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Research Article

Risk Factors of Cardiovascular Diseases on Patients with Cardiovascular Diseases

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Abstract.
Cardiovascular diseases (CVD) are the leading cause of death globally and the main problem of non-communicable diseases. Prevention is part of cardiovascular disease treatment because it breaks the chain of management and subsequent complications from the disease. Its foundation is based on the promotion of a healthy lifestyle, as well as appropriate identification and treatment for cardiovascular risk factors. This study aimed to identify risk factors for cardiovascular diseases in patients with cardiovascular diseases. A descriptive study was performed with proportionate stratified random sampling and 88 patients with cardiovascular diseases participated in this study. Data were collected in one of general hospitals in Pekanbaru, Indonesia. The risk factors of cardiovascular disease patients were assessed using a questionnaire. Descriptive analysis statistic was used to describe risk factors of cardiovascular disease. Moreover, 80% of patients completed the questionnaire. The results showed that the majority of respondents (56.8%) had hypercholesterolemia. The results showed that most respondents (73) had a smoking history (83%). The result showed that most of the patients (64.8%) with cardiovascular disease have no family history of heart attacks. The result showed that the majority of the respondents (69.3%) had a family history of hypertension. Over 92% of respondents were unable to do strenuous activities and 79.5% were unable to do moderate activities even once a week. Early assessment and education about risk factors of cardiovascular diseases are important for the prevention and promotion of health.

Keywords: cardiovascular disease, cardiac patients, activity patterns

1. Introduction

Cardiovascular disease is one of the leading causes of death in the world. World Health Oragnization in 2018, reported that about 17.9 million people die each year due to cardiovascular disease. This number is estimated to increase by 23.3 million in 2030[1]. Furthermore, American Heart Association data in 2016 shows that the prevalence of this disease in adults that are over 20 years is 48% and will continue to increase with age in men and women[2].

Basic Health Research data in 2018 shows that its prevalence in Indonesia is 1.5% of the total population[3]. The research on adolescents in Ponorogo found that the

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prevalence of hypertension among students was 107 respondents (35.7%) [4]. Furthermore, low physical activity was the most dominant risk factor for students, namely 164 respondents (54.7%).

Prevention is part of cardiovascular disease treatment because it breaks the chain of management and subsequent complications from the disease. Its foundation is based on the promotion of a healthy lifestyle, as well as appropriate identification and treatment for cardiovascular risk factors. The prevention of cardiovascular disease have not run optimally, especially secondary prevention. The inability of cardiovascular disease patients to carry out secondary prevention of cardiovascular disease risk factors is one of the proven predictors of recurrence of patients having heart attacks, with the discovery of the fact that the incidence of cardiovascular disease increases every year[5].

2. Method

A simple descriptive design was adopted with the aim of analyzing the risk of cardiovascular disease and the activity patterns of cardiac patients.

A Likert scale questionnaire, which consists of positive and negative statements was used to collect data. Furthermore, this study used Probability Sampling in the form of Proportionate Stratified Random Sampling. A total of 88 patients participated in this study. The inclusion criteria of participants were Descriptive analysis statistic was used to describe risks factors of cardiovascular diseases cardiovascular diseases patients who get treatment in Arifin Achmad Hospital. The axclusion criteria was patients who get palliative treatment. The study was approved by the ethics committee of the faculty. Descriptive analysis statistic was used to describe risks factors of cardiovascular diseases

3. Result

The results showed the following as the risk factors for cardiovascular disease in table 1.

3.1. Age factor

Most of the respondents were elderly (Over 60 years old) at 44.3%, followed by pre-elderly (50-59 years old) at 38.6%, and adults (less than 50 years old) at 17%.

Table 1: Sociodemographic characteristics of cardiovascular diseases patients (n=88).

Characteristics	Frequency (f)	Percentage (%)
Age		
<50 years	15	17.1
50-59 years	34	38.6
> 60 years	39	44.3
Gender		
Male	67	76.1
Female	21	23.9
Blood Pressure		
High	53	60.2
Low	35	39.8
Blood glucose level		
High	48	54.5
Low	40	45.5
Cholesterol level High Low	50 33	56.8 43.2
Smoking history		
Yes	73	83
No	15	17
Family history of heart attack		
Yes	31	35.2
No	57	64.8
Family history of hypertension		
Yes	61	69.3
No	27	30.7

Gender; From a total of 88 respondents, most (67) were male with a percentage of 76.1%.

Blood pressure; The test results of blood pressure on 88 respondents showed that the majority (60.2%) had high BP.

Blood glucose level; The results of random blood glucose (GDS) level showed that most of the patients experienced a relatively high increase in blood glucose levels (54.5%).

Cholesterol level; The results showed that the majority of respondents (56.8%) had hypercholesterolemia.

Smoking history; The results showed that most respondents (73) had a smoking history (83%).

Family history of heart attack; The result showed that most of the patients (64.8%) with cardiovascular disease have no family history of heart attacks.

Family history of hypertension; The result showed that the majority of the respondents (69.3%) had a family history of hypertension.

Activity patterns; 92% of respondents were unable to do strenuous activities and 79.5% were unable to do moderate activities even once a week.

4. Discussion

Various findings in this study were compared with the results of previous based on related journals and theories.

Age Factor

This study shows that the majority of people with cardiovascular disease are elderly (over 60 years) with a percentage of 44.3%. However, young people have a lower risk with a percentage of 17%. Meanwhile, the pre-elderly category aged 50-59 years are also at risk of cardiovascular problems with a percentage of 38.6%.

The results of this study are in line with the results of other studies which reported that the high risk age is ≥45 years, namely 83.60%[6]. Furthermore, reported that the adolescents are at risk of cardiovascular problems, which is caused by several factors such as obesity and lack of activity[4].

4.1. Gender

This study found that men have a greater risk of cardiovascular disease than women. This is indicated by the majority (76.1%) of male respondents.

These results corroborate research which reveals that which states that men (68.80%) experience heart disease than women[6]. Furthermore, reported that menopausal women have a 1.5 times risk of the incidence of heart disease compared to the non-menopausal [7].

4.2. Blood pressure

The examination in patients with cardiovascular disease/problems showed that the majority (60.2%) had high blood pressure. These results corroborate research which reveals that which reported that hypertension is an important risk factor for coronary heart disease. The longer an individual has hypertension, the higher the risk of heart attack[8].

4.3. Random blood glucose (GDS) levels

Based on the results, it was found that most of the patients (54.5%) experienced an increase in blood glucose, which was categorized as high. This condition affects and increases the incidence of cardiovascular disease caused by high blood viscosity, thereby increasing the workload of the heart.

This is in line with the report that blood glucose levels greatly affect the incidence of acute myocardial infarction (AMI)[9]. Furthermore, other studies reported that hyperlipidemia, hypertension, and diabetes mellitus had a significant effect on the incidence of acute myocardial infarction (AMI)[10].

4.4. Blood cholesterol levels

The examination of the cholesterol level examination showed that 56.8% of the patients had hypercholesterolemia (high cholesterol levels in the blood). This condition increases the risk of cardiovascular problems due to plaque buildup or atherosclerosis, which causes narrowing of the blood vessels and rupture of the lipid membranes consequently, occlusion may occur due to the thrombus. When the condition occurs in the heart blood vessels, that is the coronary arteries, life-threatening acute coronary syndrome (ACS) will occur. This corroborates with reported that hyperlipidemia, hypertension, and diabetes mellitus greatly affect the incidence of acute myocardial infarction (AMI)[10].

4.5. Smoking history

This study also revealed that most of the respondents (73 people) had a smoking history (83%). This makes it clear that smoking is one of the factors that increase the risk of cardiovascular disease. The results of this study are in line with other research which reveal that all patients with heart attack had a history of active smoking for an average of 20 to 30 years[11].

Furthermore, other studies reported that smoking habits have a significant relationship with the incidence of coronary heart disease (CHD)[12, 13].

4.6. Family history of heart attack

This study found something new that 64.8% of the cardiovascular disease incidence did not have a family history of heart attack. This condition occurs due to the influence

of risk factors previously stated, such as smoking, high cholesterol, diabetes mellitus (high blood sugar levels), hypertension, and the patient's inadequate activity patterns.

4.7. Family history of Hypertension

Most of the respondents (69.3%) had a family history of hypertension. Therefore, hypertension increases the risk of cardiovascular problems for sufferers. This is in line with several other studies, which stated that hypertension greatly affects the incidence of acute myocardial infarction (AMI)[10]. Furthermore, it is a disease that may be inherited from the previous generation to the next [14].

4.8. Activity patterns

The discussion of activity patterns includes strenuous activities that make the muscles work strong and have an impact on difficulty breathing or shortness of breath. Such activities include running, cycling, rock climbing, brisk swimming, tennis, badminton, jumping rope, playing ball, heavy gardening (such as digging), lifting heavy objects, and yoga. Meanwhile, moderate activity patterns make muscles work not too strong and make breathing difficult or faster. Such activities include walking, brisk walking, dancing, swimming casually, light gardening such as watering plants, sweeping, mopping, cooking, drying, as well as going up and down the stairs.

Based on the results, most of the respondents were unable to do moderate (79.5%) and strenuous (92%) physical activities. This is consistent with the theory and results of related research which states that a higher individual's activity increases the body's oxygen and nutrient consumption, thereby increasing the workload of the heart and lungs[15][16]. Another study also states that individuals with a habit of moderate and strenuous physical activity have a lower risk of experiencing cardiovascular disease compared to those with only light activity habits.

5. Conclusions

Cardiovascular disease and activity patterns in patients are an iceberg phenomenon that happens to anyone at any time. Furthermore, several risk factors that increase the prevalence of cardiovascular disease were determined. First is the age factor; in this case, the older the age, the higher the risk of cardiovascular disease. The second is gender, where men have a higher risk than non-menopausal women. The third

is blood pressure, where the higher the blood pressure, the higher the risk of other cardiovascular diseases. Fourth, blood glucose levels will especially increase in people with diabetes mellitus (DM). The fifth is blood cholesterol level, where the higher the blood cholesterol level, the higher the risk. Sixth, seventh, and eighth are smoking, family history of heart attack, and hypertension. Finally, the activity pattern of patients with cardiovascular problems is the inability to perform moderate and strenuous activities.

Acknowledgements

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