



## An Indian Scenario of Metabolic Syndrome in Acute Coronary Syndrome Patients

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### ABSTRACT

We studied 100 patients of ACS attending medical unit and divided them according to age group, life style, risk factors, social groups and associated co morbidities. We found to have higher prevalence of metabolic syndrome at the age of >40 years (74%), with sedentary life style (86%), in upper middle and lower middle social group (58%) and with history of tobacco chewing (22%), smoking (20%) and alcohol drinking (16%). In our study 85% had BMI of  $\geq 25$  – a definite risk factor for metabolic syndrome and 67% had waist circumference in the range of criteria of metabolic syndrome. In our study 51% had impaired fasting glucose and 40% had diabetes. LVEF was low in cases with metabolic syndrome (46%) as compared to those without metabolic syndrome. The incidence of triple vessel disease was higher in patients with metabolic syndrome. The waist circumference is better and important predictor of CAD and susceptibility to development of ACS than other parameters of obesity.

### KEYWORDS :

### INTRODUCTION -

The metabolic syndrome is a group of interrelated risk factors of metabolic origin that appears to directly promote atherosclerotic cardiovascular risk. It consists of central obesity, hypertension, hypertriglyceridemia, low HDL cholesterol and impaired glucose tolerance. Its prevalence varies from 8% (India) to 24% (United States) in men and from 7% (France) to 46% (India) in women.

In this review, this study was done to understand and analyze pathogenesis, clinical spectrum and associated conditions (especially coronary artery disease) with metabolic syndrome.

### Aims and Objective –

To study the prevalence of metabolic syndrome in cases of acute coronary syndrome and Comparison of acute coronary syndrome patients with and without metabolic syndrome in terms of comorbidity.

### Materials and Method –

This study is a prospective study carried out on ACS patients admitted in medical ward in Civil Hospital, Gandhinagar. Detailed clinical history, physical examination and relevant laboratory investigations were done which included a complete blood count, RFTs, LFTs, CPK-MB, FBS, PPBS, urine albumin, HbA1c, serum lipid profile, ECG, Chest X-ray, 2D echo. Subjects were then screened for definition of metabolic syndrome as per the NCEP ATP-III guidelines. Statistical analysis of the observation was done with a view to provide logical support to results and arriving at a better understanding of this study and its outcome.

### Observation and Discussion –

**TABLE 1: Age and gender distribution-**

Male	Female	
60%	40%	
Age (years)	Male	Female
<40	n = 4	n = 2
41-50	20	10
51-60	17	15
61-70	12	10
>70	7	3

Peak incidence was among the age group of 41-50 years. Life style of patients- 70% of the patients lead a sedentary life style.

**TABLE 2: Socio economic status -**

Income (socio economic status)	
Low	n = 24
Lower – middle	40

Upper – middle	18
High	16
Affluent high	6

In socioeconomic factors- 58% belonged to middle income group and 24% belonged to lower class.

History of tobacco chewing, smoking and alcohol intake were present in 22%, 20% and 16% respectively.

**TABLE 3: BMI and anthropometric parameters -**

BMI (kg/m <sup>2</sup> )	Male	Female
18-22.9 (normal)	6	4
23-24.9 (Over weight)	24	13
>25 (Obese)	30	23

Our 53% of patients were obese according to WHO guideline and 90% of patients had a BMI > 23.

Waist circumference (cms)	Male	Waist circumference (cms)	Female
< 94	n = 16	<80	n = 3
94-102	9	80-88	13
>102	35	>88	23

67% of the patients had waist circumference in the range of metabolic syndrome.

**TABLE 5: Biochemical tests -**

Fasting blood glucose (mg/dl)	Male	Female
<100	5	18
101-125	33	12
>125	22	10

51% of patients had impaired fasting glucose and 40% had diabetes. All diabetics do not have metabolic syndrome and vice versa but non diabetics with metabolic syndrome are more prone to develop it in future.

Serum triglyceride > 150mg% was found in 81% of patients. Serum HDL <50mg% was found in 80% of women and <40 mg% in 60% of men. High LDL (not included in metabolic syndrome) was found in 66% (> 130mg%) and 96% (> 100 mg%).

**TABLE 6: Final result -**

	Male	Female
With metabolic syndrome	22	24
Without metabolic syndrome	38	16
Total	60	40

Prevalence of metabolic syndrome in male patients with ACS was 22 out of 60(36.6%) and in female it was 24 out of 40(60%). Thus ,females with metabolic syndrome are more prone to develop ACS.

**TABLE 7: Co-morbidity -**

	LVEF (Mean +_ SD)
With metabolic syndrome	44.27 +_ 6.23
Without metabolic syndrome	49.11 +_ 8.40

LVEF was low in cases with metabolic syndrome as compared to those without metabolic syndrome as is the incidence of triple vessel disease. Patients with metabolic syndrome are at significantly high risk of MI, stroke and mortality.

**Conclusion -**

From our study we concluded that waist circumference is better than BMI or Waist Hip ratio as a predictor of CAD and susceptibility of ACS. Metabolic syndrome is associated with significantly increased morbidity and mortality, and that is preventable. For Indian patients, the anthropometric parameters should be lowered for early and better risk assessment

Finally, the most important use of defining metabolic syndrome is to identify persons at high risk of cardiovascular events and to initiate preventive measures initially with life style modifications and drugs as and when required.

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