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RAISED BMI AND ACUTE MYOCARDIAL INFARCTION

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ABSTRACT

Objectives: To determine the frequency of cases with raised BMI in cases of acute MI. **Material and methods:** This cross-sectional study was done at Emergency department of Sir Ganga Ram Hospital, Lahore during January to June 2018. The cases admitted for acute MI were included irrespective of the gender and age groups. The diagnosis of acute MI was made on the basis of ST-T changes (ST elevation, depression or t wave inversion) with positive troponin T test. The BMI was calculated by dividing the weigh in kg and dividing by height in meters^2). Raised BMI was labelled as yes when the BMI was more than 25 kg/m^2. **Results:** In this study, the mean age of the cases was 57.47±10.23 years and there were 62% males and 38% females out of 100 cases. DM was observed in 23% and HTN in 34% of the cases. raised BMI was seen in 41 (41%) of the cases. there was no significant difference in terms of HTN while this was significantly high in cases that had DM where this was seen in 17 (73.91%) of the cases with p = 0.001. There was also no association of raised BMI with type of myocardial infarction with p= 0.96. **Conclusion;** Raised BMI is seen significantly high in cases of DM presenting with acute MI.

KEYWORDS: BMI, MI, DM.

INTRODUCTION

Cardiac diseases are very common and their burden is increasing incredibly in the last era and is supposed to be the highest leading cause in the near future. It can be fatal by both ischemic injury as well as due to its associated arrhythmias which have a very high mortality rate especially in the developing countries. Acute coronary syndrome has tow major subsets defined as angina and myocardial infarction.[1]

There are multiple risk factors few of them are modifiable and the others are not. Male gender, higher age is the un avoid able risk factors but smoking cessation, good control of the Diabetes Mellitus (DM), Hypertension (HTN), body mass index BMI in normal range, uric acid control and dyslipidemia are amongst the highly modifiable risk factors[2-3] and there is significant data to address that modification of these factors can reduce both the morbidity and the mortality in cases with ischemic heart disease.[4-6]

Regarding BMI, it is associated with more chances of DM, high insulin resistance, increase oxygen demand and dyslipidemias which are again risk factors for increase mortality. In contrast to this few studies have shown rather beneficial effect of raised BMI and are known as obesity paradox.[7-9]

OBJECTIVES

To determine the frequency of cases with raised BMI in cases of acute MI.

MATERIALS AND METHODS

This cross-sectional study was done at Emergency department of Sir Ganga Ram Hospital, Lahore during January to June 2018. The cases admitted for acute MI were included irrespective of the gender and age groups. The diagnosis of acute MI was made on the basis of ST-T changes (ST elevation, depression or t wave inversion) with positive troponin T test. The BMI was calculated by dividing the weigh in kg and dividing by height in meters^2). Raised BMI was labelled as yes when the BMI was more than 25.

Statistical analysis

The data was entered and processed by SPSS-23 version. Post stratification chi-square test was applied and p <0.05 was taken as significant.

RESULTS

In this study, the mean age of the cases was 57.47±10.23 years and there were 62% males and 38% females out of 100 cases. DM was observed in 23% and HTN in 34% of the cases. Raised BMI was seen in 41 (41%) of the cases.

There was no significant difference in terms of HTN while this was significantly high in cases that had DM where this was seen in 17 (73.91%) of the cases with p = 0.001 as in table 1. There was also no association of raised BMI with type of myocardial infarction with p= 0.96 (table 2).

Table 1: Raised BMI and confounders (n= 100).

DM	Raised BMI		Total	Significance
	Yes	No		
Yes	17 (73.91%)	6 (26.09%)	23	p= 0.001
No	24 (31.16%)	53 (68.84%)	77	
HTN	**Raised BMI**		**Total**	**Significance**
	YES	**NO**		
Yes	16 (47.05%)	18 (52.95%)	34	p= 0.78
No	25 (37.88%)	41 (62.12%)	66	

Table 2: Raised BMI with respect to Type of MI (n= 100).

Type of MI	Raised BMI		Total	p
	Yes	No		
STEMI	19 (43.18%)	25 (56.82%)	44	0.96
NSTEMI	22 (39.28%)	34 (60.72%)	56	

DISCUSSION

Acute coronary syndrome is a fatal entity and along with the medical or interventional management, risk factors modification is the primary goal and among them weight control to a normal BMI or waist to hip ratio has a great importance as it adds the further risk of insulin resistance and dyslipidaemia.

Raised BMI was seen in 41 (41%) of the 100 cases admitted with acute myocardial infarction. This was in line with the results of the previous studies which have shown the prevalence around 30 to 65% of the cases and they have further stratified that it has a very high significant associated with the severe coronary artery disease and the high BMI (p= 0.0001).[10-11]
Raised BMI was significantly high in cases that had DM where this was seen in 17 (73.91%) of the cases with p = 0.001. This was seen by the various studies in the past and according to two studies that also found significant association with p <0.05 e by Walker SP and Rubinshtein R et al.[12-13] However, the other studies found it in higher number but this difference was not statistically.[14-15] The high number of ACS cases with raised BMI having co morbid of DM can be explained by the increased lipogensis and deposition o fat in the subjects.

CONCLUSION

Raised BMI is seen significantly high in cases of DM presenting with acute MI.

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