugs and the right dose.
Methods: This researchsis a non-experimental type of research conducted prospectively during February-April 2022. The sampling technique in this study was purposive sampling, namely sampling based on established criteria. All samples that met the requirements who came to the hospital were used as research samples according to the required sample size of 40 respondents and based on the available data collection time.
Results: The results of the study were 40 patients with hearts disease, the most heart disease sufferers were male with a percentage of 67.5%, in the age range of 56-65 years 32.5%, the most commonly used companion drug was Alprazolam as much as 17%, the most length of hospitalization was 4-6 days (55%), the most laboratory results were Hemoglobin/HGB examination as many as 21 patients (14.38%), the most comorbidities namely Hypertension with a percentage of 60%
Conclusion: Appropriate use of heart disease drugs based on drug rational parameters in hospitals Undata of the right indication 100%, the right drug selection 100% and the right dose 100%. Recommendedsfor further researchersscan conduct research on cardiac drug interactions.

Publisher: Pusat Pengembangan Teknologi Informasi dan Jurnal Universitas Muhammadiyah Palu

INTRODUCTION

Degenerative disease is one of the current diseases become a major problem in both countries developed and developing countries, including Indonesia. Atherosclerosis plays an important role in especially cardiovascular disease Coronary Heart Disease (CHD) and is the main cause of death in various countries (1). Modern lifestyles, including diet and physical activity patterns, are an increasingly real threat. Lack of physical activity in daily life can cause various diseases, for example, obesity can lead to heart disease. Hypertension, diabetes mellitus, dyslipidemia, for example, are risk factors for heart disease, whose numbers are increasing (2).

Lifestyle changes are one of the causes of coronary heart disease (3). Various studies have succeeded in identifying risk factors for coronary heart disease cannot be separated from lifestyle, this can be seen from previous research conducted by Sarathikaira et all in Nepal (2012) with the risk factors for CHD found to be hypertension in 42 people (35.3%). Rechman's research (2012) in Pakistan found risk factors for diabetes mellitus in 19 people (22.9%), history smoking 49 (59.0%), hypercholesterolemia 15 people (18.1%). Basnet's research (2011) found risk factors Physical activity was less in CHD sufferers, namely 56 people (38.4%), body mass index > 25 kg/m^2 40 people (27.4%) and central obesity 50 people (34.2%). Likewise with Ahmedabad (2013) research in Research results found in India that there is a significant relationship between smoking and heart disease coronary heart disease (P-value <0.005 with OR =3.72)(4). Heart disease arises due to heart blood vessels being blocked by fat deposits, assuming fat deposits, the corridors will narrow, and reduce blood flow to the heart. Besides it's heart diseases Coronary arteries can cause strokes which are caused by rupture of vesselss blood so that it can affect the occurrence of coronary heart disease(2).

The World Health Association (WHO) in 2016 stated that moresof 17.5 million people die due to cardiovascular disease and blood vessels, or 31% of all deaths in the world. About 85% are caused by coronary episodes and strokes. What's more, shows that 70% deaths in the world caused by diseases Not Contagiouss (39.5 million froms56.4 deaths). Numbers 45% of allsconsequential deathsNon-Contagious Infectionss (PTM) caused by diseases heart and vessels blood, that is 17.7 millions of 39.5 millions death. In the US cardiovascular damage occurs in nearly 550,000 cases each year (3)

The most persuasive component for coronary disease is the level of cholesterol and fatty oils in the blood. Elevated levels of cholesterol in the blood can cause oily drainage or plaque on the walls of blood vessels. These betting factors play an important role in cases of heart disease, if the betting factors can be known, prevention efforts will be easier. Basic Health Research (Riskesdas) in 2018 recorded that the prevalence of heart disease based on doctor's diagnosis in Indonesia was 1.5%. The highest heart prevalence results based on doctor's diagnosis were North Kalimantan, namely 2.2%, followed by Gorontalo, DI Jogjakarta at 2%, Central Sulawesi and DKI Jakarta at 1.9% each. (5) Based on data from a preliminary study conducted on heart disease patients from medical record data at Undata Hospital, Palu, Central Sulawesi Province, the number of heart disease patients in 2022 is 270 patients and they have different risk factors. Based on the description above, heart disease is still the main cause of death, so researchers are interested in conducting this research to find out the description of the treatment of heart disease patients and study the use of medicines based on the right indication, the right drug, and the right dose at the Undata Hospital, Palu, Central Sulawesi Province, as well as to find out cause of heart disease.

METHOD

This research design was carried out with a non-experimental descriptive design, with prospective data collection from searching medical records of coronary heart patients and comorbidities who were treated at the Undata Hospital inpatient installation, Palu, Central Sulawesi Province in the period February-April 2022

Population and Sample

Population

The population is the entire research object that will be studied. The population in this study were all patients diagnosed with heart disease with or without comorbidities which were a complication of the main diagnosis or

which arose during the treatment period in the treatment room at Undata Hospital, Palu, Central Sulawesi Province in 2022.

Sample

The sample in this study was all heart patients who were hospitalized and were given medical therapy according to inclusion-based criteria during the research at the Undata Hospital, Palu, Central Sulawesi Province 2022. This study has been approved by Ethics Committee of Tadulako University with ethical approval letter number of 10589./UN28.1.30/KL/2023. The sampling technique in this study was purposive sampling, namely sampling based on established criteria. All samples that met the requirements who came to the hospital were used as research samples according to the required sample size of 40 respondents and based on the available data collection time (6).

Inclusion Criteria : 1) Patients diagnosed with heart disease with or without comorbidities (diabetes, hypertension, cholesterol), both as primary and secondary diagnoses. 2) Adult patients (aged > 25 years). 3) Patients with clear and complete medical records containing the patient's identity (name, gender, age), type and class of medication, length of stay, patient laboratory results and comorbidities. 4) Patients with a length of stay ≥ 3 days who are hospitalized in the treatment room.

Exclusion criteria : 1) Patients with incomplete medical record data. 2) Patients who do not sign/agree to the informed consent. 3) Patients who died during the research.

Management and Analisis Ways Data

Data processing using computers with Microsoft Excel and SPSS programs. Data processing is carried out in several ways stages, namely: 1) Data entry, entering data into a computer program so that it can be analyzed. 2) Data tabulation, enter data into the existing table provided to facilitate analysis data. 3) Data editing, aims to correct data, including correctness and completeness of recording. 4) Data calculation, this is the final stage in the research from the results of which conclusions can be drawn which is meaningful.

Data Processing

Categorical data processing is shown in form, proportion and presentation, such as type gender, while numerical data displayed in the form of data – or average, and standard deviation such as age. Data collection was carried out prospectively and the data collected was primary and secondary data. The data collection process in this study employed the purposive sampling technique, a strategic approach to select participants based on specific criteria relevant to the research objectives. Observations were conducted by directly assessing the patients' conditions within the treatment room. Documentation involved utilizing secondary data and extracting relevant information from the patients' medical records. A structured data retrieval sheet was utilized for collecting the necessary data. In instances where data was incomplete, efforts were made to gather comprehensive information. This involved seeking clarification from the patients themselves, their family members, pharmacists, or clinicians involved in their care, ensuring a comprehensive and accurate data collection process. The research findings, derived from this analysis, were then presented in the form of tables and figures, utilizing the collated secondary data. This approach aimed to provide a comprehensive portrayal of the treatment landscape for coronary disease patients based on the available records (7)

RESULTS

Characteristics of Research Subjects

Table 1. Distribution of Heart Disease Patients by sex

Gender	Number of Patients	Percentage (%)
Man	22	55

Woman	18	45
Total	**40**	**100 %**

Table 2. Distribution of Heart Disease Patients by age

Age (Years)	Number of Patients	Percentage (%)
18-25	0	0
26-35	2	5
36-45	9	22.5
46-55	12	30
56-65	13	32.5
>65	4	10
Total	**40**	**100 %**

Clinical Characteristics

Table 3. Distribution of Heart Disease Patientsbased on comorbidities

Types of Associated Diseases	Number of Patients	Percentage (%)
Hypertension	25	62.5%
Diabetes mellitus	13	32.5%
Dyslipidemia	2	5%
Total	**40**	**100%**

Table 4. Distribution of Drug Use in Patients with Uncomplicated Heart Disease by Type and Group Obats used.

No	Drug Class	Drug Type	Number of Drug Use	Percentage
1.	Calcium Chanel Blocker	Diltiazem	3	6.54%
		Amlodipine	15	
2.	Beta Blocker	Bisoprolol	28	10.55%
		Carvedilol	1	
3.	ARB	Candesartan	6	4%
		Telmisartan	1	
		Valsartan	4	
4.	ACE Inhibitors	Imidapril	8	4.73%
		Captopril	1	
		Ramipril	4	
5.	Loop Diuretic	Furosemide	38	13.82%
6.	Thiazide diuretic	Hydrochlorothiazide	1	0.36%
7.	Potassium Sparing Diuretics	Spironolactone	6	2.18%
8.	Nitrate	ISDN	31	14.18%
		nitroglycerin	8	
9.	Anti Platelet	Acetyl Salicylic Acid	29	21.09%
		Clopidogrel	28	
		Ticagrelor	1	
10.	Anti-Coagulant	Fondafarinux Sodium	10	3.64%
11.	Fibrinolytic	Tranexamic acid	2	0.73%

12.	Cardiac Glycosides	Digoxin	3	1.09%
13.	statins	Atorvastatin	35	12.73%
14.	Opioid Analgesics	Morphine	1	1.09%
		Codeine	2	
15.	Sympathomimetic	Dobutamine	9	3.27%
	TOTAL		**275**	**100%**

Table 5. Distribution of Patients with Heart Disease Based on length of stay

Length of Hospitalization	Number of Patients	Percentage (%)
1 – 3 days	4	10
4 – 6 days	22	55
≥ 7 days	14	35
Total	**40**	**100 %**

Table 6. Distribution of Diagnostic Types of Heart Disease Patients

Diagnosis Heart disease	Number of Patients	Percentage (%)
ADHF	15	37.5%
CHF	2	5%
APS	9	22.5%
Cardiomyopathy	1	2.5%
HHD	3	7.5%
STEAM	2	5%
ACP	2	5%
CAD	1	2.5%
ACS Nstemi	2	5%
ACS Stemi	3	7.5%
Total	**40**	**100%**

Evaluation of the Accuracy of Drug Use

Table 7. Evaluation of the appropriateness of drug use

No.	Accuracy of Drug Use	Number of events		Total	Percentage		Total (%)
		Appropriate	Not exactly		Appropriate	Not exactly	
1.	Precise Indication	40	0	40	100%	-	100%
2.	Right Medicine	40	0	40	100%	-	100%
3.	Correct Dosage	40	0	40	100%	-	100%

DISCUSSION

Coronary disease is a condition caused by narrowing and vessel blockage venous blood that supplies blood to the heart muscle, so the heart muscle needs blood and does not receive oxygen supply to work (7)(8).

Referring to table 1, it was found that data on the distribution of heart disease based on sex were 27 patients (67.5%) male and 13 female patients (32.5%). This is because men tend to have a lifestyle with heart disease factors such as smoking, alcohol and other contemporary lifestyles that damage the heart. Men are at greater risk of

developing heart disease than women before menopause, this is because women have a protective substance, namely the chemical estrogen which is very useful in controlling cholesterol (7).

Referring to table 2, it was found that the examination related to age quality showed that 13 patients (32.5%) experienced the most in the age group of 56 to 65 years (old end). This is consistent with the hypothesis that age is a risk factor for coronary heart disease. Getting older causes anatomical and physiological changes in the heart and blood vessels and, surprisingly, in all the organs of the human body, it is associated with increase in total cholesterol levels with getting older in all kinds of people. The older you get, the higher the death rate from coronary disease (8)

Based on the results of the study in table 3, data was obtained that the most comorbid disease was hypertension with a percentage of 62.5%. Hypertension is a central point in the incidence of coronary disease. Increased blood pressure will cause extra burden on the heart so that it can cause growth of the left ventricle. This situation depends on the seriousness and range of hypertension. High blood pressure will injure the walls of the coronary corridors, so that plaque will easily form due to a provocative response. This makes the oxygen supply decrease and blood flow to the myocardium decreases (9)

Based on the most types and drug classes in table 4, it was found that the drugs used in heart patients showed the most drug classes used for the management of heart disease, namely antiplatelets with a percentage of 21.09% and nitrates with a percentage of 14.18%. The antiplatelet group is used to gradually reduce platelet aggregation and apoplexy so as to reduce blockages in blood vessels (10) The antiplatelet medication used is corrosive acetyl salicylate and clopidogrel. Acetyl salicylate corrosion works by inhibiting Cyclo-oxygenase 1 and 2 (COX 1 and COX 2) which further restrains thromboxane formation. Clopidogrel is a drug that has an anticoagulant effect and inhibits the formation of blood clots (11).

The nitrate vasodilators used are ISDN and dynamite. Both of these drugs (nitrate compounds) are used because nitrates are vasodilators (widening of the veins when coronary flow increases blood flow to the heart muscle (9). Isosobride Dinitrate (ISDN) is a nitrate class drug that works by dilating blood vessels so that it can maximize and facilitate coronary blood flow. Thus, ISDN makes a useful distinction, especially addressing the confusion between oxygen supply myocardial and oxygen demand in heart patientsscoroner ((12).

Referring to table 5, it was found that the patient's length of stay was heart rate is 4-6 days with a level of 55%. Given the review of research writing on matters that influence length of stay of the patient in relation to the impact of comorbidities on the length of stay of patients with cardiovascular disorders, for example the etiology or cause of the disease, the seriousness of the disease, the clinical condition of the patient, the patient's discharge section, and the presence of peripheral edema. Co-morbidities or the presence of co-morbidities also affect the length of stay patient stay. Besides that's a long time hospitalization of patients with cardiovascular disorders is also influenced by treatment factors, for example the duration of administration intravenous diuretics, use supervised medication (13).

Referring to table 6, the data found that the results of the type of heart disease diagnosis showed that the most heart disease diagnoses were ADHFas many as 15 patients (37.5%). Intense Decompensated Cardiovascular Breakdown (ADHF) or also called decompensated cardiovascular breakdown is a state of continuous decline in cardiovascular function, which can occur intensely, subacutely or lethargically with side effects that damage little by little over days or weeks, division shunting can be typical or diminished, but most of the results are normal cardiac or circulatory pressure within normal limits. ADHF is usually caused by cardiogenic aspiration edema with rapid aggregation of fluid in the lungs. However, a state of cardiovascular damage may also occur in the absence of aspiration edema. Common causes of ADHF also include left ventricular or diastolic damage, apart from coronary disease or valvular abnormalities (12).

Based on the evaluation of the accuracy of drug use in table 7 of heart patients who were hospitalized at the Undata Hospital in Palu, based on precise indication data, 100% correct results were obtained. The use of drugs in the appropriate sign class analyzes the determinations set on the clinical account and the neurotic signs and side effects of the disease with the given drug treatment. It is judged that the drug should be right with the assumption of pressure blood and age match with the types of drugs listed in the 2013 Debris standard. For example, there is information on a patient with a 140/90 strain (grade 1 hypertension) who is 45 years old and received 5 mg of

ramipril. This refers to the 2013 Debris standard, especially grade 1 hypertension with age <60 years can be given pro-inhibitor/ARB class drugs. Exact drug that is as much as 100%. It is said that the drug is appropriate if blood pressure and age match the type of drug in the 2013 ASH standard. For example, there is data on a patient with a pressure of 140/90 (degree 1 hypertension) with an age of 45 years receiving 5 mg of ramipril. This is in accordance with the 2013 ASH standard, namely grade 1 hypertension with age <60 years can be given ACE-inhibitor / ARB class drugs. And right dose results obtained 100% right dose. Assessment of the accuracy of the portion is done by comparing the dose of drug given to the patient with the portion of the text that is used as a kind of perspective or standard of treatment in determining the dose. It should be the right portion assuming the number of doses and relapses given is in accordance with the norm in the review. For example, information on a patient with a pulse of 140/90 in a 45-year-old patient received 5 mg of ramipril 1 x 1 drug. This is in accordance with the guidelines of JNC VIII and Debris 2013, specifically the use of ramipril with a total dose of 5 mg and administration of 1 x 2.5 - 5 mg/day. For example, information on a patient with a pulse of 140/90 in a 45-year-old patient received 5 mg of ramipril 1 x 1 drug. This is in accordance with the guidelines of JNC VIII and Debris 2013, specifically the use of ramipril with a total dose of 5 mg and administration of 1 x 2.5 - 5 mg/day. For example, information on a patient with a pulse of 140/90 in a 45-year-old patient received 5 mg of ramipril 1 x 1 drug. This is in accordance with the guidelines of JNC VIII and Debris 2013, specifically the use of ramipril with a total dose of 5 mg and administration of 1 x 2.5 - 5 mg/day(13).

CONCLUSION

Based on research results can be concluded that: 1) Characteristics of inpatient cardiac patients in hospitals Undata of Central Sulawesi Province by type Gender and age were male patients (67%) and aged 56-65 years (32.5%). 2) Most complications of heart disease in hospitals Undata, Central Sulawesi namely hypertension complications. 3) Most drug use in heart patients in hospitals Undata of Central Sulawesi is antiplatelet as much (23.58%). 4) The highest number of types of heart disease in the Undata General Hospital, Central Sulawesi, is the type of heart disease ADHF as much as 37.5%. 5) Appropriate use of heart disease drugs based on drug rational parameters in hospitals Undata, Central Sulawesi of the right indication 100%, the right drug selection 100% and the right dose 100%.

AUTHOR'S CONTRIBUTION STATEMENT

The authors of this paper consist of six people, i.e N.P.D, I.K.U, M.T.T, A.G, S.A and N.A.P. This paper was completed thanks to the collaboration of the writing team at every stage.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

SOURCE OF FUNDING STATEMENTS

This research received no external funding.

ACKNOWLEDGMENTS

The authors are grateful to research grant Research Foundation of Pelita Mas Palu.

BIBLIOGRAPHY

1. Hamm CW, Bassand JP, Agewall S, Bax J, Boersma E, Bueno H, et al. ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: The Task Force for the management of acute coronary syndromes (ACS) in patients presenting without persistent ST-segment elevation of the European Society of Cardiology (ESC). Eur Heart J [Internet]. 2011 [cited 2024 Feb 6];32(23):2999–3054. Available from: https://pubmed.ncbi.nlm.nih.gov/21873419/
2. Ghani L, Novriani H, Penelitian P, Pengembangan D, Daya S, Kesehatan P, et al. Faktor Risiko Dominan Penyakit Jantung Koroner di Indonesia DOMINANT RISK FACTORS OF CORONARY HEART DISEASE IN INDONESIA.

3. . A, HANDINI MC, SIRAIT A. GAYA HIDUP SUKU BATAK YANG MENDERITA PENYAKIT JANTUNG KORONER (STUDI ETHNOGRAFI DI RSUD DR. PIRNGADI MEDAN TAHUN 2018). J Ilm KOHESI [Internet]. 2019 Jul 9 [cited 2024 Feb 6];3(3). Available from: https://kohesi.sciencemakarioz.org/index.php/JIK/article/view/76
4. Rana JS, Arsenault BJ, Després JP, Côté M, Talmud PJ, Ninio E, et al. Inflammatory biomarkers, physical activity, waist circumference, and risk of future coronary heart disease in healthy men and women. Eur Heart J [Internet]. 2011 Feb [cited 2024 Feb 6];32(3):336–44. Available from: https://pubmed.ncbi.nlm.nih.gov/19224930/
5. Utami I, Dewi N, Alaydrus S, Magfirah M, Musfirah M, Azizah N. Potential drug interactions in inpatients with chronic kidney disease at Undata Hospital, Palu City, Indonesia. Sci Pharm. 2023 Nov 26;2(4):37–44.
6. Kementerian Kesehatan RI, Badan Penelitian dan Pengembangan Kesehatan. 2018. Laporan Nasional RISKESDAS. Kementerian Kesehatan republik Indonesia.
7. Landsberg L, Aronne LJ, Beilin LJ, Burke V, Igel LI, Lloyd-Jones D, et al. Obesity-Related Hypertension: Pathogenesis, Cardiovascular Risk, and Treatment: A Position Paper of The Obesity Society and the American Society of Hypertension. J Clin Hypertens [Internet]. 2013 Jan [cited 2024 Feb 6];15(1):14. Available from: /pmc/articles/PMC8108268/
8. Koroner J, Instalasi DI, Inap R, Prof R. EVALUASI PENGGUNAAN OBAT PADA PASIEN DENGAN PENYAKIT JANTUNG KORONER DI INSTALASI RAWAT INAP RSUP PROF. DR. R. D. KANDOU MANADO. PHARMACON [Internet]. 2017 Oct 24 [cited 2024 Feb 6];6(4):55–66. Available from: https://ejournal.unsrat.ac.id/v3/index.php/pharmacon/article/view/17718
9. Diah Cahyaningsih. Profil peresepan penyakit jantung koroner di rawat inap jantung periode januari - desember 2017. Akad Farm Surabaya. 2017;2017.
10. Pramudianto; A. MIMS Indonesia ; petunjuk Konsultasi. 2012 [cited 2024 Feb 6]; Available from: //digilib.stiksam.ac.id/index.php?p=show_detail&id=1655&keywords=
11. Fadiah Y. Studi Penggunaan Isosorbide Dinitrate (ISDN) Pada Pasien Jantung Koroner di RSUD Sidoarjo. Fak ILMU KESEHATAN, Univ MUHAMMADIYAH MALANG. 2017;
12. Fadiah Y. STUDI PENGGUNAAN (ISDN) PADA PASIEN JANTUNG KORONER (Penelitian dilakukan di RSUD Sidoarjo) ISOSORBIDE DINITRATE. 2017;
13. STUDI PENGGUNAAN (ISDN) PADA PASIEN JANTUNG KORONER (Penelitian dilakukan di RSUD Sidoarjo) ISOSORBIDE DINITRATE | Semantic Scholar [Internet]. [cited 2024 Feb 6]. Available from: https://www.semanticscholar.org/paper/STUDI-PENGGUNAAN-(ISDN)-PADA-PASIEN-JANTUNG-KORONER-Fadiah/0fc7427ac826f315a856244295a091edb75bd54e