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The Frequency of Cardiovascular Diseases and Some Risk Factors in Patients Admitted to Khorramabad Cardiology Centre

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ABSTRACT

Cardiovascular disease is known to be the most important cause of death in Iran. The aim of this study was to determine the frequency of cardiovascular disease and their risk factors in Khorramabad. This epidemiologic cross-sectional study was carried out on 280 patients who were admitted in heart units, coronary care units and heart emergencies of educational hospitals. The sampling method was the census method. Data were obtained from the checklist and included demographic information, different types of cardiovascular disease, and cardiovascular risk factors. The most common cardiovascular disease was unstable angina (36.78), the first symptom of coronary artery disease was chest pain (67.8%), 62.85% were overweight or obese, 40.4%had a history of hypertension, 92.83% did not exercise, 147 (5.52%) were inactive, 72 (25/7%) had a history of smoking, 84(30%) had a family history of heart disease. Fifty-one (18/2%) had a history of narcotic use and the use of opium. According to the findings of this and other similar studies, the frequency of cardiovascular disease differs in terms of country and region, although they are total of high prevalence. Therefore, given the high prevalence of risk factors related to lifestyles including obesity and overweight, physical inactivity, high blood pressure, and smoking, planning education programs, screening and changing lifestyles seems to be necessary.

Keywords: Cardiovascular disease; Risk Factors; Frequency

Introduction:

Almost in all European countries, cardiovascular disease (CVD) is the cause of mortality and hospitalization in both male and female groups [1], and it is the cause of over 25% mortalities in India [2] and about 50% of mortalities in South America [3]. Cardiovascular diseases are recognized as the main mortality factor in Iran, and even death perspective in 18 provinces in Iran indicates that 46% of total mortalities and 2.27% of potential years of life lost result from these diseases [4]. The most common cardiovascular diseases include atherosclerosis, heart attack, and cardiac arrhythmias. There are limited data regarding prevalence and prevention from CVD except for some limited cases. Health studies and experimental reports are necessary for investigating the frequency and distribution of the disease for effective treatment, determining risk factors, and prevention program. According to the European Cardiovascular Care Project, CVD includes myocardial infarction, heart failure, pectorial angina, peripheral arterial disease, heart attack, and ischemic heart disease [1]. The most

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common heart disease in South Asia is coronary artery disease [5]. In a study at Boston University, the following cases were reported as the most common heart diseases: coronary artery disease, cerebrovascular disease, peripheral vascular disease, and heart failure [6]. Research in Spain has shown that there is still little information about the coronary disease in Spain [7]. High blood pressure, diabetes, psychological factors, and abdominal obesity are the most important risk factors for cardiovascular disease, but these have relatively different effects in different areas and in different societies in the world [8, 9].

Considering the fact that risk factors and type of heart disease in different parts of the world are relatively different according to various studies, the current research was conducted with the aim of determining the frequency of heart diseases and their risk factors in Khorramabad Heart Center.

Materials and Methods

In this cross-sectional descriptive study, the statistical population included patients admitted to cardiac emergency, cardiac wards, and CCU in Khorramabad Heart Center and affiliated towns. Two hundred and eighty patients were selected. Data were collected using a checklist taken from reliable resources and material related to cardiovascular diseases and ideas of cardiologists. For content validity, ideas of five faculty members of the Department of Cardiology and Nursing were utilized. Reliability of the tool was also supported by Cronbach's alpha as 0.8 following a pilot study on 25 patients of the study sample.

The checklist included demographic information and other data based on the research goals including cardiovascular disease type based on the physician's diagnosis and information contained in the patient's file, cholesterol and triglyceride levels based on laboratory results, the first symptom of the disease's onset, history of chronic diseases including hypertension, renal disease, respiratory disease, use of tobacco, drugs, alcohol, family history of cardiovascular disease and history of oral contraceptive use in women based on the patient's question and answer, and body mass index (BMI). BMI calculated based on the weight (kg)/height (m^2) formula, and BMI less than 18.5 was considered as low, between 18.5-24.9 as normal weight, between 25-29.9 was overweight and over 30 was considered as obese. Status of mobility and exercise was examined based on the international physical activity questionnaire. The researchers and their major colleagues collected data during the study within an interview with patients, measurement of weight and height, and completion of the questionnaire.

Following data collection, results were presented in the form of a report of ratios, and central and dispersion indexes, the chi-square test was used for data analysis, and results were reported at a significance level of 0.05

Results

Out of 180 patients, 151 patients (53.9%) were male and 269 patients (96.1%) were married. In terms of age, majority of 202 patients (72.1%) were between the ages of 50 - 79 years. One hundred and ninety five patients (69.6%) were residents in cities.

Among all types of cardiovascular disease, the most cases were related to unstable angina in 103 patients (36.78%), and myocardial infarction in 92 patients (32.85%) (Table 1). The first symptom of the disease in 215 patients (76.8%) was chest pain (Table 2).

Out of 129 women admitted, 38 (29.46%) had history of contraceptive use. Two hundred and twenty two (97.3%) used various drugs, including anti-hypertension and anti-diabetic drugs. Sixteen patients (7.5%) had already undergone heart surgery. Frequency of other risk factors and history of research units are reported in Table 3.

Table 1. Frequency of cardiovascular diseases based on the type of disease in hospitalized patients in Khorramabad Heart Centre

Type of disease	Frequency (%)	Type of disease	*Frequency (%)*
Myocardial infarction	92(32.9%)	**Supraventricular tachycardia**	4(1.4%)
Unstable angina	103 (36.8%)	**Heart failure**	6(2.1%)
Atrial fibrillation	19(6.8%)	**Coronary artery occlusion**	23(8.2%)
Ischemia	9(3.2%)	**Right Bandle Branch Block**	1(0.4%)
Hypertension	4 (28.3%)	**Left Bandle Branch Block**	9(3.2%)
Valve stenosis	1(1.4%)	**Atrial tachycardia**	2(0.7%)
Pericardial effusion	6(2.1%)	**Cardiomegaly**	1(0.4%)

Table 2. Frequency of the first signs of cardiovascular disease in hospitalized patients in Khorramabad Heart Centre

First sign	Frequency (%)	First sign	*Frequency (%)*
Chest pain	215(76.8%)	**Shortness of breath**	10(3.57%)
Nausea and vomiting	19(6.8%)	**Other symptoms** (pain in the left arm, heartburn, neck pain...)	22(7.86%)
Palpitation	11(3.9%)	**No sign**	3(1.07%)

Table 3. Frequency of hospitalized patients in Khorramabad Heart Centre in terms of risk factors and patient

Variable		Frequency (%)	Variable		*Frequency (%)*
Hypertension		113(40.4%)	**Asthma**		25(8.9%)
No exercise		235(83.92%)	**Family history of CVD**		84(30%)
Inactivity		147(52.5%)	**Opium use**		51(18.2%)
Smoking		72(25.7%)	**Alcohol consumption**		3(1.1%)
High Cholesterol		73(26.1%)	**Saturated oil**		142(50.7%)
High Triglyceride		57(20.4%)	**Diabetes mellitus**		71(25.4%)
BMI	Obese	62(22.1%)	**Renal disease**		39(13.92%)
	Overweight	114(40.7%)	**Daily intake of fruits and vegetables**	Above moderate	205(73.21%)
	Normal	101(36.1%)		Low and very low	75(26.79%)
	Thin	3(1.1%)			

There is no significant relationship between any of the risk factors and type of cardiovascular disease. Four patients (1.4%) died during the study.

In the current study, less than half of the patients were female, which is consistent with the study by Lenzen et al. conducted to investigate patients with heart failure and difference between male and female samples [10]. Majority of the patients were married, which is similar to the study by Khosravi et al. [11].

In this study, the majority of the patients were between the ages of 50 - 79 years, which is similar to other studies, because there are at least two or multiple risk factors of cardiovascular diseases in men and women after 50 years [12].

According to the obtained results, unstable angina and myocardial infarction showed the highest frequency.

In the study of Primatesta (2007), the most common cardiovascular diseases included atherosclerosis, cardiac ischemia, heart attack, and heart failure [1]. The most common cardiac disease in Eastern Asia was coronary heart disease (CHD) [5]. In the study of Agostin's (2008) in Boston, the most common cardiovascular diseases were reported as coronary artery disease, cerebrovascular disease, peripheral vascular disease, and heart failure [6].

In the study of the subjects, the most common symptom of disease's onset was chest pain. However, in some patients, it may be painless, because of ischemic stasis, or because of blockage of blood flow, the symptoms may include chest pain with coughing for some minutes, pain in shoulder, arm, and neck, lightness in head, sweating, fainting, nausea, shortness of breath, weakness of the arms and legs, loss of face or body sensation, difficulty in speaking, sudden loss of vision in one eye, dizziness and severe headache [13]. History of hypertension, high cholesterol, and triglyceride level were other major risk factors in this study. In the study by Hosseinzadeh (2009), entitled "Investigating the prevalence of risk factors and adult characteristics of patients with heart failure, it was shown that hypertension had the highest prevalence (62.9%). It was followed by hyperlipidemia (45.2%), diabetes (35.9%), familial history (23.1%), smoking (30.5%), drug abuse (5.11%), and alcohol (4.5%) [14].

BMI in over one-fourth of samples was equal or above 29. Overweight and obesity was reported as a risk factor for cardiovascular diseases in the studies, although, obesity brings about the highest risk [15].

In this study, a low number of individuals did exercise and over half of the individuals were low mobile individuals. Exercise can reduce the risk of cardiovascular diseases because it helps in weight control and the body's ability to use insulin, improvement of the heart muscle, increasing High-density lipoprotein cholesterol (HDL) cholesterol level, reduced stress, and reduction of blood pressure [16]. In a study by Sharifirad et al. (2007), entitled "investigation of relationship between cardiovascular diseases in old people and physical education history in the elderly", the results showed that 46.3% of the elderly walked regularly (at least three times a week) in the middle-aged and 48.2% walked occasionally. Overall, there is a significant difference between the level of walking, exercise, cycling, and mountain climbing in middle age with cardiovascular diseases in elderly [4].

Over one-fourth of the participants in this research had a history of smoking. In a study by Oliviera (2007) aimed at investigating the impact of tobacco smoking on risk of acute myocardial infarction in young adults (≤45), 329 patients with acute myocardial infarction and 778 patients in control group were compared. Acute myocardial infarction was supported in those that smoked 8-25 cigarettes daily compared to those who did not smoke at all [17]. In the study by Kazerani (1996), the most common risk factor of myocardial infarction was smoking followed by hypertension [18]. 25.4% of the participants had a history of diabetes mellitus. In addition, in the study by Hosseinzadeh (2009), a history of diabetes was 35.9% [14]. Diabetes increases the risk of heart failure in both men and women [19].

Familial history of cardiovascular disease was observed in about one-third of research units. In a study by Alagebandan et al. (2009), entitled "investigation of cardiac risk factors in patients with myocardial infarction", familial history of cardiac disease was present in 53% of cases [19]. It was 23.1% in the study by Hosseinzadeh (2009) [14].

Some participants had a history of drug abuse, and they used opium. In a case-control study conducted in Isfahan University of Medical Sciences, three hundred and sixty opioid addicted smokers (case group) and 360 non-addicted smokers (control group) were selected and the blood concentration of morphine in both groups was measured. The results showed that morphine blood concentrations were higher in those who consumed opium orally, and the levels of C-reactive protein (CRP), HbA1C, factor VII, Lipopolysaccharides (LPS), Apolipoprotein B and fibrinogen, Aspartate aminotransferase (AST), alanine aminotransferase (ALT) were significantly higher than that of the control group. However, HDL and antioxidant capacity were significantly lower in the case group. Findings of this study showed that opium has a destructive effect on new cardiovascular risk factors [20].

A low percentage of participants had a history of alcohol consumption. In a study on 27030 Korean men, the relationship between alcohol consumption, BMI, and CVD risk factors including blood pressure, lipid and fasting glucose levels were studied. Results showed that BMI and weight are increased by alcohol consumption. Alcohol consumption showed a significant relationship with increased blood pressure and HDL, triglyceride and fasting glucose [21].

Among the women under study, 13.6% had contraceptive consumption history. The reproductive hormones affect the function of the blood vessels, and especially blood lipid levels. The mortality rate in 35-44 years old women in America was increased in 2000, while it was decreased in other age groups. The factors that might be related to the mortality included increased weight, smoking, reduced physical activity, and especially increased use of oral contraceptives [22]. Consumption of oral contraceptive does not increase the risk of myocardial infarction, but it increases the thromboembolism of the vessels [23]. Every woman who uses contraceptive should be examined in terms of cholesterol level, blood pressure, smoking, diabetes, renal problems, obesity, and other vascular diseases such as a migraine [22, 23].

Daily consumption of vegetables and fruits was low and very low in over half of the research units. Many studies have shown the relationship between cardiovascular diseases and nutrition. Adequate consumption of vegetables and fruits in rich people has reduced prevalence of cardiovascular diseases. In a study in New York, 49% of adult population consumed fruits three times or more, and 27.8% consumed vegetables less than three times per day; however, both fruits and vegetables should be consumed five times per day [24]. Some studies have indicated the direct relationship between the consumption of vegetables and fruits and the development of CVD. Many fruits and vegetables reduce the risk of CVD due to the presence of fiber, potassium, antioxidant, omega-3, vitamins and minerals [25]. The oil used by more than half of the participants was saturated oil. In a study conducted by Masoomi et al. (2009) in the Kermanshah Medical Center's Biomedical Research Center, aimed at verifying the label of some of oils available in Iran, it was concluded that trans fatty acids are available in a large number of saturated oils and some liquid frying oils and vegetable oils in Iran, and some believe that these oils, due to trans fatty acid, increase the risk of coronary artery disease 2-10 times compared to use of unsaturated fatty acids [26].

Since this study was conducted as sectional, it is recommended that more extensive studies with experiments being conducted.

Conclusion

Given the research findings and findings in similar studies, the frequency of different types of CVD varies in different regions and countries; however, overall CVDs are in high prevalence. Thus due to high prevalence of risk factors related to lifestyle, including obesity and overweight, diabetes mellitus, inactivity, high blood pressure, high cholesterol, stress, smoking and alcohol consumption, implementing educational programs, screening and changing lifestyle of individuals in early childhood and adolescence seem necessary in order to prevent cardiovascular diseaes and reduce costs an and resulting mortality

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