

Prevalence of metabolic syndrome among CAD & CVA patients in Vindhya region

Nitin Kumar Pandey¹, Poongodi P^{2*}, Praveen Kumar Baghel³¹Assistant Professor, Department of General Medicine, Shyam Shah Medical College and Sanjay Gandhi Memorial Hospital, Rewa, M.P, India²RMO, Department of General Medicine, Shyam Shah Medical College and Sanjay Gandhi Memorial Hospital, Rewa, M.P, India³Professor, Department of General Medicine, Shyam Shah Medical College and Sanjay Gandhi Memorial Hospital, Rewa M.P, India

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Abstract

Introduction: Atherosclerosis a hallmark etiology of cerebro and cardiovascular diseases. Metabolic syndrome being a pro inflammatory and prothrombotic state is key contributor of thrombogenic complications. Study was aimed seeing retrospectively the occurrence of metabolic syndrome among the diseased. **Method:** We did an observational study on 500 patients (250 patients each of CVA & CAD) from April 2019 to June 2020 in our department via fulfilling the criteria. **Observation & results:** Patients of CAD & CVA had a statistically significant prevalence of metabolic syndrome (54% in CAD & 46.8% in CVA) as P value 0.007. **Conclusion:** With high statistical significance of metabolic syndrome among CAD and CVA earlier risk stratification, diagnosis, lifestyle changes and management could reduce the morbidity and mortality.

Keywords: Metabolic syndrome, mortality, complications, vindhya region.

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Introduction

Metabolic syndrome or Reaven syndrome is a cluster of metabolic abnormalities related to the state of insulin resistance which often is associated with obesity. The major characteristics are insulin resistance, abdominal obesity, elevated blood pressure and lipid abnormalities (elevated levels of triglycerides and low levels of high density lipoprotein cholesterol). Abdominal obesity would present clinically as increased waist circumference.[1] It is a pro inflammatory & prothrombotic state which plays a role in atherothrombosis. The prevalence of metabolic syndrome is estimated to be about 20–25 percent of the population [2].

*Correspondence

Dr. Poongodi P

RMO, Department of General Medicine, Shyam Shah Medical College and Sanjay Gandhi Memorial Hospital, Rewa M.P, India.

E-mail: poopadhu@yahoo.com

Cerebral Ischemia and Ischemic Heart diseases, are the main complications of metabolic syndrome as its hallmark is “Atherosclerosis”. This study was conducted with the motive to document the prevalence of metabolic syndrome among both the CAD and CVA patients residing in Vindhya Region. It was an observational study carried out from April 2019 to June 2020 in the Department of medicine, Shyam shah medical college and Sanjay Gandhi Hospital, Rewa, MP. We studied 500 cases fulfilling the inclusion & exclusion criteria.

Inclusion criteria

1. Patients with Electrocardiography (ECG) or Echo-cardiography (ECHO) suggestive of CAD
2. Patients with clinical & CT scan findings of CVA

Exclusion Criteria

- Valvular heart disease
- Patients less than 30 years of age
- Patients on antipsychotics, antiretroviral therapy
- Patients on oral contraceptive
- Systemic malignancy
- Nephrotic syndrome

- Vasculitis
- Hypothyroidism’

Data collection and methods

Patients admitted in the Medicine wards, fulfilling the inclusion criteria, during the study period were taken into the study. A complete clinical, anthropometric(waist circum-ference, height, weight) and laboratory evaluation (CBC,LFT,RFT, RBS, FBS, PPBS, Lipid Profile) was done.

On the basis of the IDF criteria for metabolic syndrome cases prevalence of metabolic syndrome both among CAD and CVA were detected.Obtained details were analysed by appropriate statistical methods.

Statistical method and software

SPSS software version 19 was used to analyse the data. Pages and Number from MacBook Air were use for data recording and analysis. Categorical variables were analysed using Chi square test. A P value <0.05 was taken as significant.

Results

During this study the following data were obtained; Majority of cases among metabolic syndrome were in the age group of above 60 years(59.52%) and among the non-metabolic cases majority were under the age group between 30-60 years(54.03%) and the data was proved statistically significant with p value of <0.002.Sex distribution was male predominant

population among both the metabolic (51.19%) and non-metabolic cases (62.90%) which was statistically significant (P value 0.008)54% of CAD patients and 46.8% of CVA patients had metabolic syndrome. Majority of the CAD patients had an association with metabolic syndrome (54%) which was statistically significant with P value = 0.007. Among the CVA patients majority falls under non metabolic syndrome (53.2%) which was also statistically significant. (P value =0.04). Overall percentage of metabolic syndrome was 50.4% out of all patients in the study. There was no statistical difference between the prevalence of metabolic syndrome in CAD and CVA patients. (P value =0.107).With territorial distribution there was a predominant RCX territory involvement among both the metabolic and non metabolic cases. The data did not have any statistical significance as the p value was 0.989.With lesion typing majority of the CVA patients (metabolic and non metabolic syndrome) had INFARCT as their lesion. It was found that there was no statistically significant difference regarding the lesion type among both groups. Whereas the data so obtained with infarct predominant lesion was significant with P value <0.02.Higher percentage of death was among metabolic syndrome patients both in the CAD (6%) and CVA (8%).This association of higher death among metabolic syndrome than the non metabolic cases was not statistically significant(P value= 0.5287)

Table 1:Age split up among Metabolic / Nonmetabolic cases

Age group	Metabolic syndrome cases(252)			Non metabolic syndrome cases(248)		
	CAD(N=135)	CVA(N=117)	Total (N=252)	CAD (N=115)	CVA (N=133)	Total (N=248)
>60 years	80	70	150(59.52%)	48	66	114(45.96%)
30-60 years	55	47	102(40.47%)	67	67	134(54.03%)

Table 2:Gender split up among METABOLIC / NONMETABOLIC cases

Gender	Metabolic syndrome cases(252)			Non metabolic syndrome cases(248)		
	CAD (N=135)	CVA (N=117)	TOTAL (N=232)	CAD (N=115)	CVA (N=133)	Total (N=248)
Male	67	62	129(51.19%)	73	83	156(62.90%)
Female	68	55	123(48.80%)	42	50	92(37.10%)

Table 3:Association of Metabolic syndrome among CAD & CVA

Metabolic syndrome	CAD(n=250)	CVA(n=250)
Positive	135(54%)	117(46.8%)
Negative	115(46%)	133(53.2%)

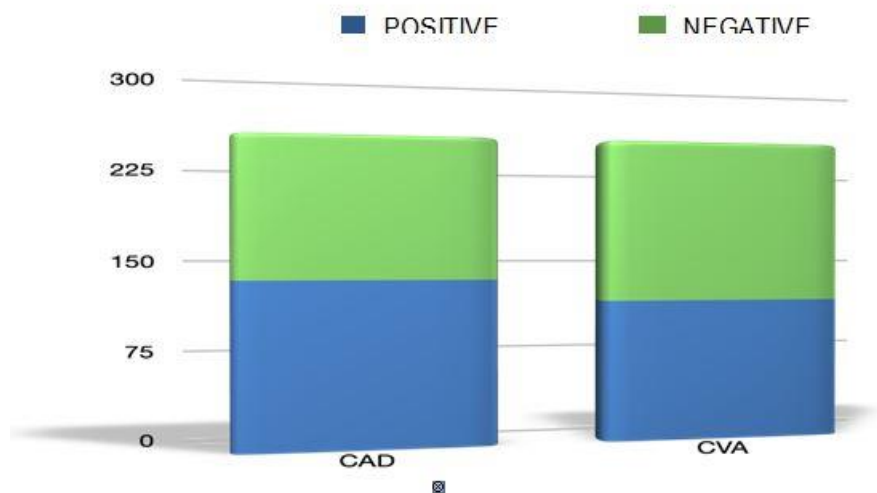


Fig 1: Metabolic syndrome among CAD and CVA

Table 4:Territory distribution among CAD

2D ECHO (RWMA)	Metabolic syndrome cases(135)	Non metabolic syndrome cases(115)
RCX	61(45%)	52(45.20%)
LAD	47(35%)	40(35%)
LCX	27(20%)	23(20%)

Table 5:Lesion variety among CVA patients

CT/MRI	Metabolic syndrome Cases (117)	Non metabolic syndrome cases(133)
INFARCT	82(70%)	93(70%)
ICH	35(30%)	40(30%)

Table 6:Mortality among CAD and CVA patients

Disease	Metabolic Syndrome cases(252)	Non metabolic syndrome cases (248)
CAD	15(6%)	5(2%)
CVA	20(8%)	10(4%)

Discussion

Metabolic syndrome has high fold risk of CAD and CVA, henceforth early stratification of these risk factors , its adequate control and management is needed for the prevention of morbidity and mortality.In our study we observed this high fold prevalence of metabolic syndrome among CAD and CVA . We studied various demographic parameters, mortality ,territorial and lesion distribution among the group.Our study in Vindhya region showed metabolic

syndrome in about 54% of CAD and 46.8% of CVA ,almost similar findings were noted in the various studies of Chintada (2019)[3], Ramakrishna G et al (2019) [4], Chawla SP et al (2014)[5] in India. Elderly(>= 60years) and male predominant diseased group were also noted in similar to the above studies.The mortality rates were also found higher among the individuals with metabolic syndrome[8% in CAD & CVA 2%] which was similar to the Younis et al (2016)[6] , Malik et al (2004)[7]

Conclusion

On documentation of high prevalence of CAD and CVA among metabolic syndrome, earlier risk stratification with simple lab parameters and its effective lifestyle management could play the role in reducing the mortality and morbidity.

Limitation

The study was carried out in a limited population which cannot represent the entire population of the world.

The distribution of the population was unequal as there was rural predominancy.

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