RISK FACTORS OF CARDIOVASCULAR DESEASE

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ABSTRACT

Background. Cardiovascular desease was caused by a narrowing and blockage of blood vessels by several risc factors, they were tobacco use (smoking), lack of physical activity, unhealthy diet, and obesity. This study aimed to determine risk factors of cardiovascular desease on the RT 03/01society, Mangunsuman village, Siman Ponorogo.

Methods. This reseach used an analitical qualitative design. There were four variables, such as: smoking habit, physical activity pattern, obesity, and cardiovascular desease event. The population was the whole residents of RT 03/01 Mangunsuman village, Siman Ponorogo, consisting of 40 samples of 151 people, with purposive sampling technique. In collecting the data, the researcher used questionaire and observation sheets, which were analized by using percentage.

Results. The result showed that the cardiovascular desease event on RT 03/01 society of Mangunsuman village, Siman Ponorogo were 21 people (52.5%). The dominant risk factor of cardiovasular desease, obesity, was 16 respondents (40%), smoking factor was 11 respondents (27.5%), and less physical activity factor was 4 respondents (10%).

Conclussion and Recommendation. From those findings, all society are expected to do early prevention and avoid risk factors that caused cardiovascular desease by doing a healthy lifestyle. For the next study, it needs to examine the cardiovascular desease risk factors on adolescence.

Keywords: Society, risk factor, cardiovascular desease.

INTRODUCTION

Cardiovascular desease was caused by a narrowing and blockage of blood vessels so that blood flowing to the heart stopped or the heart can no longer pump blood throughout the body. Heart desease was caused by heart and blood vessels problem, including coronary heart desease (heart attack), cerebrovascular desease (stroke), high blood presssure (hypertension), periheral artery desease, rheumatic heart desease, congenital heart desease, and heart failure. Risk factors of cardiovascular desease were tobacco use (smoking), less physical activity, and unhealthy diet (AHA, 2009).

Smoking was a biggest risk factor for the sudden death. The risk of coronary heart desease increased to 2-4 times on smokers compared with non-smokers. The risk increased with age and number of cigarette smoked. Due to clotting (thrombosis) and calcification (atrosklerosis) of blood vessels wall, smoking will obviously damage the peripheral blood vessels. The cigarette smoke inhaled by the smokers consisted of gases and particles. Gases component consisted of carbon monoxide, carbon dioxide, hydrogen cyanide, ammonia, oxides of nitrogen, and hydrocarbons (Jaya, 2009).

The other cardiovascular desease risk factor was lack of activity. This thing can cause some problems as hypertension, blood glucose raising, blood lipids raising, overweight, and obesity. Besides, it also affected the physical, psychological, social, and economic to that patients (Rosjidi, 2009). The physical activity was useful for controlling stress, freeing depression, and confussion. (Stanhope, 1998).

Central obesity or visceral can be found on fat people with the apple shape.

Fat tissue abundant in abdominal visceral. It often happened on men, menopause women, drunkers, smokers, or people who are lazy to do activities. Those type of fat tissue were metabolically active. So, the releasing of fatty acid was much more. Consequently, it was at high risk of CHD (Coronary Heart Desease). However, the people who diet and do activities will have lower risk of CHD.

This research aimed to determine cardiovascular risk factor on RT 03/01 society, Mangunsuman village, Siman Ponorogo.

LITERATURE REVIEW

Obesity as risk factor of cardiovascular disease

Obesity was the raising of weight due to the accumulation of excessive fat which became obese. The calculation of the Body Mass Index (BMI) was also used to define the obisity. The body mass index (BMI) was equal to a person's weight in kilogram (kg) divided by their height in meter (m) squared. Obesity was closely associated with unbalanced diet, where a person consumed more on protein and fat without regarding to fiber. Being an overweight increased the risk of cardiovascular desease. The greater the body mass, the more blood was needed to supply an oxigen and nourishment to the tissue of the body. It means that the blood volume spread through the blood vessels increased as if giving greater emphasis to the artery wall (Agustina, 2011).

Gender as a risk factor of cardiovascular desease, was based on the theory that the body fat total increasing of puberty occured first on woman than men (19% on female and 14% on male), while entering to early teenage, men had higher muscle mass than women (Brown, 2003).

Smoking as risk factor of cardiovascular disease

Several studies proved the relationship between smoking and Coronary Heart Desease (CHD). Approximately 40% of death caused by the heart desease before 65 years old was related to smoking habit. Smoking became a main factor which caused cardiovascular desease. Not only causing the coronary heart desease, smoking habit was also bad for brain and peripheral blood. The smoke exhaled was not only inhaled by the smokers themselves, but also by others in the air. Carsinogen was very dangerous to human body, such as monoxide carbon (CO) was very disturbing on the blood oxigen supply to the heart muscle (myocardium). Nicotine interfered the sympathetic nervous system which caused myocardial demand (Kaplan Stanler, 1994).

Cardial output and total total peripheral resistance were two main determinants that influenced the blood pressure. Then various involved factors in influencing cardiac output and total peripheral resistance will influence the blood pressure, one of them was a bad living habit as smoking. Smoking a cigarette will have a great influence on the raising of blood pressure or hypertension. It was caused by active or passive smoking which basically suck a harmful monoxide carbon (CO). Due to CO gases, it became less oxigen which caused the decreasing of supply. It was caused by the CO gases which was able to bind the hemoglobin (Hb) contained in red blood cells (erythrocytes) that was stronger than oxigen, so whenever there was smoke where the air reduced, and reed blood cells which was less of oxigen, therefore CO was transported, not O2 (oxigen). Indeed, hemoglobin bind with oxigen which was essential

for the respiration of body cells, however due to CO gases was stronger than oxigen, so CO replaced O2 in hemoglobin. The body cells, less of oxigen, will try to increase through compensation the blood vessels by way of narrowing or spasm and cause the raising of blood pressure. If the spasm process lasted long and continually, the blood vessels were easily damaged by the process of atheroclerosis that will cause cardiovascular desease (Jaya, 2009).

Less physical activity as risk factor of cardiovascular disease

Physical activity at a certain level is necessary to keep the mechanism of blood pressure can work properly. It was known, for example, blood vessels can begin small closed due to the lack of physical activity so that the shape shrunk. Activity can increase the production of energy by increasing the metabolic rate, accelerate the mobilization of fat accumulation. Lack of physical activity was a risk factor of cardiovascular desease. Regular exercise plays an important role in preventing heart and blood vessel desease. Exercise can control blood cholesterol, diabetes, and obesity as well as blood pressure (Kusmana, 2006).

METHODOLOGY

This research used descriptive design, describing how was the smoking habit of respondents, the physical activity, a description of cardiovascular desease as well as the pattern of risk factor distribution for cardiovascular desease on RT 03/01 society, mangunsuman village, Siman Ponorogo. It used four variables such as the smoking habit, physical activity patern, obesity, and cardiovascular desease incident.

Population is the whole things related to the problems studied (Nursalam, 2003). In this research, the population was the whole residents of RT 03/01 Mangunsuman village, Siman Ponorogo, which consisted of 151 people. Samples were taken from the overall majority surveyed which were considered to be representative of the population (Notoatmojo, 2002). The sample were 40 residents of RT 03/01 Mangunsuman village, Siman Ponorogo, which fulfilled the research criteria, with the purposive sampling method (Hidayat, 2005). The instruments used in this research were questionaire, observation sheet, and interview. Data anlysis is an important thing to reach the goal, where the main goal of the research is to reveal the phenomenon (Nursalim, 2003: 121). In this research, percentage was used in analyzing the data.

RESULTS AND DISCUSSION

RESULTS

1. General Data

Table 1
The distribution of General Data Frequency of Respondents

No	Variable	Frequency	%
1.	Sex :		
	Female	22	55
	male	18	45
2.	Age (year) :		
	≤ 50	21	52.5
	> 50	19	47.5
3.	Education :		
	Not educated	9	22.5
	Elementary	10	25
	Junior High School	19	47.5
	Senior High School	1	2.5
	College	1	2.5
4.	Job :		
	No Job	15	37.5
	Enterpreneur	25	62.5
5.	Cardiovascular Desease :		
	Yes	21	52.5
	No	19	47.5

Source : Primary Data

The Frequency distribution on the table above showed that 55% of respondents were female, 52.5% of them were less than 50 years old, 47.5% of respondents were educated upto Junior High School Level, 62.5% of them worked as enterpreneur, 52.5% of respondents had a cardiovascular desease history.

2. Specific Data

Tabel 2
The Distribution of Respondents' Specific Data Frequency

No	Variable	Frequency	%
1.	Smoking:		
	Yes	11	27.5
	No	29	72.5
2.	Central Obesity:		
	Yes	16	40
	No	24	60
3.	Physical Activity:		
	Hard	23	57.5
	Middle	13	32.5
	Light	4	10
4.	Cardiovascular Desease:		
	Yes	21	52.5
	No	19	47.5

Source : Primary Data

Frequency distribution on the table 6.2 above showed that 27.5% of respondents smoked, 40% of them had central obesity, 10% of respondents had light activity, and 52.5% had cardiovascular desease history.

Tabel 3
The Distribution of Respondents' Frequency of Cardiovascular Desease Risk Factors Seen from the Dominant Risk Factors

No	Risk Factors	Freq	%
1.	Obesity	16	40
2.	Smoking	11	27.5
3.	Physical Activity (Light)	4	10
	Total	31	77,5

Source : Primary Data

The frequency distribution of respondent based on the dominant risk factors of the cardiovascular desease showed that the obesity factors were 16 respondents (40%), smoking risk factors were 11 respondents (27.5%), and from the physical activity risk factors were 4 respondents (10%).

DISCUSSION

Based on table 6.2, it was known that the incident of cardiovascular desease on RT 03/01 residents of Mangunsuman village, Siman Ponorogo were 21 respondents (52.5%). Table 6.3 showed a dominant risk factors of cardiovascular desease, they were: the obesity factor was 16 respondents (40%), smoking factor was 11 respondents (27.5%), and lack of the physical activity factor was 4 respondents (10%).

1. Obesity Risk Factor

Based on the result of cross tabulation between obesity risk factors with the cardiovascular desease incident, it was known that from 21 respondents (52.5%), who had cardiovascular desease, 16 respondents were obese. Obesity was the raising of weight due to the accumulation of excessive fat which became obese. The calculation of the Body Mass Index (BMI) was also used to define the obisity. The body mass index (BMI) was equal to a person's weight in kilogram (kg) divided by their height in meter (m) squared. Obesity was closely associated with unbalanced diet, where a person consumed more on protein and fat without regarding to fiber. Being an overweight increased the risk of cardiovascular desease. The greater the body mass, the more blood was needed to supply an oxigen and nourishment to the tissue of the body. It means that the blood volume spread through the blood vessels increased as if giving greater emphasis to the artery wall (Agustina, 2011).

From the 16 respondents who were obese, 11 respondents were > 50 years old. It showed that obesity risk factor that influenced the occurence of cardiovascular desease could be affected by age. In accordance with the theory of (Waspadji, et al, 2003), at age of 50 years, the body slowly decreased its effectiveness. It lead to the damage of blood vessels, as ADH and LDH. Someone in 50 years more of his age will experience shrinkage in part of his body, including the blood vessels with fat, cholesterol and the others, which will damage and have a problem in the blood vessels of the body, namely cardiovascular desease.

From 16 respondents who were obese, 11 of them were female. Gender as a risk factor of cardiovascular desease, was based on the theory that the body fat total increasing of puberty occured first on woman than men (19% on female and 14% on male), while entering to early teenage, men had higher muscle mass than women (Brown, 2003).

2. Smoking Risk Factor

According to table 6.3 mentioned that smoking was a second dominant risk factor which caused cardiovascular desease incident on RT 03/01 society Mangunsuman village, that were 11 respondents (27.5%). From 11 respondents who smoked, 6 respondents got cardiovascular desease. Several studies proved the relationship between smoking and Coronary Heart Desease (CHD). Approximately 40% of death caused by the heart desease before 65 years old was related to smoking habit. Smoking became a main factor which caused cardiovascular desease. Not only causing the coronary heart desease, smoking habit was also bad for brain and peripheral blood. The smoke exhaled was not only inhaled by the smokers themselves, but also by others in the air. Carsinogen was very dangerous to human body, such as monoxide carbon (CO) was very disturbing on the blood oxigen supply to the heart muscle (myocardium). Nicotine interfered the sympathetic nervous system which caused myocardial demand (Kaplan Stanler, 1994).

Cardial output and total total peripheral resistance were two main determinants that influenced the blood pressure. Then various involved factors in influencing cardiac output and total peripheral resistance will influence the blood pressure, one of them was a bad living habit as smoking. Smoking a cigarette will have a great influence on the raising of blood pressure or hypertension. It was caused by active or passive smoking which basically suck a harmful monoxide carbon (CO). Due to CO gases, it became less oxigen which caused the decreasing of supply. It was caused by the CO gases which was able to bind the hemoglobin (Hb) contained in red blood cells (erythrocytes) that was stronger than oxigen, so whenever there was smoke where the air reduced, and reed blood cells which was less of oxigen, therefore CO was transported, not O2 (oxigen). Indeed, hemoglobin bind with oxigen which was essential for the respiration of body cells, however due to CO gases was stronger than oxigen, so CO replaced O2 in hemoglobin. The body cells, less of oxigen, will try to increase through compensation the blood vessels by way of narrowing or spasm and cause the raising of blood pressure. If the spasm process lasted long and continually, the blood vessels were easily damaged by the process of atheroclerosis that will cause cardiovascular desease (Jaya, 2009).

Based on the data found that respondets who smoked were all male. It showed that the gender affected on smoking habit. It was in line with the theory that men had a different lifestyle with women, where men regarded smoking had special sensation and this smoking behavior usually came from their close friend, especially the same sex with the social boost. In addition, smoking for men was a symbol of men behavior. It was a symbol of maturity, strength, leadership, and attractiveness to the opposite sex (Brian, 2005).

3. Less Physical Activity Risk Factor

In accodance to table 6.3 mentioned that the lack of physical activity was a risk factor which caused the third dominant cardiovascular desease events on RT 03/01 people Mangunsuman village, that was 4 respondents (10%). From those 4 respondents, 3 of them had cardiovascular desease. Physical activity at a certain level is necessary to keep the mechanism of blood pressure can work properly. It was known, for example, blood vessels can begin small closed due to the lack of physical activity so that the shape shrunk. Activity can increase the production of energy by increasing the metabolic rate, accelerate the mobilization of fat accumulation. Lack of physical activity was a risk factor of cardiovascular desease. Regular exercise plays an important role in preventing heart and blood vessel desease. Exercise can control blood cholesterol, diabetes, and obesity as well as blood pressure (Kusmana, 2006).

The World Health Organization (WHO) stated that lifestyle of sitting within longtime caused 1 in 10 deaths and disability, and more than two million deaths each year were caused by lack of moving or physical activity. Therefore, physical activity was needed to maintain good health. Actually, compared to the other activities, on 50 respondents reported that they had habit of sitting a long. The average of people sitting on each day was 4 hours. It derived from calculating the average of the interview results with the cardiovascular patients. Someone, who often sit, had a high risk of cardiovascular desease. Still in line, the study of Morris (quoted from Kusmana, 2006) which compared bus conductor with the driver, it turned out that bus drivers suffered from heart desease more than conductor. It should also be noted that on each individual who suffered from cardiovascular and had different types and characters, one with a heavy work is possible to suffer from cardiovascular desease. It was not only caused by lack of physical activity, but also supported by the other factors, such as obesity, sedentary lifestyle, smoking etc. which also lead to threat of death.

CONCLUSSION AND RECOMMENDATION

The incidence of cardiovascular desease on the RT 03/01 society, Mangunsuman village, Siman Distric, Ponorogo, was 21 respondents (52.5%). Obesity was the most dominant risk factor of cardiovascular desease on these people that was 16 respondents (40%). Smoking was the second risk factor for the occurence of cardiovascular desease there, which was 11 respondents (27.5%). Lack of physical activity was the third risk factor of cardiovascular desease in the RT 03/01 community, Mangunsuman village, Siman Ponorogo, that was 4 respondents (10%)

Society, then, are expexted to do early prevention and avoid the risk facors that cause cardiovascular desease by habituating themselves on a healthy lifestyle. Next study is expected to examine the risk factors of cardiovasscular desease on adolescents.

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