

# Environmental Influence on Metabolic Syndrome among CAD and CVA Patients in Vindhya Region

Poongodi Padmanabham\*, Praveen Kumar Baghel and Nitin Kumar Pandey

Department of Medical Science, All India Institute of Medical Sciences, Delhi, India

## Corresponding author:

Poongodi Padmanabham, Department of Medical Science, All India Institute of Medical Sciences, Delhi, India, Tel: 9176666028; E-mail: poopadhu@yahoo.com

**Received:** 27-November-2020, Manuscript No. AMHSR-20-22628;

**Editor assigned:** 02-December-2020, PreQC No. AMHSR-20-22628 (PQ);

**Reviewed:** 16-December-2020, QC No. AMHSR-20-22628;

**Revised:** 03-August-2022 (R), QI No. AMHSR-20-22628; Manuscript No. AMHSR-20-22628;

**Published:** 31-August-2022, DOI: 10.54608.annalsmedical.2022.45

## Abstract

Reaven syndrome is a string of metabolic abnormalities including hyperinsulinemia, hypertension, hyperglycaemia and dyslipidaemia. Sedentarization of occupation due to urbanization is the root cause of all evil either it be in rural or urban population. Study was done to see the various addictive behaviours taking influence on metabolic syndrome and the habitat emphasis on this syndrome. We did an observational study on 500 patients (250 patients each of CVA and CAD) from April 2019 to June 2020 in our department *via* fulfilling the criteria. Metabolic syndrome has predominance in the urban habitat (55.15%). There is higher percentage of association of smoking/tobacco among non-metabolic syndrome cases (53.62%) than that in metabolic syndrome (51.58%) which was statistically proved significant with p value <0.002. Percentage of alcohol addiction was found more among the metabolic (23.80%) than the non-metabolic cases (21%). Environmental factors influences the occurrence of the syndrome so healthy life style practices could have effect in prevention of the syndrome and its complications.

**Keywords:** Metabolic syndrome; Non metabolic syndrome; Vindhya region; Habitat; Addiction

## Introduction

Reaven syndrome is a string of metabolic abnormalities including hyperinsulinemia, hypertension, hyperglycaemia and dyslipidaemia. These are physiological risk factors for atherogenesis that occurs to a greater degree together than expected by chance and increase an individual's risk of developing heart disease and cerebrovascular accidents. Environment plays a major role which influences the various parameters of this syndrome. Presence of detrimental health behaviour activities were initially considered to be higher among the urban than in the rural population. Later it was found that such an association is not on the basis of the habitat but on the basis of the type of occupation (sedentary vs. non sedentary work). Sedentarization of occupation due to urbanization is the root cause of all evil either it be in rural or urban population. This study was done to see the various addictive behaviours taking influence on metabolic syndrome and the habitat emphasis on this syndrome [1].

## Case Study

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 and exclusion criteria [2].

### Inclusion criteria

- Patients with Electrocardiography (ECG) or Echocardiography (ECHO) suggestive of CAD
- Patients with clinical and 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

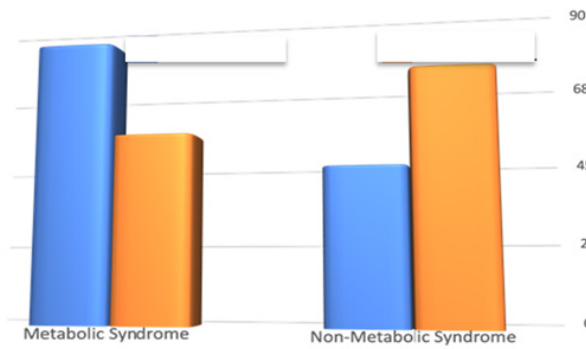
Patients admitted in the medicine wards, fulfilling the inclusion criteria, during the study period were taken into the study (Figures 1 and 2). A complete clinical, anthropometric (waist circumference, height, weight) and laboratory evaluation (CBC, LFT, RFT, RBS, FBS, PPBS, LIPID PROFILE) was done. 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 (Tables 1-4) [3-5].

## Statistical method and software

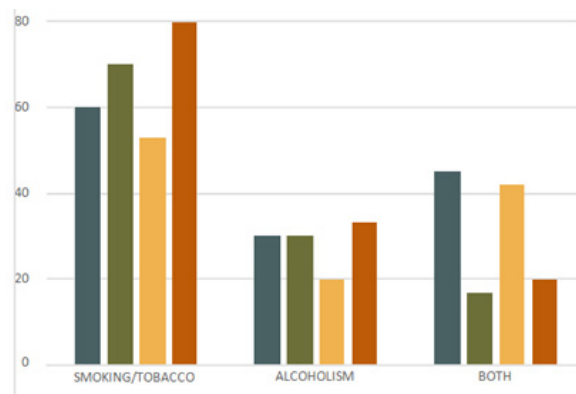
SPSS software version 19 was used to analyse the data. Pages and Number from MacBook Air were use for data recording and analysis. Categorical variables were analysed using Chi square test. A P value <0.05 was taken as significant.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

**How to Cite this Article:** Padmanabham P, et al. Environmental Influence on Metabolic Syndrome among CAD and CVA Patients in Vidhya Region. *Ann Med Health Sci Res.* 2022;12:226-228.



**Figure 1.** Habitat split up among metabolic/non-metabolic cases. **Note:** (■) Rural, (■) Urban.



**Figure 2.** Addictives. **Note:** (■) Metabolic syndrome CAD, (■) CVA, (■) Non metabolic syndrome CAD, (■) CVA.

**Table 1: Habitat split up among metabolic/non-metabolic cases.**

Habitat	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)
<b>URBAN</b>	81	58	139 (55.15%)	44	17	61 (24.59%)
<b>RURAL</b>	54	59	113 (44.84%)	71	116	187 (75.4%)

**Table 2: Distribution on basis of the Socioeconomic status.**

Socio economic class	CAD (N=250)	
	Urban (N=125)	Rural (125)
Upper class	25 (20%)	-
Upper middle	45 (36%)	-
Lower middle	55 (44%)	20 (16%)
Upper lower	-	45 (36%)
Lower lower	-	60 (48%)

**Table 3: Distribution on basis of the socioeconomic status.**

Socio economic class	CVA (N=250)	
	Urban (N=75)	Rural (175)
Upper class	15 (20%)	-
Upper middle	20 (27%)	-
Lower middle	40 (53%)	75 (42.85%)
Upper lower	-	40 (22.85%)
Lower lower	-	60 (34.20%)

**Table 4: Addictive behaviours among metabolic syndrome non metabolic syndrome cases.**

Addictives	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)
Smoking/Tobacco	60	70	130 (51.58%)	53	80	133 (53.62%)
Alcoholism	30	30	60 (23%)	20	33	53 (21.37%)
Both	45	17	62 (24%)	42	20	62 (25%)

## Results

During this study the following data were obtained. Among habitat distribution majority of cases detected with metabolic syndrome resided among urban habitat (55.15%) whereas among the cases without metabolic syndrome resided among rural habitat (75.40%). Above data was statistically highly significant with  $p$  value  $\leq 0.0001$ . Majority of the CAD patients belonged to the lower middle class among the urban locality (44%) and to the lower class among the rural locality (48%). The data was statistically insignificant ( $p$  value  $< 0.128$ ). Whereas the majority of CVA patients were belonging to the rural habitat among which there was a majority in the lower middle class (42.85%). Among the urban habitants majority were in the lower middle class (53%). Data was found statistically significant with  $p$  value  $< 0.005$  [6].

Among addictive elicited there was a higher percentage of association of smoking/tobacco among non-metabolic syndrome cases (53.62%) than that in metabolic syndrome (51.58%) which was statistically proved significant ( $p$  value  $< 0.002$ ). Percentage of alcohol addiction was found more among the metabolic (23.80%) than the non-metabolic cases (21%). Dual addictive behaviours were higher among the non-metabolic group (25%) and that of 24% among the metabolic syndrome. Further getting on to finer inference it was found that there was higher association of smoking among non-metabolic CVA (60.15%) than that in CAD patients (46.1%).

## Discussion

Environmental risk factors, lifestyle, habitat all together play a major role in disease occurrence. In our study at Vindhya region though being a rural predominant society we were still able to obtain a statistically significant majority in metabolic syndrome residing in the urban sector (55.15%). This was similar to the urban predominance [7].

On considering the socioeconomic status for the population sector it was a statistically significant lower middle class predominance in CVA whereas the split among the CAD wasn't significant. Higher significant occurrence of smoking was with non-metabolic group (53.62%) [8].

## Conclusion

With environment acting as an influencing agent it was seen that occurrence of metabolic syndrome was higher among urban sector who had sedentary lifestyle. Among various addictives alcoholism had higher association with metabolic syndrome. Notable finding was that smoking had significant association among individuals with non-metabolic syndrome serving as a main factor influencing the occurrence of the disease. So healthy lifestyle habits could prevent the occurrence of the disease in both metabolic and non-metabolic group.

## References

- Dunstan DW, Zimmet PZ, Welborn TA, de Courten MP, Cameron AJ, Sicree RA, et al. The rising prevalence of diabetes and impaired glucose tolerance: The Australian diabetes, obesity and lifestyle study. *Diab Care*. 2002;25:829-34.
- Gregory CO, Dai J, Ramirez-Zea M, Stein AD. Occupation is more important than rural or urban residence in explaining the prevalence of metabolic and cardiovascular disease risk in Guatemalan adults. *J Nutr*. 2007;137:1314-9.
- Prabhakaran D, Chaturvedi V, Shah P, Manhapra A, Jeemon P, Shah B, et al. Differences in the prevalence of metabolic syndrome in urban and rural India: A problem of urbanization. *Chr Illness*. 2007;3:8-19.
- Weng X, Liu Y, Ma J, Wang W, Yang G, Caballero B. An urban-rural comparison of the prevalence of the metabolic syndrome in Eastern China. *Publ Health Nutri*. 2007;10:131-6.
- Montazerifar F, Bolouri A, Mozaffar MM, Karajibani M. The prevalence of metabolic syndrome in coronary artery disease patients. *Cardiol Res*. 2016;7:202.
- Paul S, Chakraborty S, Anand U, Dey S, Nandy S, Ghorai M, et al. Withania somnifera dunal: A comprehensive review on ethnopharmacology, pharmacotherapeutics, biomedical and toxicological aspects. *Biomed Pharmacol*. 2021;143:112175.
- Suthar PC, Purkait P, Uttaravalli K, Sarkar BN, Ameta R, Sikdar M. Glutathione S-transferase M1 and T1 null genotype frequency distribution among four tribal populations of western India. *J Gene*. 2018;97:11-24.
- Resort MF, St Thomas US. 14<sup>th</sup> International Symposium on the autonomic nervous system. *Clin Auton Res*. 2003;13:342-93.