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The incidence of heart attacks among young individuals in Mosul City

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Abstract:

BACKGROUND: Rapid socioeconomic progress has greatly affected the world, and the risk of cardiovascular diseases (CVDs) has increased. The growing burden of CVDs has become a major public health issue. The study aimed to identify the main risk factors that lead to the contribution of heart attacks among young people in Mosul City, Iraq.

MATERIALS AND METHODS: The study was dependent on achieving the objectives through a descriptive study design that was performed in the emergency medical wards of three teaching hospitals in Mosul City, Iraq. The sample was the convenience of patients who were admitted to the emergency department and who had signs and symptoms of heart attacks during the period of data collection starting from November 1, 2022, until April 1, 2023. The participants were 247 cases recorded during that period, and their ages ranged between 20 and 45 years. The tool used in this study from the World Health Organization (WHO) is related to risk factors for CVDs and consists of eleven items.

RESULTS: Approximately seventy percent of the study sample was male, 68.4% were less than 39 years, and 35.6% of them were diagnosed with heart diseases (angina and myocardial infarction) that require hospitalization, and there are several risk factors in the study sample, the most prominent of which were physical inactivity (88.6%), following unhealthy diet patterns (87.5%) and hypertension (69.3%).

CONCLUSION: The study concluded that the risky health factors that contribute to the occurrence of heart attacks among young people in this study are hypertension, high blood cholesterol, unhealthy diet, heavy smoking, stress, family history, alcohol drinking, obesity, and diabetes mellitus (DB).

Keywords:

Heart attacks, incidence, risk factors, young individuals

Introduction

The main cardiovascular diseases (CVDs) are ischemic heart disease (IHD), stable or unstable angina, myocardial infarction, heart failure, and heart block. All these cause dysfunctions with some prominent signs and symptoms, such as chest pain, chest tightness, and discomfort, and pain in the neck, jaw, and throat, weakness or numb legs and/or arms, fatigue, shortness of breath, feeling dizzy, nausea or vomiting, sweating, and fainting (syncope) may occur.^[1] Globally, CVDs are considered the main cause of death. An estimated 17.9

million patients died from CVDs in 2019, a ratio representing 32% of all global deaths, and 85% were due to heart attacks. Over three-quarters of CVD deaths take place in low- and middle-income countries. Of the 17 million deaths (under the age of 70 years) due to noncommunicable diseases in 2019, 38% were caused by CVDs. Most CVDs can be prevented by addressing behavioral risk factors, such as unhealthy diet, obesity, substance abuse, physical inactivity, and addiction to alcohol.^[2] The adults described as young (18–45 years) have developed increasing risk factors over the past two decades, leading to heart attacks and cardiovascular problems among multiage

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young and old. Contrary to the trend of what is known, the incidence of CVD in adults over 50 years of age is the highest number.^[3] Heart diseases may occur due to several variables and risk factors, such as age, sex, tobacco habits, physical inactivity, excessive alcohol consumption, fatty liver disease, diet and nutritional kind, obesity, genetic and family history of CVD, diabetes mellitus (DB), hypertension, psychosocial factors, hyperlipidemia, poverty, low educational status, air pollution, and poor sleep.^[4,5] This study aimed to identify the main risk factors that lead to contribution of heart attacks among young people in Mosul City, Iraq.

Materials and Methods

Study design and setting

A cross-sectional design was conducted in the emergency medical wards of three teaching hospitals in the City of Mosul, Iraq, which are Ibn Sina Teaching Hospital, Al Salam General Teaching Hospital, and Aljumhory Teaching Hospital.

Study participants and sampling

All patients who were admitted to the emergency units and who had signs and symptoms of heart attacks during the period of data collection were included. The sample was selected for 6 months. The participants were two hundred and forty-seven (247) cases recorded during that period, and their ages ranged between 20 and 45 years.

Data collection tool and technique

The standard tool used in this study was composed of two parts. Demographic characteristics of the sample were age, gender, occupation, marital status, and address, which was the first part, while the second part includes a tool from the World Health Organization (WHO) website related to risk factors for CVDs consisting of eleven items.^[5] Each item of the instrument was used by two selections (yes or no). The direct interview method depended on the collection of data from the study samples when they were staying in the medical wards, which included reviewing patients' chart and their investigations. The study was started from November 1, 2022, until April 1, 2023, in the three abovementioned hospitals in Mosul City.

Ethical consideration

The ethical approval for this study was obtained from the Nursing College or Department of Clinical Nursing Sciences, and the Scientific Committee.

Results

Table 1 involves the demographic data of the participants. The high age group of the sample was 38.9% for an age range of 35–39 years. With regard to gender, 70.4% were

males. However, 35.2% were employed, and the majority of the participants (87.4%) were married, and 53.4% had a rural address.

Table 2 shows that 88 patients (35.6%) were diagnosed with heart diseases that require hospitalization.

Table 3 demonstrates a significant relationship between some risk factors and the incidence of CVDs, such as hypertension, high blood cholesterol, heavy smoking, unhealthy diet, physical inactivity, obesity, alcohol drinking, DB, depression, and family history of heart disease, using the Chi-square test at a *P* value of 0.05.

Table 1: Demographical data of the study sample (n=247)

Demographical data	Items	Frequency	Percentage
Age group	20–24 years	11	4.5%
	25–29 years	24	9.7%
	30–34 years	38	15.4%
	35–39 years	96	38.9%
	40–45 years	78	31.6%
Gender	Male	174	70.4%
	Female	73	29.6%
Occupation	Homework	66	26.7%
	Free work	79	32%
	Employee	87	35.2%
	Student	15	6.1%
Marital status	Single	31	12.6%
	Marred	216	87.4%
Address	Urban	115	46.6%
	Rural	132	53.4%

Table 2: Number of patients who have been medically diagnosed with heart disease

Presence of the heart disease	Frequency	Percentage
No heart disease	159	64.4%
Angina pectoris	55	22.2%
Myocardial infarction (MI)	33	13.4%
Total	247	100%

Table 3: Association between the risk factors and variables with incidence of heart attacks

No.	Risk factors and variables	df	Chi-square value	<i>P</i>	Sig.
1	Hypertension	1	0.748	0.00	H.S.
2	High blood cholesterol	1	0.405	0.00	H.S.
3	Heavy smoking	1	0.393	0.00	H.S.
4	Unhealthy diet	1	0.290	0.02	S.
5	Physical inactivity	1	-0.075	0.236	N.S.
6	Obesity	1	0.241	0.00	H.S.
7	Alcohol drink	1	0.193	0.02	S.
8	Diabetes mellitus	1	0.398	0.00	H.S.
9	Stress	1	0.283	0.00	H.S.
10	Family history of heart diseases	1	0.441	0.02	S.
11	Sleep disorders	1	0.171	0.07	H.S.

df=Degree of freedom, Sig.=Significant, H.S.=High significant, S.=Significant, N.S.=Not significant

Discussion

The results of the present study showed that 69.3% of the sample had hypertension, which is one of the most important risk factors for heart disease, according to Figure 1. Also, hypertension was associated with a higher risk of CVD and all-cause mortality,^[2] and the associations were stronger with a younger age of onset in the <45-year-old group.^[6] Other studies mentioned that a progressive connection was found between increasing blood pressure (BP) and categories, which are increased risk factors and complicated CVDs.^[7,8] At a young age, more exposures to elevated systolic BP, diastolic BP, and cholesterol with low-density lipoprotein (LDL) were associated with an increased chance of CVD.^[9] This information explained the result that appeared: 45.5% of our subjects had high blood cholesterol. Half of the study sample (40.9%) smoked more than twenty cigarettes per day, according to Figure 1. Tobacco smoking continues to be a major risk factor for CVD and the leading avoidable cause of death worldwide.^[10] Smoking increases mortality and has a crucial role in atherosclerotic CVD. Active and passive smoking exposure determines more than 30% of coronary heart disease mortality. The mortality is higher in females, and male smokers and female smokers show a 25% higher risk of developing coronary heart disease (CHD) than men with the same exposure to tobacco smoke. Cigarette smoking is not only a risk factor for chronic CVDs, but it is also an inducer of acute atherothrombotic events, such as stroke or myocardial infarction, and has an impact on glucose tolerance and levels of high-density lipoprotein (HDL) cholesterol.^[11] Healthy food with controlled nutrition is very important for health in general and heart health, in particular, to improve diet quality and promote cardiovascular health.^[12] In this study, 87.5% of the

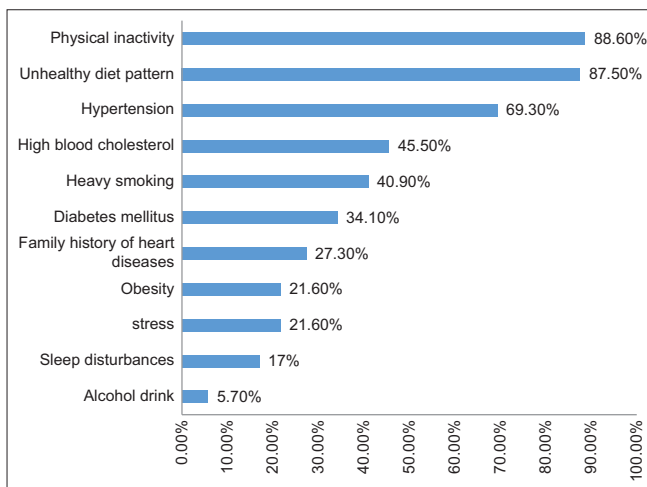


Figure 1: Physical inactivity, eating unhealthy diet, arterial hypertension, high blood cholesterol, heavy smoking of cigarettes, and diabetes mellitus were some of the most important and highest risk factors recorded for those diagnosed with heart disease

participants follow or eat a random and unbalanced diet that does not necessarily contain all the necessary nutrients that the body needs, which influences health and heart status. However, there was neglect in the physical and athletic aspects and a significant and clear weakness in their physical fitness under the pretext of lack of time for those conditions, whereas 88.60% of them mentioned that they do not have any physical activity or sports. This is explained by the fact that the WHO has established clear guidelines on the minimal amount of physical activity necessary to maintain adequate health and fitness, and physical fitness has been independently associated with the risk of early cardiovascular death in the population.^[13] Also, other risk factors in this study were that 34.1% had type 2 DM, which is a risk factor for CVDs, and the patients with type 2 DM or prediabetes were associated with an increased risk of mortality from CVD across different sexes.^[14] The most common cardiovascular manifestations in those with DM include heart failure, peripheral arterial disease, and coronary heart disease.^[14,15] In the current study, 21.6% were obese, and several studies reported that obesity is associated with increased morbidity and mortality of CVD and is the leading cause of mortality,^[16] accounting for approximately 70% of deaths in people with obesity.^[17,18] Psychosocial stress and depression are characterized by alterations in change in mood, behavior, and affection,^[19] and there are relationships between CVD and psychosocial disorders resulting from stress, according to the latest data from the WHO.^[20] This may explain our result, where 21.6% suffer from daily life anxiety and stress. Choi, Y., and Choi, J. W. (2020) and Hsieh, C. G., and Martin, J. L. (2019) said in their study that insufficient sleep and insomnia have been significantly affecting the incidence of CVD in the general population.^[21,22] A healthy sleep pattern, including early chorotype, sleep (7–8) hours every 24 h, and no frequent excessive daytime sleepiness, reduces the risk of CVD, CHD, and stroke.^[23] In our study sample, 17% of the young patients who were hospitalized had irregular sleep patterns. Other studies have listed in their studies a link between a family history of heart disease and the occurrence of diseases.^[24,25] This opinion was clear in our data, where 27.3% of the study sample had been diagnosed with heart disease due to their familial heredity. Many studies mentioned that alcohol abuse of any amount increased the risk of CVD and the association between alcohol intake and CVD, which remains the leading global cause of death.^[26,27] However, the percentage of those who drank alcohol in our study was a small number (5.7%), but all of them who were admitted to the hospital were diagnosed with heart disease. Finally, the study expected the emergence of these results in Iraqi society. There are many reasons for this evidence, including the period of wars that lasted more than a quarter century, which led to the deterioration of the economic situation in our country

and people and, furthermore, the weakness of health services with the destruction of their infrastructure, and the points mentioned above made negative feedback to the persons and community about seeking and providing the basic healthy living requirements for clients and their family. In conclusion, neglect of health status by eating unhealthy food with unbalanced nutrition, limited time of exercise, excessive obesity, heavy smoking, and stress with worry about the future take action and react effectively to increase the incidence of many types of heart disease, which begin at an early age during the thirties and forties.

Limitation and recommendation

There are some cases who refused to enroll in our study, some cases had inconvenient health conditions and were very tired, and some of them transferred to other hospitals; researchers were unable to follow up with them. Depending on the research conclusion, the researchers made several recommendations that should change the results of future studies on the same subjects. The health status reassessment was performed every 6 months for young age, in particular those who have a history of chronic disease; however, the health education programs for diet and physical activity are active in improving concepts and knowledge to reduce stress.

Conclusion

The study concluded that there are many risky health factors that contribute to the occurrence of heart attacks among young people, such as hypertension, high blood cholesterol, unhealthy diet, heavy smoking, stress, family history, alcohol drinking, obesity, and DB.

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Conflicts of interest

There are no conflicts of interest.

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