ISCHAEMIC HEART DISEASE AND RELATED RISK FACTORS IN MISSAN GOVERNORATE

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ABSTRACT

In this cross-sectional study 344 patients with symptoms or signs suggestive of ischaemic heart disease were admitted to the coronary care unit in Al-sadder General Hospital in Al-Ammara city from August2000 to May 2001. The most frequent complaint was chest pain (77.6% of patients admitted). Out of the 344) patients admitted, 306 patients (89%) were found to have abnormal ECG changes of different, varieties and the remaining 38(11%) were found to have normal ECG. The aim of the study was to shed light on the incidence and nature of ischemic heart disease among patients admitted from emergency department to the coronary care unit with particular concentration in the risk factors associated with the disease.

INTRODUCTION

Ischaemic heart disease is the most common form of heart diseases and the single most important cause of premature death in the developed world. The clinical manifestations of ischemic heart disease include angina pectoris (stable and unstable), acute myocardial infarction, heart failure, arrhythmias and sudden death.[1] The symptoms caused by heart disease result most commonly from myocardial ischemia, Ischemia refer to lack of oxygen due to inadequate perfusion. Ischemic heart diseases are conditions of diverse etiology all having in common disturbance of cardiac function due to an imbalance between oxygen supply and demand.[2] The pain of cardiac ischemia is characteristically crushing, gripping, and tight in nature.[3] The common underlying pathology is atherosclerosis of coronary arteries. Atherosclerosis appears to provide the necessary background for most IHD events but it may not be a sufficient cause in itself. A number of factors have been found to be associated with increased risk of ischemic heart disease, these are called risk factors.[4] Ischemic heart disease would appear to be suitable condition for primary prevention because it is relatively common and its risk factors (smoking, hypertension, high blood cholesterol, obesity and lack of exercise) are amenable to change either by education or Medications. [4] Atherosclerosis is a slow process taking many years, and perhaps starting in the late teens. The other mechanism in the pathophysiology of IHD is coronary spasm. [5] At least three independent predictors of risk are valuable in anticipating increased incidence of atherosclerosis; hypelipidemia, cigarette smoking, and hypertension. [6] Risk factors can be grouped into two broad categories: unmodifiable (such as older age, male gender, and family history of premature heart disease) and potentially modifiable (such as cigarette smoking, high blood pressure, high blood cholesterol level, diabetes, and the less prognostic factors of overweight, physical inactivity, and psychological factors). These factors can be used to identify clearly those in the population who are at especially high risk of developing cardiovascular disease.[7] The recognition, management, and prevention of coronary artery disease are of major public health importance.[8] The aims of the study was study the nature of ischemic heart disease among patients admitted from the emergency department to the CCU and the most common risk factors related to it.

PATIENTS AND METHODS

In this cross-sectional study all patients presenting with symptoms suggestive of ischemic heart disease (such as chest pain, palpitations, shortness of breath, upper abdominal discomfort, or dizziness), admitted to the coronary care unit in Al-Sadder General Hospital in Al-Ammara for further measures regarding diagnosis and treatment from August 2000 to May 2001, were included. All these patients were evaluated clinically and investigated by the available laboratory tests related to cardiac diseases. These investigations included ECG, chest X-ray, fasting blood sugar, serum cholesterol and cardiac enzymes (such as SGOT, CPK and LDH). Patients with normal

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ECG and no other clinical or laboratory clues of IHD are considered to have no cardiac disease for the sake of this study. Abnormal ECG changes re interpreted in the light of clinical presentation and relevant laboratory results. Parameters taken into consideration for interpretation and analysis in this study are; age sex, address, history of smoking, blood pressure level, electrocardiogram, fasting blood sugar, and serum cholesterol level. Hypertensive patients are those with blood pressure of more than 140/90 mm.Hg. or those on maintenance antihypertensive treatment. Patient's blood cholesterol levels in access of 220 *mg/dl* were considered to have hyperrcholesterolemia. All age groups were included in this study. Patients with valvular heart disease, cardiomyopathy, thyroid gland disease, or chronic obstructive airway disease were excluded.

RESULTS

In this cross-sectional study, 344 patients with complaints suggestive of ischemic heart disease were admitted to the coronary care unit in Al-Sadder General Hospital in Al-Ammara (55.8%) were males and 152 (44.2%) were females. The most frequent complaint was chest pain (77.61%), followed by other symptoms such as shortness of breath, palpitations, upper abdominal discomfort and dizziness. (Table-1)

Table 1. Presenting symptoms among patients admitted to the CCU with provisional diagnosis of ischemic heart disease.

Symptom	No.	%
Chest pain	267	77.6
Shortness of breath	31	9.0
Palpitation	24	7.0
Upper abdominal pain	12	3.5
Dizziness	10	2.9

In this study patients of all age groups were involved with those who were older than 45 years of age were being the most common age group with higher proportion of males. (Table-2)

Table 2. Age and sex distribution of patients admitted to the CCU with provisional diagnosis of ischemic heart disease.

Age (years)	Male	%	Female	%	Total	%
< 35	7	2	9	2.6	16	4.7
36-45	22	6.4	10	2.9	32	9.3
46-55	40	11.6	36	10.5	76	22.1
56-65	75	21.8	62	18	137	39.8
> 65	48	14	35	10.2	83	24.1
Total	192	100.0	152	100.0	344	100.0

Out of the 344 patients evaluated, 306 (89%) were found to have abnormal ECG changes suggestive of ischemic heart disease and the remaining 38 (11%) were found to have normal ECG (Table-3).

Table 3. The ECG findings of patients admitted to the CCU in Al-Ammara General hospital 2000-2001

ECG change	No.	%	Male	%	Female	%
Acute M.I	129	37.5	82	42.7	47	30.9
Angina pectoris	94	27.3	53	27.6	41	27.0
Arrhythmias	83	24.1	42	21.9	41	27.0
Normal ECG	38	11.1	15	7.8	23	15.1
Total	344	100.0	192	100.0	152	100.0

Acute myocardial infarction was the most frequent ECG finding in both sexes. (Table-3) The age and sex distribution of patients with acute myocardial infarction is shown in (Table-4.) The majority of cases in both sexes were in the age group 56-65 years.

Table 4. The age and sex distribution of patients with acute myocardial infarction.

Age	Male		Female		Total	
	No.	*%*	*No.*	*%*	*No.*	*%*
35	2	2.4	2	4.3	4	3.1
36-45	10	12.2	1	2.1	11	8.5
46-55	19	23.2	11	23.4	30	23.3
56-65	30	36.6	19	40.4	49	38.0
> 65	21	25.6	14	29.8	35	27.1
Total	82	100.0	47	100.0	129	100.0

Out of the 344 patients admitted, 83 (24.1%) were found to have cardiac arrhythmias of different types with atrial fibrillation as being the most frequent. (Table-5). Out of the 306 patients with ECG changes suggestive of ischemic heart disease, 152 (49.67%) were smokers, 120 patients (39.2%) were hypertensive, 74 (24.1%) were diabetic, and the remaining 58 patients (19%) were found to have blood cholesterol level more than 220 mg/dl

Table 5. Types of arrhythmias among patients admitted to the CCU in Al-Ammara general hospital 2000-2001.

Arrhythmia	No.	%
Atrial fibrillation	43	51.8
Supraventicular tachycardia	14	16.9
Hear block	8	9.6
Premature ventricular complex	8	9.6
Left bundle branch block	7	8.4
Right boundle branch block	3	3.6
Total	83	100

DISCUSSION

This study was carried out to shed light on the nature of IHD among patients admitted from the emergency department to the coronary care unit with particular concentration on the risk factors associated with IHD in Missan province. Because of the lack of studies regarding IHD in this province, we hope that this study may present baseline data for future, probably more informative studies regarding this disease in this province. In this study, 344 patients were admitted from the emergency department to the coronary care unit because of symptoms suggestive of IHD. Chest pain was the most frequent complaint and was the presenting symptom in 77.6% of patients. It has been suggested that chest pain is he Cinderella to acute coronary syndromes. [10] In a study, approximately 20% of patients with chest pain carry the final hospital diagnosis of acute myocardial infarction, 35% stable or instable angina, and 45% nonischemic diagnosis. [11] In the present study, 129(37.5%) had acute myocardial infarction and 94(27.3%) had angina pectoris. This finding emphasizes the significance of chest pain as a chief complaint for different kinds of ischemic heart diseases. In another study, chest pain occurred in 80-90% of patients with acute myocardial infarction. [9] This finding means that other symptoms like upper abdominal pain, shortness of breath, dizziness, palpitations, or even dyspepsia may be the presenting symptom of acute myocardial infarction and should be dealt with seriously in order not to miss the diagnosis of a serious and potentially fatal disease like acute myocardial infarction. In this study, it is quite obvious that most of those who were admitted to the coronary care unit, (89%) were found to have abnormal ECG changes and this may reflect the need for good assessment of patients and proper selection of those who deserve admission to the coronary care unit. Only 38 patients out of the 344 admitted to the CCU, were found to have normal ECG. Normal ECG does not exclude the diagnosis of ischemic heart disease; however, certain characteristic abnormalities in tracings obtained at rest, can confirm it. [19] Nevertheless some of those patients with normal ECG may need to be referred to specialized centers of cardiac disease where other diagnostic facilities such as exercise test, coronary angiography, or cardiac isotope studies are available to prove or exclude the diagnosis of ischemic heart disease. Patients of different age groups were involved in this study with a higher proportion of those who were older than 45 years of age. In a study, patients developing ischemic heart disease and myocardial infarction at less than 40 years of age generally have immediate family members who have experienced similar problems.[12] Elderly patients have an increased risk of several of the complications of acute myocardial

infarction such as congestive heart failure, cardiogenic shock, myocardial rupture, hypotension, conduction disturbances, and supraventricular tachyarrhythmia's.[13] The proportion of males was higher than that of females. Male gender is considered as one of the unmodifiable risk factor of ischemic heart disease. Age and sex distribution revealed in this study is compatible with that of different studies regarding age and sex distribution of ischemic heart disease: However acute myocardial infarction may strike an individual during the most productive years and so it can have profound deleterious psychological and economic ramifications. Cardiac arrhythmias of different types were recognized in 83(24.1%) of patients admitted to the CCU with atrial fibrillation as being the most frequent. In a study atrial fibrillation is occurring in 10-15% of patients with acute myocardial infarction. [20] In our study 14% of patients with clinical cardiovascular disease were found to have atrial fibrillation. Regarding the association of potentially correctable risk factors with ischemic heart disease, it is obvious through the present study that cigarette smoking was found to be the most frequent factor, followed by hypertension, hypercholesterolemia and then diabetes mellitus. These risk factors are found to be related to ischemic heart disease in other studies. Because these factors are amenable to correction or modification, they may be considered in the preventive measures of ischemic heart disease. It was found that in countries showing decline in the incidence of ischemic heart disease, there were trends towards better dietary habits more physical exercise, less cigarette smoking, and lower serum cholesterol concentration. [4] There is strong and compelling evidences that the correction of risk factor particularly cigarette smoking and hypercholesterolemia will improve the out look for most patients with established coronary disease. A study has shown that quitting of smoking was associated by reduction of 15 deaths/I 000/year and reduction of 46 non-fatal MI/1000/year, while correction of hypercholesterolemia was found to be related to prevention of deaths/1000/year, 12 non-fatal MI/1000/year, 11 revascularization and 4 cases of heart failure. [17] Regarding hypertension as a risk factor for ischemic heart disease, it is obvious that increased blood pressure has direct impact on myocardial load and sudden increase in the after load can aggravate myocardial ischemia. In a study showed that about one forth of men with hypertension and no history of symptomatic cardiac disease had silent myocardial ischemia, [9] such facts make the good management of hypertension and the control of blood pressure as preventive measure of ischemic heart disease. The aim of treatment of hypertension is to decrease blood pressure to level less than I50/90. [3] Regarding high blood cholesterol level as risk factor for ischemic heart disease, two indications can help to predict vascular risk, plasma total cholesterol and low density cholesterol. [18] In our study we measure total serum cholesterol only because of limited laboratory to assess other types of cholesterol (LDL & HDL). In western countries, individuals with plasma cholesterol concentrations above set threshold value are judged to be at risk of ischemic heart disease. [3] For middle-age population, especially men, serum cholesterol consistently has been shown to be a significant risk factor for coronary heart disease. [14] Regarding diabetes mellitus as a risk factor for ischemic heart disease, it is found that acute myocardial infarction in diabetics carries twice the mortality of general population. [1] Good management of diabetes mellitus and control of blood sugar may be considered as preventive measure for ischemic heart disease. Insulin-dependent diabetes mellitus subjects, with microalbuminuria have an increased long-term risk of overt cardiovascular disease. [15] In a study, mortality in patients discharged with missed acute myocardial infarction is four times greater than those who are admitted to hospital.[16]

In conclusion, good history and proper assessment of patients with chest pain or other symptoms suggestive of ischemic heart disease are of utmost importance for early detection or diagnosis of such serious and potentially fatal disease.

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