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Original Article

Prevalence of Metabolic Syndrome in Acute Myocardial Infarction Patiens in Bangladeshi Population

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Abstract

This was a hospital based study done to see the prevalence of metabolic syndrome in acute myocardial infarction patients in Bangladesh. A total of 325 acute myocardial infarction patients attending in coronary care unit Rajshahi medical college hospital were included in this study. According to modified NCEP ATP III criteria 48.5% of subjects aged ≥ 20 years had the metabolic syndrome and it was more commonly seen in women than in men (72% vs 37.4%). The metabolic syndrome is associated with an increased risk of acute myocardial syndrome.

Key ward : metabolic syndrome, acute myocardial syndrome, NCEP ATP III criteria.

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Introduction

Metabolic syndrome is an under recognized, and under diagnosed responsible for more ill health than other condition. It is a global health problem of great magnitude. People with the metabolic syndrome are at increased risk of diabetes mellitus or coronary artery disease.[1] Metabolic syndrome is strongly associated with atherosclerosis. NCEP-ATP III showed that the prevalence rate is approximately 22% of US adult of general population.[2] It increased with age in both sexes[3, 4] and among hypertensive patient (34%)[5]. Metabolic syndrome is common in urban Asian Indian adults using modified ATPIII criteria; 41% of subjects aged ≥ 20 years had features of this syndrome[4]. This study can give the prevalence and pattern of component of metabolic syndrome and will help in formulation of strategy for prevention of metabolic syndrome and acute myocardial syndrome.

Aims and Objectives

To study the prevalence of the metabolic syndrome, and its components among acute myocardial infarction patients attending in the coronary care unit, Rajshahi medical college hospital.

Methodology

It ia a cross sectional study carried out in in the coronary care unit, Rajshahi medical college hospital in 2014-2015. Inclusion criteria of patients were 1) Patients attending in in the

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coronary care unit, Rajshahi medical college hospital with acute myocardial infarction 2) Both sex, 3) Age ≥ 20 years. Acutely ill patients were excluded. For the data of this study, history taking, clinical examination and necessary investigation was performed. The metabolic syndrome is defined by "Modified NCEP ATP III criteria" : presence of three or more of the following five risk factors eg fasting plasma glucose ≥ 6.1 mmol/L, central obesity measured by waist circumference of men >90cm , women >80cm, triglycerides ≥ 150 mg/dl (≥1.7 mmol/L) , high density lipoprotein cholesterol men= < 40 mg/dl (< 1.03mmol/L) and women= < 50mg/dl (<1.29 mmol/L) , blood pressure ≥ 130/≥ 85 mmofHg .

Results

Table 1. Age of acute myocardial infarction patients: n 325

Age	Acute myocardial infarction	
	N	(%)
Upto 30 years	10	(3.1)
31-40 years	47	(14.5)
41-50 years	87	(26.8)
51-60 years	104	(32.0)
>60 years	77	(23.7)
Total	325	(100.0)

Age of the acute myocardial infarction patients was mostly 51-60 years (n104, 32%), next was 41-50 years of old (n87, 26.8%)

Table 2. Gender and acute myocardial infarction.

Gender	Acute myocardial infarction	
	N	(%)
Male	222	(68.3)
Female	103	(31.7)
Total	325	(100)

Admission of acute myocardial infarction patients more commonly seen in women than in men (male vs. female 68.3% vs. 31.7%)

Table 2. Distribution of acute myocardial infarction patients by metabolic syndrome based on modified ATP III criteria (n=325)

metabolic syndrome	acute myocardial syndrome n-325	
	number	percentage
Yes	157	48.3
No	168	51.7
Total	325	100

Based on criteria of metabolic syndrome (≥3 parameters) the overall proportion of metabolic syndrome was 48.3%.

Table 3. Distribution of patients by metabolic syndrome and gender (n=325)

Metabolic Syndrome	Acute Myocardial Syndrome=n-325				Total	
	Male		Female			
	No.	%	No.	%	No.	%
Yes	83	37.4	74	71.8	157	48.3
No	139	62.6	29	28.2	168	51.7
Total	222	100	103	100	325	100

Analysis of the above table indicated that the proportion of metabolic syndrome was higher among the female patients (71.8%) compared to male patients (37.4%) .

Table 4. Metabolic component's analysis among acute myocardial infarction.

Components	Number	Percentage
0	24	7.4
1	53	16.3
2	91	28.0
3	61	18.8
4	67	20.6
5	29	8.9
Total	325	100

Table 5. Metabolic component's analysis of metabolic syndrome among acute myocardial infarction patients.

Components	Number	Percentage
3	61	18.8
4	67	20.6
5	29	8.9
Total	157	48.3

Four components are more commons in acute myocardial infarction patients.

Discussion

The main objective of the study was to assess the metabolic syndrome and its components by using modified NCEP ATP III criteria, of the patients attending the coronary care unit (222 men and 103 women. The results of this study indicate that according to modified NCEP ATP III criteria (≥ 3 components; waist circumference:men 90 cm and women 80 cm) 48.3% (n-157) of the studied patients (n-325) had the metabolic syndrome. The metabolic syndrome was more commonly seen in women (72%) then in men (37.4%) and increased with age (50-60 age groups then 40-50 years of

ages. The metabolic syndrome in this study was higher than US adult using ATP III criteria.[8,9] Park & Fords showed that overall prevalence was 20% (male 22.8%, female 22.6%) and 22% (male 24%, Female 23.4%) respectively. A higher proportion of the metabolic syndrome occurs in women. Ramachandran A et al 2003; Choi SH et al. 2003; Islam QT, et al 2004 showed that the prevalence of the metabolic syndrome were more common in women. But in US adult different study stated that the metabolic syndrome are more commonly seen in men.[8,9,10]

In this study, a statistically significant association was found between the metabolic syndrome and age of the patients, sex ($P < 0.001$) indicating that the metabolic syndrome was significantly increased with age of the patients, female sex patients and family income. Carnethon MR et al. reported that metabolic syndrome risk increased with age and higher intake of carbohydrate diet. Physical activity was protective.[12]

Certain limitations relevant to the interpretation of the results of this study were noteworthy. Firstly, this study was not population based. These results may not from a representative sample of Bangladeshi Population. Secondly, due to constrain of time, because of the small number of sample, there was more or less likelihood error to actual evaluation of the metabolic syndrome.

In conclusion, the metabolic syndrome was seen in about 48.3% of Bangladeshi adults admitted in coronary care unit with acute myocardial infarction.

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