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ORIGINAL ARTICLE

Evaluation of cases of Acute Myocardial Infarction in patient admitted to medicine ward

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***ABSTRACT*:**

Background: Acute Myocardial Infarction (AMI) is one of the major causes of mortality and morbidity in the world. The present study was conducted to assess cases of AMI of both genders.

Materials & Methods: 64 cases of AMI of both genders were enrolled. Equal number of healthy subjects was also enrolled. WC was measured, at the level midway between the lower rib margin and the iliac crest. HC was measured at the fullest point around the buttocks. WC (cm) was divided by HC (cm) to calculate WHR.

Results: The mean weight in group I was 60.2 Kgs and in group II was 65.2 Kgs, mean height (cm) was 164.2 and 163.1 in group I and II respectively, mean BMI (Kg/m2) was 22.5 and 25.2 in group II, waist-to-hip ratio was 0.82 and 0.97 in group I and II respectively, systolic blood pressure (mm of Hg) was 120.4 and 132.6 in group I and II respectively, diastolic blood pressure (mm of Hg) was 78.6 and 84.2 in group I and II respectively, CK (IU /L) level was 72.6 and 124.5 in group I and II respectively and CK-MB (IU/ L) level was 12.8 and 98.2 in group I and II respectively. The difference was significant ($P< 0.05$).

Conclusion: Weight, height, BMI and waist-to-hip ratio was significantly higher in patients with acute myocardial infarction as compared to healthy subjects.

Key words: Acute myocardial infarction, BMI, Waist-to-hip ratio.

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INTRODUCTION

Acute Myocardial Infarction (AMI) is one of the major causes of mortality and morbidity in the world. The World Health Organization predicts that deaths due to AMI are projected to double between 1985 and 2015.[1] The most common cause of an AMI is atherosclerotic Coronary Artery Disease (CAD) with erosion or rupture of a plaque causing transient, partial or complete arterial occlusion. The heart cannot continue to function without adequate blood flow and if it is severely compromised, death is inevitable.[2]

Several risk factors for Coronary Heart Disease (CHD) have been well-documented, including hypertension, hyperlipidemia, diabetes, a positive family history, smoking, obesity and inactivity. Obesity is discussed as an independent risk factor for CAD because of its associations with oxidative stress and inflammation. In particular, the accumulation of abdominal fat, which can be indirectly measured through WHR, is an important CAD risk factor. This is due to its association with a series of metabolic disorders such as diabetes mellitus, hypertension and dyslipidemia.[3]

Most cases of STEMI are caused by an occlusion of a major coronary artery. Coronary occlusion and reduction in coronary blood flow are usually due to physical disruption of an atherosclerotic plaque with subsequent formation of an occluding thrombus. Concomitant coronary vasoconstriction and microembolization may be involved to some extent. Less commonly a thrombus may form from a superficial erosion of the endothelial surface.[4] The present study was conducted to assess cases of AMI of both genders.

MATERIALS & METHODS

The present study comprised of 64 cases of AMI of both genders. All enrolled patients were informed regarding the study and their consent was obtained. Equal number of healthy subjects was also enrolled. The diagnosis of AMI was based on a history of prolonged ischemic chest pain, which lasted for up to 3 hours, ECG changes (ST elevation of 2 mm or more in at least two leads) and elevated creatine kinase isoenzyme MB (CKMB) and troponin T within 12 hours after the onset of pain.

Data such as name, age, gender etc. was recorded. Standing body height (BH) was measured to the nearest 0.5 cm with a commercial stadiometer without shoes with the shoulders in a relaxed position and the arms hanging freely. WC was measured, at the level midway between the lower rib margin and the iliac crest. HC was measured at the fullest point around the buttocks.

WC (cm) was divided by HC (cm) to calculate WHR. Results thus obtained were analyzed statistically. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I (Control)	Group II (Cases)
Status	**AMI**	**Control**
M:F	46:16	50:12

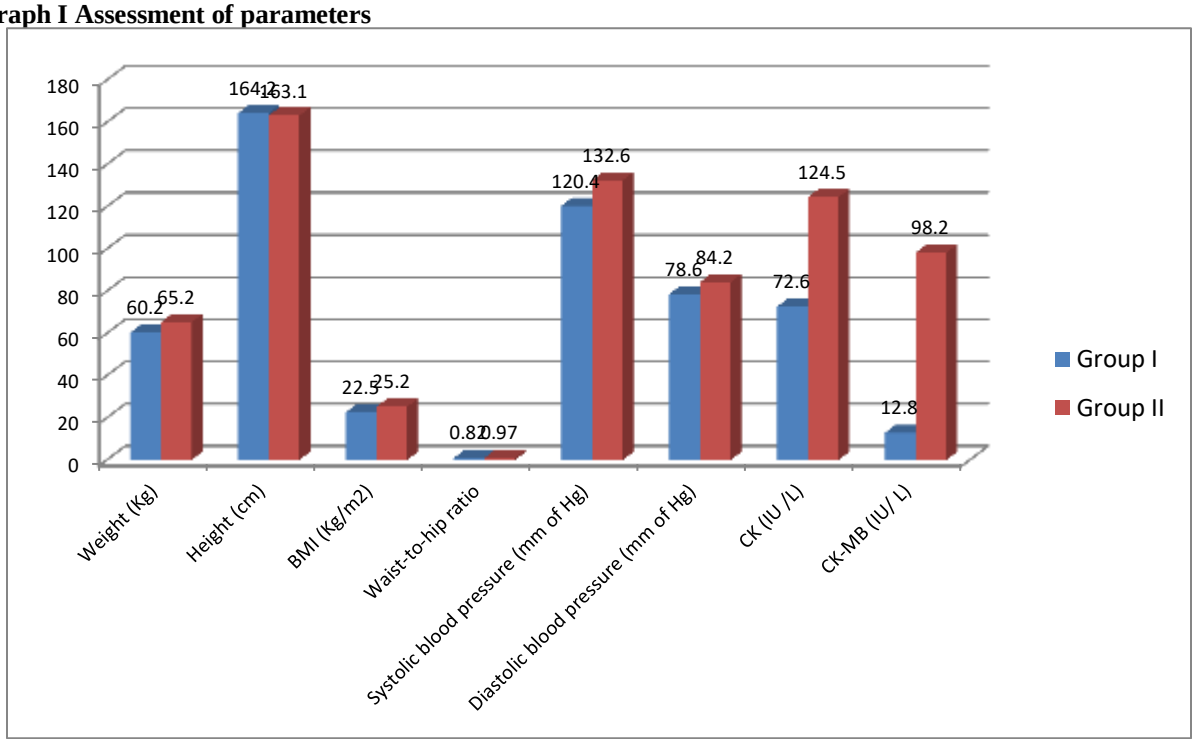
Table I, graph I shows that group I had 46 males and 16 females and group II had 50 males and 12 females.

Table II Assessment of parameters

Parameters	Group I	Group II	P value
Weight (Kg)	60.2	65.2	0.05
Height (cm)	164.2	163.1	0.12
BMI (Kg/m^2)	22.5	25.2	0.05
Waist-to-hip ratio	0.82	0.97	0.02
Systolic blood pressure (mm of Hg)	120.4	132.6	0.01
Diastolic blood pressure (mm of Hg)	78.6	84.2	0.04
CK (IU /L)	72.6	124.5	0.01
CK-MB (IU/ L)	12.8	98.2	0.001

Table II, graph I shows that mean weight in group I was 60.2 Kgs and in group II was 65.2 Kgs, mean height (cm) was 164.2 and 163.1 in group I and II respectively, mean BMI (Kg/m2) was 22.5 and 25.2 in group II, waist-to-hip ratio was 0.82 and 0.97 in group I and II respectively, systolic blood pressure (mm of Hg) was 120.4 and 132.6 in group I and II respectively, diastolic blood pressure (mm of Hg) was 78.6 and 84.2 in group I and II respectively, CK (IU /L) level was 72.6 and 124.5 in group I and II respectively and CK-MB (IU/ L) level was 12.8 and 98.2 in group I and II respectively. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

Acute myocardial infarction can be defined from a number of different perspectives related to clinical, electrocardiographic (ECG), biochemical, and pathological characteristics.[5] The present guidelines pertain to patients presenting with ischaemic symptoms and persistent ST-segment elevation on the ECG (STEMI). The great majority of these patients will show a typical rise of biomarkers of myocardial necrosis and progress to Q-wave myocardial infarction.[6] Separate guidelines2 have been developed by another Task Force of the ESC for patients presenting with ischaemic symptoms but without persistent ST-segment elevation. The risk of plaque disruption depends on plaque composition and vulnerability (plaque type) and degree of stenosis (plaque size). As many as three-quarters of all infarct-related thrombi appear to evolve over plaques causing only mild to moderate stenosis.[7] Even portions of the coronary arterial tree that appear normal by angiographic criteria often harbour a substantial burden of atherosclerosis. In particular, plaques with substantial outward remodelling, or 'compensatory enlargement', can have thin, fibrous caps and large lipid pools without encroachment of the lumen.[8] The present study was conducted to assess cases of AMI of both genders.

In present study, group I had 46 males and 16 females and group II had 50 males and 12 females. Siddiui et al[9] contained 120 subjects divided in two groups, 60 patients with AMI and equal number of age- and sex-matched healthy subjects as controls. Ratio of Waist Circumference (WC) to Hip Circumference (HC) (waist-tohip ratio) of all the subjects was recorded. Antioxidant status of the individuals was determined by measuring the serum levels of Glutathione Peroxidase (GPx) and Superoxide Dismutase (SOD). Estimation of Malondialdehyde (MDA), a marker of lipid peroxidation was used as a surrogate marker of free radical activity. WHR was found to be significantly higher in patients of AMI as compared to controls. MDA levels were significantly high and antioxidants molecules GPx and SOD were significantly decreased in AMI patients as compared with control.

We found that mean weight in group I was 60.2 Kgs and in group II was 65.2 Kgs, mean height (cm) was 164.2 and 163.1 in group I and II respectively, mean BMI (Kg/m2) was 22.5 and 25.2 in group II, waist-to-hip ratio was 0.82 and 0.97 in group I and II respectively, systolic blood pressure (mm of Hg) was 120.4 and 132.6 in group I and II respectively, diastolic blood pressure (mm of Hg) was 78.6 and 84.2 in group I and II respectively, CK (IU /L) level was 72.6 and 124.5 in group I and II respectively and CK-MB (IU/ L) level was 12.8 and 98.2 in group I and II respectively. A study by Eva S et al[10] showed MDA levels in AMI patients at admission were higher than in control patients (1.66 + 0.55 vs. 1.44 + 0.55 mmol/l) but showed a sustained decrease over the 3 hour after reperfusion of the occluded artery.

Rapid diagnosis and early risk stratification of patients presenting with acute chest pain are important to identify patients in whom early interventions can improve outcome. On the other hand, when the diagnosis of STEMI has been ruled out, attention can be focused on the detection of other cardiac or non-cardiac causes of the presenting symptoms such as aortic dissection, pulmonary embolism, and pericarditis.[11] A working diagnosis of STEMI must first be made. This is usually based on the history of chest pain/discomfort lasting for 10–20 min or more (not responding fully to nitroglycerine). Other locations such as epigastric or interscapular are possible. Important clues are a previous history of coronary artery disease and radiation of the pain to the neck, lower jaw, or left arm.[12] The pain may not be severe and, in the elderly particularly, other presentations such as fatigue, dyspnoea, faintness, or syncope are common.

CONCLUSION

Author found that weight, height, BMI and waist-to-hip ratio was significantly higher in patients with acute myocardial infarction as compared to healthy subjects.

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