

## Association of Acute Stroke, Microalbumunria and PVD Explored

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**Abstract:** Stroke or cerebrovascular disease is the clinical designation for a rapidly developing loss of brain function due to disturbance in the blood supply to the brain. Peripheral Vascular Disease is another important manifestation of cardiovascular disease with similar risk factors to ischemic stroke. Hence we decided to evaluate the relation of Peripheral Vascular Disease and ischemic stroke. The study was a non-randomized cross sectional study done at tertiary care hospitals over a period of two years 45 ischemic stroke patients admitted and met pre-defined criteria gave informed consent for the study were chosen by convenient sampling .An informed consent was obtained from all ischemic stroke patients . Then the strength of association of Microalbumunria in incidence of acute ischemic stroke and the. Peripheral vascular disease was calculated. Statistical Analysis was done using SPSS software version 23.0. A ‘p’ value less than 0.05(p<0.05) is considered significant. In our study MCA was the most common territory involved with 64% cases followed by PCA in 10 % and ACA IN 8 %. In our study all cases had abnormality on imaging indication that ct scan is 100 % sensitive in detecting the CVA .There was a positive co-relation between the triglycerides and urinary microalbuminuria excretion and occurrence of CVA. As the ABI increased the incidence of acute non hemorrhagic stroke increased but there was a negative correlation of Peripheral Vascular Disease induced and acute ischemic stroke. In our study we had there is a significant association between microalbuminuria and incidence of ischemic stroke there was a negative correlation of Peripheral Vascular Disease induced and acute ischemic stroke.

**Keywords:** Stroke, cerebrovascular disease, Peripheral Vascular Disease. Acute ischemic stroke. Microalbuminuria.

## INTRODUCTION

Stroke or cerebrovascular disease is the clinical designation for a rapidly developing loss of brain function due to disturbance in the blood supply to the brain<sup>1</sup>. Stroke is a medical emergency and can cause permanent neurological damage, complication and death if not promptly diagnosed and treated. It is the third leading cause of death and leading cause of serious disability, with major societal consequences [2,3]

Ischemic stroke is caused by sudden occlusion of the artery supplying the brain, either due to a thrombus at the site of occlusion or formed in another part of circulation. Ischemic stroke accounts for about

50-85% of all strokes worldwide [4]. Peripheral Vascular Disease is another important manifestation of cardiovascular disease with similar risk factors to ischemic stroke. Hence we decided to evaluate the relation of Peripheral Vascular Disease and ischemic stroke.

## MATERIALS AND METHODS

The study was a non-randomized cross sectional study done at various tertiary care hospitals over a period of two years al ischemic stroke patients admitted and met pre-defined criteria gave informed consent for the study were chosen by convenient sampling . A detailed general physical examination, Vitals and a detailed CNS examination was performed.

Then the urine albumin level of each patient is estimated and patients who are having urine albumin in microalbuminuria range and not having microalbuminuria are separated. Peripheral vascular disease was evaluated with arterial Doppler of the lower limb. The relation of Microalbuminuria; stroke and Peripheral vascular disease was calculated.

## RESULTS AND OBSERVATIONS

In our study MCA was the most common territory involved with 64% cases followed by PCA in 10 % and ACA IN 8 %. In our study all cases had abnormality on imaging indication that CT scan is 100 % sensitive in detecting the CVA. In our study 62 % cases had ECG showing LVH pattern. Cranial nerve involvement most commonly facial nerve was seen in 74% of all cases. There was a positive co-relation between the triglycerides and urinary micro albumin excretion and occurrence of CVA. As the ABI increased the incidence of acute non hemorrhagic stroke increased but there was a negative correlation of Peripheral Vascular Disease induced and acute ischemic stroke.

## DISCUSSION

Prevalence data for stroke are limited and it has been estimated that the crude prevalence rate in India varies according to region the overall prevalence rate for stroke is estimated between 84-262/100,000 in rural and between 334-424/100,000 in urban areas [5]. Individual Indian studies have estimated that the prevalence rate increased from 0.1 to 0.3 /1000 in the less than 45 years of age group to 12-20/1000 in 75-84 years age group. Stroke prevalence among rural India was 1.1% and urban India was 1.9%. Prevalence is directly proportional to age and inversely proportional to the educational level. Non modifiable stroke risk factors include, age, sex, low birth weight, ethnicity and genetic factors [6-7].

Patients with hypertension and diabetes are already at a risk for cerebrovascular events, in addition to this microalbuminuria is studied to be an independent risk factor for stroke, The correlation of microalbuminuria with other risk factors of stroke such as diabetes and hypertension has been studied in the past, and most studies show a very strong association in predicting stroke and also as a predictor of mortality post stroke.

In a recent study conducted in Gujarat, it was found that modifiable risk factors such as hypertension (40%), alcoholism (35%), smoking (28%) and hyperlipidemia (17%) are the commonest cause of stroke among the elderly and smoking, alcoholism, increased BMI, diabetes and hypertension are significantly associated with strokes among young people. Hyperlipidemia and diabetes are known to be the risk factors for large artery atherosclerotic and small vessel occlusive disease. Microalbuminuria denotes an

abnormal increase in albumin excretion in urine that remains below the lower limits of sensitivity for routine diagnostic methods [8].

Microalbuminuria was originally introduced to clinical practice as a marker for incipient diabetic nephropathy. In the past decade the role of microalbuminuria has become apparent in acute diseases such as Myocardial Infarction and stroke [9, 10]. Manzano *et al.* found that in those patients with  $ABI < 0.8$  had a higher rate of acute cerebral infarction [9]. Heald *et al.* in his study found that  $ABI < 0.9$  were at greater risk for both fatal and non-fatal stroke [10].

## CONCLUSION

In our study we had there is a significant association between microalbuminuria and incidence of ischemic stroke there was a negative correlation of Peripheral Vascular Disease induced and acute ischemic stroke.

## Limitations of the Study

Small sample size is a cause of concern

## Scope for Further Research

Further research of the various sub factors and their association needs to be evaluated

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