



A STUDY OF RISK FACTORS IN RECURRENT ISCHAEMIC STROKE IN TERTIARY CARE HOSPITAL

Dr.K.Prem Kumar	MD., Assistant Professor Of Medicine, Kurnool Medical College, Kurnool.
Dr.Katam Jayavardhan Reddy	MD., Senior Resident Of General Medicine, Kurnool Medical College, Kurnool.
Dr.K.Anil Kumar	MBBS., Postgraduate Of Medicine, Kurnool Medical College, Kurnool
Dr.K.M.Iqbal Hussain	MD., Professor Of General Medicine, Kurnool Medical College, Kurnool.
Dr.N.B.Indira*	MD., Assistant Professor of Medicine, Kurnool Medical College, Kurnool. *Corresponding Author

ABSTRACT **BACKGROUND:** Stroke is second most common cause of death after cardiac disease worldwide. Recurrent strokes are more disabling and more fatal than first ever stroke. Recurrent strokes have been less extensively studied than first ever stroke. The risk of recurrent stroke has been estimated to be 4% in the first month and about 12% in the first year after stroke as per the Oxfordshire community stroke project study.

AIMS AND OBJECTIVES: This study intends to study the most common risk factors in recurrent ischemic stroke patients, it aims to help in treating these risk factors and reducing further recurrent strokes.

METHODOLOGY: The present study is a prospective study conducted in tertiary care government general hospital, Kurnool, Andhra Pradesh for two years from August 2017 to October 2019. Fifty patients were enrolled in the study who were admitted under department of general medicine with recurrent ischemic stroke after considering the inclusion and exclusion criteria. Informed consent was taken before enrolment.

RESULTS: The most common risk factor was hypertension (88%) followed by smoking (48%) and alcoholism (46%). Dyslipidemia and diabetes are seen in 36% of cases. 54% patients had more than 3 risk factors. Mean duration between index stroke to recurrent stroke was 19.8 months. Large artery atherosclerosis is most common type of recurrent ischemic stroke. Drug non-compliance was seen in 82% cases. In hospital mortality was 6%.

CONCLUSION: Inadequate control of risk factors and drug non-compliance seem to be most common cases of recurrent strokes in this study. A better understanding of risk factors could lead to better secondary prevention and decrease risk of further strokes.

KEYWORDS :

INTRODUCTION:

Cerebrovascular disease is historically older than heart disease. Apoplexy was recognized as a cause of death before the time of Hippocrates. Johan Jakob Wefer a Swiss Physician (1620-1695) was the first to suggest that apoplexy was caused by blood vessels of the brain. Stroke is second most common cause of death after cardiac disease worldwide. Recurrent strokes are more disabling and more fatal than first ever stroke. The risk of recurrent stroke has been estimated to be 4% in the first month and about 12% in the first year after stroke as per the Oxfordshire community stroke project study.

The risk factors for stroke are categorized as Modifiable and Non Modifiable risk factors which includes Age, Sex, Smoking, Alcohol, Sedentary lifestyle stress, emotional behavior, obesity, hypertension, diabetes, hypercholesterolemia and poor drug compliance.

AIMS & OBJECTIVES

- To determine the risk factors in patients admitted with recurrent ischemic stroke in medical ICU and wards in government general hospital, Kurnool.
- To determine modifiable and non-modifiable risk factors in patients with recurrent ischemic stroke

Period of study: 1.5 years

Number of cases: 50

Design of the study: A prospective observational study.

INCLUSION CRITERIA: Patients with evidence of recurrent ischemic stroke. Recurrent ischemic stroke is diagnosed if the following criteria are present:

- Symptoms and signs are suggestive of acute loss of focal or global cerebral function.
- Evidence of ischemia on CT scan or MRI scan of the brain.
- Patients with a history of CVA and CT or MRI scan evidence of a previous ischemic stroke.
- Age between 41-85 years.

EXCLUSION CRITERIA:

- Patients with focal epilepsy, migraine, and tumors.
- Patients with evidence of hemorrhage on CT or MRI scan of the brain.
- Stroke secondary to an infection, connective tissue disorders, malignancies, venous thrombosis, hypercoagulable states, hematological disorders, drug abuse,
- Age less than 40 years
- Patients without detailed medical records or without CT or MRI in the acute stage of the first stroke.
- Patients with stroke after medical procedures (carotid endarterectomy, angiography, etc.) or trauma.

METHOD OF COLLECTION OF DATA:

The patients enrolled in the study were subjected to a detailed clinical history and physical examination. Clinical history was obtained from the attendants when the patient had speech disturbances. The following investigations were carried out as part of the study Complete blood count. Urine analysis Fasting blood sugar/postprandial blood sugar. Blood urea, Serum creatinine, Lipid profile, Electrocardiogram (ECG), 2D-Echo with color Doppler, Fundus, Computed Tomography (CT Scan), MRI. The risk factor profile of each patient was evaluated during the stay.

RESULTS:

A total of 50 cases of recurrent stroke are evaluated in this study

AGE DISTRIBUTION:

The mean age of patients in the present study is 58.64 years. The majority of them are in the age group of 50-60 years. The youngest being 45 years and the oldest being 85 years.

SEX DISTRIBUTION:

In this study, the total number of males was 31 contributing to 62%. The total number of females was 19, constituting 38%.

RISK FACTORS:

In this study 44 cases had hypertension as a risk factor, constituting 88%, 18 cases had diabetes as a risk factor, constituting 36%. 18 cases

had Dyslipidemia as a risk factor, constituting 36%. 24 cases had a habit of smoking, constituting 48%. 23 cases had alcoholism as a risk factor, constituting 46% 2 cases had atrial fibrillation as a risk factor; these 2 cases developed cardioembolic stroke. 5 cases had a history of ischemic heart disease, constituting 10% of cases. 6 cases had symptomatic carotid artery stenosis (>50% of lumen stenosis), constituting 12% of cases. In this study, 27 patients (54%) had more than 3 risk factors.

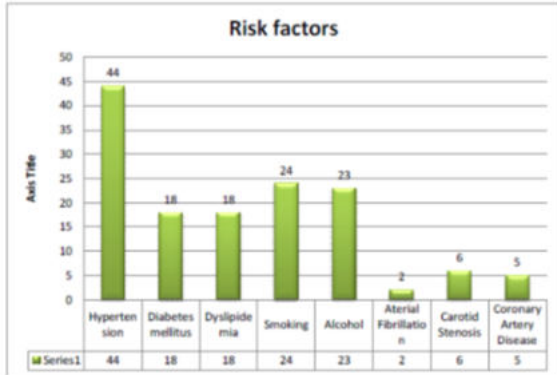


Chart-5: RISK FACTORS



Chart-9: DRUG INCOMPLIANCE

DISCUSSION:

Cerebrovascular disease is historically older than heart disease. Apoplexy was recognized as a cause of death before the time of Hippocrates. Johan Jakob Weefer a Swiss Physician (1620-1695) was the first to suggest that apoplexy was caused by blood vessels of the brain.

RISK FACTORS FOR ISCHAEMIC STROKE

Non-modifiable risk factors

- Advancing age
- Gender (men>women)
- Ethnicity (African American >Asian Americans, >Hispanic Americans or whites)
- Social and economic status
- Family history of vascular disease
- Environmental factors

Leading modifiable risk factors

- Arterial hypertension
- Diabetes mellitus
- Hyperlipidemia
- Obesity
- Physical inactivity
- Hyperhomocysteinemia
- Tobacco use

Other modifiable, less common risk factors

- Alcohol abuse
- Drug abuse
- Post-menopausal use of estrogens
- Oral contraceptive use
- Pregnancy and peripartum state
- Migraine
- Infections
- Sleep apnea

Symptomatic disease in other arterial circulations

- Heart disease

- Coronary artery disease
- Sources of embolism

PATHOPHYSIOLOGY OF ISCHAEMIC STROKE

An acute ischemic stroke involves a rapidly evolving, complex series of events, which include intravascular, endothelial, neuronal, glial, and inflammatory changes that either progress to cell death or resolve with the survival of a functioning neuron.

When blood supply is quickly restored, brain tissue can recover fully, and the symptoms are transient: this is called a *TIA (transient ischemic attack)*. Based on duration and evolution of symptoms stroke is classified into

TIA: A stroke in which symptoms and signs resolve in 24 hours without evidence on brain imaging. The term minor stroke is used to refer to symptoms lasting over 24 hours but not causing significant disability.

PROGRESSIVE STROKE OR STROKE IN EVOLUTION: A stroke in which neurological deficit worsens after the patient first presents. It may be due to the increasing volume of the infarction, hemorrhagic transformation, or increasing cerebral edema.

COMPLETED STROKE: a stroke in which focal deficit persists and is not progressing.

RECURRENT STROKE is defined as a stroke with clinical evidence of the sudden onset of a new focal neurological deficit with no apparent cause other than vascular origin occurring at any time after index stroke.

PROGNOSIS

Many variables may influence the survival, recovery of an individual who has sustained an acute ischaemic stroke.

- Demographic variables,
 - Age, gender and race
- General medial characteristics
 - Hypertension, heart diseases, diabetes, etc.
- Lesion related variables
 - Pathology, lesion size, and size of infarct coma at onset.
- Specific therapeutic intervention
 - Nature of therapy, time of initiating therapy, the intensity of therapy

CONCLUSION:

The most common risk factors for stroke and its recurrence in this study are hypertension followed by Smoking and alcoholism. Arterial Atherosclerosis, Diabetes, Carotid artery stenosis. Multiple risk factors (>3) are seen in 54% of cases In this study, mortality is high in those having more than 5 risk factors. Drug in compliance after index stroke was seen in 82% of cases in this study. These results show the necessity of patient education for a better understanding of risk factors for proper drug compliance and prevention of recurrent strokes. Inadequate control of risk factors and poor drug compliance were the main factors responsible for recurrent strokes as per this study.

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