



## A STUDY OF PREVALENCE OF METABOLIC SYNDROME IN YOUNG PATIENTS WITH ACUTE MYOCARDIAL INFARCTIONS

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### ABSTRACT BACKGROUND:

The metabolic syndrome also called as syndrome X is a collection of metabolic abnormalities that confer a person with it to high danger of cardiovascular disease and diabetes.<sup>1</sup> Aim of this study is to find the prevalence of metabolic syndrome in young patients with acute myocardial infarction and to find the prevalence of individual components of metabolic syndrome in the study population.<sup>2</sup>

### MATERIALS AND METHODS:

The present study is conducted on patients admitted with a diagnosis of AMI to the Coronary Care Unit (CCU) of Government Rajaji Hospital, Madurai during the period of February 2016 to July 2016. After applying the inclusion and exclusion criteria 62 cases were selected for the study. Detailed demographic data and clinical examination is done. Blood pressure, fasting blood sugar and fasting lipid profile is done in all patients. Patients were classified as having metabolic syndrome according to the international diabetes federation (IDF) criteria

### RESULTS:

In our study the Increasing prevalence of myocardial infarction in young individuals is mainly due to increased in prevalence of metabolic syndrome.

### CONCLUSION:

Metabolic syndrome is highly prevalent in young patients with acute myocardial infarction. Each component of metabolic syndrome is an independent risk factor for cardiovascular and cerebrovascular disease. Increasing prevalence of myocardial infarction in young individuals is mainly due to increased in prevalence of metabolic syndrome.<sup>20</sup>

**KEYWORDS :** Metabolic syndrome, Cardiovascular disease, International Diabetes Federation Criteria

### BACKGROUND:

Coronary artery disease (CAD) is one of the commonest causes of death in developing and developed world. Metabolic syndrome has become a major public health problem. Globally the prevalence of metabolic syndrome is increasing. The metabolic syndrome is a group of risk factors for cardiovascular disease and diabetes mellitus. It includes abdominal obesity, dyslipidemia, raised blood pressure, insulin resistance, and an inflammatory state. Metabolic syndrome is present in nearly one quarter of all adults and in 40% of adults over 60 years of age. It is now recognised as a secondary target for intervention in the National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) III recommendation.<sup>7</sup> Most studies show that 4–10% of patients with acute myocardial infarction (AMI) are below 45 years of age. There are limited data on the risks associated with the metabolic syndrome in the increasingly large group of young patients who have sustained an AMI. The aim of this study, therefore, is to assess the prevalence metabolic syndrome in young patients with AMI, by using the IDF definitions.<sup>3</sup>

### MATERIALS AND METHODS:

#### Study Population:

The present study is conducted on patients admitted with a diagnosis of AMI to the Coronary Care Unit (CCU) of Government Rajaji Hospital, Madurai during the period of February 2016 to July 2016.

#### Inclusion criteria:

All patients admitted with a diagnosis of AMI to the Coronary Care Unit (CCU) of Government Rajaji Hospital with Age <45 years.

#### Exclusion criteria:

Rheumatic heart disease, Congenital heart disease, Severe anemia/ chronic kidney and liver disease, Cocaine abuse, Lack of definitive MI criteria, Age > 45 years.

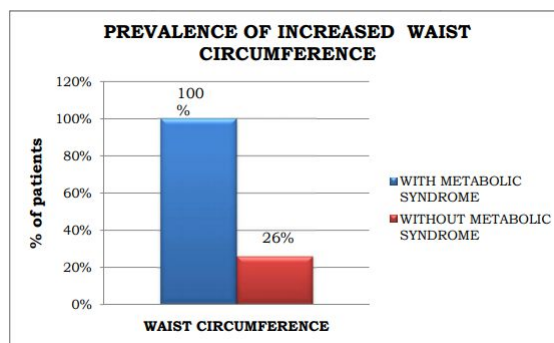
Design Of Study: Cross Sectional Study

Ethical Committee Approval: Obtained

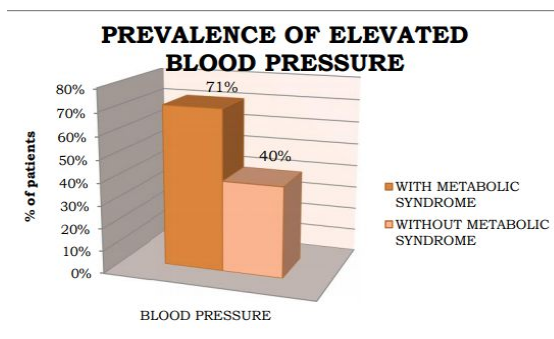
### RESULTS:

A total of about sixty two patients were studied, of which 35 (56%) of the patients fulfilled the criteria for metabolic syndrome. Remaining patients with age <45 years and Acute myocardial infarction without metabolic syndrome constituted 44% (n= 27).

Increased waist circumference >80 for female and > 90 for males is the mandatory criteria to diagnose metabolic syndrome according to IDF criteria.<sup>7</sup> In our study 42 patients had increased waist circumference of which 35 patients satisfied the remaining criteria for metabolic syndrome. Of the 27 patients without MS, 7 patients (26%) had increased waist circumference.



Elevated blood pressure is present in about 71% (n=25) of the patients with metabolic syndrome and 40% (n=11) of patients without metabolic syndrome.



Elevated fasting blood sugar >100mg/dl is present in about 88% of patients with metabolic syndrome and 28% of patients without metabolic syndrome.<sup>8</sup>

Increased levels of fasting triglyceride is seen in about 77 % (n=27) of patients with metabolic syndrome and 70% (n=19) of the patients without metabolic syndrome.

Decreased HDL in seen in about 66% (n=23) of patients with metabolic syndrome and 55% (n=15) of the patients without metabolic syndrome.

CHARACTERISTICS	PATIENTS WITH METABOLIC SYNDROME (n = 35)	PATIENTS WITHOUT METABOLIC SYNDROME (n = 27)	P VALUE
<b>DEMOGRAPHIC FACTORS</b>			NS
AGE	38.6±5.45	41.5±3.1	
MALE	32	25	NS
FEMALE	6	2	NS
POST MENOPAUSAL	3	-	
SMOKER	25	22	NS
NON SMOKER	10	5	NS
ALCOHOLIC	24	22	NS
NON ALCOHOLIC	11	5	NS
VEGETARIAN DIET	3	1	NS
NON VEGETARIAN DIET	32	26	NS
<b>COMPONENTS</b>			
INCREASED WAIST CIRCUMFERENCE	35	7	NS
HIGH BLOOD PRESSURE	25	11	NS
ELEVATED TRIGLYCERIDES	27	19	p<0.001
LOW HDL	23	15	p<0.001
ELEVATED FASTING GLUCOSE	31	7	p<0.001

#### DISCUSSION:

The metabolic syndrome also is a collection of systemic abnormalities that confer a person with it to high risk of cardiovascular disease (CVD).<sup>12</sup>

Each component of metabolic syndrome is an independent risk factor for cardiovascular and cerebrovascular disease. The metabolic syndrome is increasing in prevalence as result of rapid urbanisation<sup>10</sup>

Obesity, sedentary lifestyle, smoking and insulin resistance are important risk factors for metabolic syndrome

Metabolic syndrome is diagnosed by various criteria like ATP III criteria, WHO criteria and IDF criteria<sup>11</sup>

Indians have a higher risk for CAD at comparatively lower waist circumference than western people<sup>15</sup>

Indians have a lower cutoff for waist circumference for diagnosing metabolic syndrome (>80cm for females and >90cm for males)<sup>17</sup>

Increasing prevalence of myocardial infarction in young individuals is mainly due to increased in prevalence of metabolic syndrome.<sup>18</sup>

#### CONCLUSION:

Metabolic syndrome is highly prevalent in young patients with acute myocardial infarction. Hence all measures must be undertaken to prevent the cardiovascular events in these patients

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