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General Medicine

EVALUATION OF NON MODIFIABLE RISK FACTORS OF STROKE

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ABSTRACT Stroke is the third most common cause of death in industrialized countries and leading cause of morbidity and longterm disability. Prevalence rate was higher among men compared with women 3.44 and 2.41 per 1000 respectively. On average, about every three minutes someone dies of a stroke. The non-modifiable risks factors are discussed.

KEYWORDS : Stroke ; non modifiable; risk factors; ischemic

INTRODUCTION:

Ischemic Cerebrovascular disease (ischaemic stroke) is a leading public health problem. Every 53 seconds, someone in the United States has a stroke. Annually, approximately 7,60,000 Americans have an initial or recurrent ischaemic stroke. Rates are particularly high in Asia and Eastern Europe. Although definitive data from many third-world countries are not available, stroke likely is a major health care problem in these nations.

For India, community survey have shown a crude prevalence rate for hemiplegia in the range of 200 per 100000 persons, nearly 1.5 percent of all urban hospital admission, 4.5% of all medical and around 20% of all 1 neurological cases .

Stroke is second to heart disease as a worldwide cause of death. In the United States, stroke is the third most common cause of death, following heart disease and cancer.[9]

Since the late 1990s, there has been an increase in survival after stroke and, therefore, it has become a common cause of human suffering and the leading cause of long-term disability.

A stroke is rapidly developing clinical symptoms and / or signs of focal, and at times global (applied to patients in deep coma and to those with SAH) loss of brain function with symptoms lasting more than 24 hrs or leading to 2 death, with no apparent cause other than that of vascular origin .

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
- Hyperhomocystinemia
- 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

AIMS & OBJECTIVES:

1. To evaluate the non modifiable risk factors in patients with ischemic stroke.
2. To find out the prognosis of ischemic stroke with reference to non modifiable risk factors.

MATERIALS & METHODS:

Source of data:

Present study included patients with ischemic stroke who were admitted in Government general hospital Kurnool, Department of general medicine during the period (January 2015 – October 2016). Informed consent was taken before enrolment.

Sixty five patients were enrolled for the study.

Inclusion criteria

Patients with the evidence of ischemic stroke.

Ischemic stroke is diagnosed if the following criteria are present :

1. Symptoms and signs suggestive of acute loss of focal or global cerebral function.
2. Evidence of ischemia on CT scan of brain.

Exclusion criteria

1. Patients with focal epilepsy, migraine, and structural brain lesions (such as tumours).
2. Patients with evidence of haemorrhage on CT scan of head.
3. Stroke secondary to infection and connective tissue disorders.

Investigations like CUE; CBP; FBS;PPBS, RFT;LFT; lipid profile, ECG; 2D ECHO ; Carotid Doppler, CT Brain plain were carried out as part of the study.

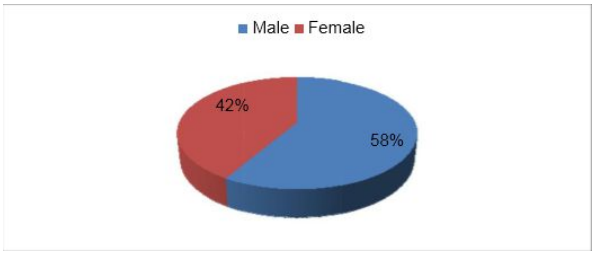
The prognosis /outcome was classified as follows:
- Complete recovery
- Partial recovery
- No recovery (No improvement)
- Death

The risk factor profile of each patient was evaluated during the stay. In the study
- A family history of stroke was entertained if the first degree relatives of the patients suffered from stroke.

RESULTS & ANALYSIS

In the present study 65 cases of acute ischemic stroke who met inclusion and exclusion criteria were analyzed with regards to the risk factors, individually and in combination and they were correlated with the outcome.

Fig. 1 : Sex Distribution



Among 65 patients, 38 were males and 27 were females.

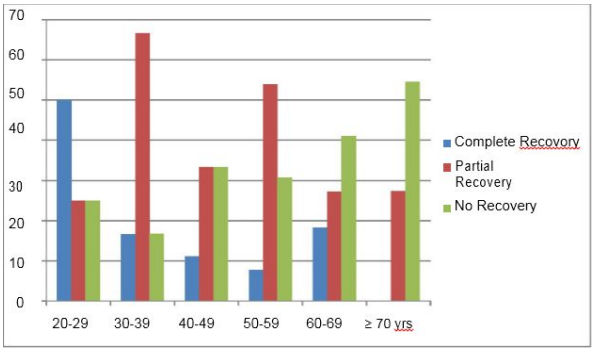
Table 1 : Sex Distribution & outcome

	Total	Expired	Complete Recovery	Partial Recover	No Recovery
Male	38(58.46%)	4(10.52%)	6(15.78%)	16(42.12%)	12(31.57%)
Female	27(41.54%)	4(14.81%)	3(11.11%)	8(29.62%)	12 (44.44%)

Inthe 38 male patients ,4patients (10.52%) expired, 6 patients(16.78%)had complete recovery ,16patients(42.12 %) had partial recoveryand 12 (31.57%) had no recovery.

Inthe 27 female patient s,4patients(14.81 %) expired , 3 patients (11.11%) ha d complete recovery, 8 patients (29.62%) h ad partial recovery and patients (44.44%) had no recovery.

Fig. 2 : Age Distribution



Age distribution ranged widely from with youngest patient being 23yrs and oldest being 80yrs

Table . 2 : Age Distribution & outcome

Age in years	Total	Expired	Complete Recovery	Partial Recovery	No Recovery
20-29	4 (6.15%)	0	2 (50%)	1 (25%)	1(25%)
30-39	6 (9.23%)	0	1(16.60%)	4(66.66%)	1(16.66%)
40-49	9(13.84%)	2(22.22%)	1(11.11%)	3(33.33%)	3(33.33%)
50-59	13(20%)	1(7.71%)	1(7.71%)	7(53.93%)	4(30.74%)
60-69	22(33.85%)	3(13.63%)	4(18.18%)	6(27.17%)	9(40.98%)
≥70 yrs	11(16.92%)	2(18.18%)	0	3(27.28%)	6(54.54%)

The patients were grouped into the following age groups. 20-29 years, 30-39 years, 40-49 years, 50-59 years, 60-69 years and more than 70 years

4 patients (6.15%) were between 20-29 years of age, 6 patients (9.23%) were between 30-39 years of age, 9 patients (30.84%) were between 40-49, 13 patients (20%) were between 50-59 years, 22 patients (33.85%) were between 60-69 years and 11 patients (16.92%) were more than 70 years.

In 20-29 years age group, one patient (25%) had no recovery and 2 patients (50%) had complete recovery, no death occurred in this age group.

In 30-39 years age groups, 4 patients (66.66%) had partial recovery and one patient (16.66%) had complete recovery and one patient did not recover.

In 40-49 years age group, 3 patient (33.33%) had no recovery and partial recovery was seen in 3 other patients (33.33%). One patient (11.11%) had complete recovery and 2 patients (22.22%) expired.

In 50-59 age group, 1 patient (7.71%) had complete recovery and 1 patient expired. 7 patients (53.93%) had partial recovery and 4 patients (30.74%) had no recovery.

In 60-69 age group, 3 patients (13.63%) expired. 4 patients (18.18%) had completed recovery, 6 patients (27.17%) had partial recovery, and 9 patients (40.98%) had no recovery.

In the age group more than 70 years, 2 patients (18.18%) expired, 3 patients (27.28%) had partial recovery and 6 patients (54.54%) had no recovery.

Family history of stroke

Out of the 65 patients, 1 patient (1.6%) gave a family history of stroke. No recovery was seen in the patent.

Table-3: Multiple risk factors and its outcome

	Total	Expired	Complete Recovery	Partial Recover	No Recovery
No .of caseswith risk factors > 1	38 (58.46%)	4 (10.52%)	6 (15.78%)	16 (42.12%)	12 (31.57%)
No.of cases ≤1 risk factors	27 (41.54%)	4 (14.81%)	3 (11.11%)	8 (29.62%)	12 (44.44%)

Among 65 patie nts, 47 pa tients (72.3%) had m ultiple ris kfactors li ke age ≥ 60 years, hypertension, sm oking, diab etes etc. a mong thes e, 6 patients (12.76%) expired, 16 patients (34.04%) had no recovery, 20 patients (30.76 %) had partial recovery an d 5 patients (7%) had complete recovery.

Amo ng the 18 patients (27.6%) wh o had one or no risk factors2 patients(11 .11%)exp ired, 4pa tients(22 .22%) had completerecovery, 4 patients(2 2.22%)ha dpartialrecoveryand8 pati ents(44.4 4%) had no r ecovery.

Table 4 : Clinical presentation of ischemic stroke

Symptoms	No. of	Percentage
Unconsciousness	10	15.4
Motor weakness	49	75.39
Sensory disturbance	0	0
Speech disturbance	20	30.7
Headache	9	13.85
Vomiting	2	3.07
Convulsions	2	3.07
Fe ver	0	0

When the all 65 patients were analysed with respect to clinical presentation , motor weakness was most common manifestation being present in 49 patients (i.e., 75.39%). Speech disturbance was next frequent presentation found in 20 patients (20.7%). Unconsciousness and headache followed being in 10 and 9 patients respectively. Vomiting and convulsions present in 2 patients e ach. None of the patients in this series presented with sensory disturbance.

DISCUSSION

Stroke especially ischemic is a common clinical problem, Approximately 50% of patients are left with permanent disability. Effective risk factor intervention offers a real hope of reducing stroke morbidity and mortality. Certain risk factors have been consistently identified as significant predictor of stroke outcome, while some are less consistent.

In the present study which included 65 patients of ischaemic stroke admitted in our institute ie. Kurnool Medical College and Hospital, we studied the prediction of stroke outcome in relation to sex, age, family history .It was consistent with previous published studies which concluded that ischemic stroke common in advancing Age & males.

Sex

Ischaemic stroke is more common in males than in females except for a slightly increased prevalence of stroke among females between 15-30 years because cerebro vascular events occur as a complication of pregnancy and pureperium. In present study ischaemic stroke is

predominant in males. This is consistent with Bogousalsvsky[3] study and P.M. Dalal study[4]., Xiao-ying Yao Study[5], Tariq mohammad study[6], Indraprastha Apollo hospital study[7].

Table – 5: Sex Ratio

	Male : Female
Present study	1.4:1
P.M. Dalal study[4]	1.2:1
Xiao-ying Yao Study[5]	1.53:1
Tariq mohammad Study[6]	1.91:1
Study in Indraprastha[7] Apollo Hospital, New Delhi	2.08:1

Age

Advancing age is the most important non modifiable risk factor. Risk increases rapidly after age of 55 years in both males and females of all races and ethnic groups.

The risk of stroke doubles with every 10 years of increase in age. Persons age also influences prognosis. Elderly patients die more often and recover less from stroke than younger individuals.

In present study patients below 40 years of age were 10 and 55 patients were above 40 years of age.

The present is consistent with Tariq mohammad study6 while taking similar age groups into consideration.

Table 6 : Showing prevalence of stroke in different age Groups

Age in years	Present study
20-29	4(6.15%)
30-39	6(9.23%)
40-49	9 (13.84%)
50-59	13 (20%)
60-69	22(33.85%)
≥70	11(16.92%)

Table 7: Showing Comparision of Old Study (Tariq Mohammad Study[6])

Age in years	Tariq mohammad study
40-50	10.7%
51-60	45%
61-70	31.3%
71-80	15%
>80	10%

In present study 33 patients (50.7%) were aged above 60 years and 5 patients (62.5%) were expired. All were above 60 years of age. This is consistent with the A.G. Shaper, A.N. Phillips study[8].

Conclusions:

1. Advancing age was the most important non modifiable risk factor with 70.77% of patients above the age of 50 years.
2. Ischaemic stroke was more common in males than in femals (male : female ratio was 1.4 : 1.)
3. Motor weakness was the most common clinical manifestation present in 75.39% of cases.
4. Speech disturbance was the 2nd most common manifestation present in 30.7% of cases.
5. Mortality and morbidity were higher in older age patients. Mortality above the age of 60 years was 62.5% of cases.
6. To conclude the present study the most common non modifiable risk factors in ischaemic stroke being increasing age and male gender associated with poor outcome

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