

Comparative Analysis of Associated Risk Factors Amongst Young and Old Stroke Survivors

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Abstract

Background: Stroke is an important health condition and is one of the leading cause of death worldwide. Disability and impairments following stroke makes the management challenging.

Aims and objectives : 1.To analyze the associated risk factors in young and old stroke.2.To find the associated risk factors in young age patients having stroke.3.To find the associated risk factors in old age patients having stroke.4.To compare between the associated risk factors in young and old stroke.

Material and Method: Survey study was carried out in the department of medicine, neurosurgery and department of physiotherapy, KIMSUDU, Karad. Sample size: 696 subjects with first ever stroke, both male and female above 18 years. Data was anonymously coded and entered into spreadsheet program before analyzed using statistical method. Statistical analysis was done using instat software. The chi square test was used. Percentage and frequency was calculated to summarize the response.

Results: The study included 434 were Male (62%) and 262 were Female (38%).The age distribution was, 335 people were belonging to 20-50 years (48%) and 361 people to 50 to 96 years (52%). This is analyzed that association of these risk factors is increased in young age stroke survivors. Patients with older age had higher frequency of Hypertension (HTN) and Diabetes Mellitus (DM).There is more no. of smokers in young age group. There is a more no. of male stroke survivors than female.

Conclusion: The influence of risk factors at different ages is different. Risk factors like HTN and DM were frequent in older age while more smokers in young age group. Awareness of stroke risk factors and preventive measures can reduce the burden of stroke.

Keywords: Stroke, age distribution, risk factors

Introduction

Stroke is defined by World Health Organization as 'a clinical syndrome consisting of rapidly developing clinical signs of focal (or global in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than vascular origin.'¹ Stroke is considered one of the leading cause of death and disability in India.²The Estimated

prevalence rate of stroke range, 84-262/100000 in rural and 334-424/100000 in urban area. ²

Stroke can be classified as follows:¹

- **On the basis of etiological categories :**

Ischemiac stroke

Hemorrhagic stroke

- **On the basis of specific vascular territory :**

Anterior cerebral artery syndrome, middle cerebral artery syndrome and so forth

- **On the basis of Management categories:**

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Transient ischemic attack, minor stroke, major stroke deteriorating stroke, young stroke.

Young stroke is defined as a stroke affecting people younger than age 50. Young stroke has disproportionately large economic impact by leaving the individuals disabled before their most productive years.³ And this stroke in young adult causes morbidity in socioeconomically active age group.⁴ However, older stroke patients, with age 60-70 years above, were more dependent and disabled beforehand and after stroke, relatively even more dependent than young age people⁵ So, to reduce stroke burden, preventive strategies are important.

Risk factors:

Risk factors for stroke can be classified as modifiable and nonmodifiable.⁶ Age, sex and race/ethnicity and family history are nonmodifiable risk factors for both ischemic and hemorrhagic stroke, while HTN, smoking, diet, hypercholesterolemia, obesity and physical inactivity are some of the more common modifiable risk factors .⁶

Particularly in urban areas, potential triggers for stroke include sepsis, air pollution.¹ Identification of these risk factors is important component of primary care.¹

Older patient group had higher frequency of HTN and DM while younger had obesity and elevated serum triglyceride level.⁷ Younger patients are more likely to be exposed to western type diet, which contains higher total fat.⁸

Studies have concluded that prevalence of stroke is higher in individuals with family history of stroke, HTN, hyperlipidemia and physically inactive individuals mostly in males.⁹

Changing lifestyle, physical inactivity , HTN, obesity are becoming the cause of stroke leading to premature death and disability in developing countries.¹⁰ Early detection of these risk factors leading to stroke, will help for better treatment. This early detection will also help to improve health condition in old age people So, this comparative analysis of associated risk factors in young and old age stroke survivors is necessary.

Aims and Objectives:

1. To analyze the associated risk factors in young

and old stroke.

2. To find the associated risk factors in young age patients having stroke.

3. To find the associated risk factors in old age patients having stroke.

4. To compare between the associated risk factors in young and old stroke.

Methods & Methodology

Ethical approval was obtained from ethical committee of KIMSDU, Karad. An Observational study was carried out in KIMSDU, Karad. Study duration was 6 months with the sample size 696 calculated by the formula

$$n = 4pq$$

$$L^2$$

Subjects with first ever stroke, both male and female, above 18 years were included in the study. Study was carried out with an outcome measure, distribution of risk factors for stroke.

Data was anonymously coded and entered into a spreadsheet program before being analyzed using statistical method. Statistical analysis was done using instat software. The chi square test was used for the study. Percentage, frequency was calculated to summarize the response.

Procedure:

Department of medicine, neurosurgery, physiotherapy and Hospital Record Room were explained about the topic to make them aware for sample that were required to conduct the study.

Subject taken for my study were from indoor as well as outdoor. On the day of enrolment, subjects underwent detailed assessment to fulfill inclusion and exclusion criteria.

Once the subject fulfilled the criteria they were explained about the study and detailed information was given to them. Subjects were explained about: Pattern of study, Need of study, Information generated out of the study, Importance about the information generated, Its effect on general population. Once the consent was taken detailed information was gathered and statistical

analysis was done in order to derive conclusion.

Result

Out of 696 patients, the age distribution was 335 people belonging to 20-50 years and 361 people to 50

to 96 years. **(Table1)** There is a more no. of male stroke survivors than female. **(Table2)** Multivariate analysis shows that difference among various risk factors is statistically significant. **(Table 3)**The frequencies of the various risk factors in different age groups are shown in **Table 3**

Table1: Age distribution

AGE GROUP	TOTAL
20-50	335(48%)
50-96	361(52%)
Total	696

Table2: Gender distribution

GENDER	TOTAL
MALE	434(62%)
FEMALE	262(38%)
Total	696

Table3: Distribution of risk factors according to age groups

Risk factors	Age Groups		Chi Square Test	Relative Risk	P
	20-50 years (n=335)	51-96 years(n=361)			
HTN	157(47)	225(62)	16.156	0.7250	<0.0001
DM	67(20)	173(48)	58.735	6.4750	<0.0001
Hearts disease	33(10)	144(40)	81.099	0.3204	<0.0001
Smoking	244(73)	202(56)	20.783	1.503	<0.0001
Alcohol and drug intake	201(60)	108(30)	62.487	1.879	<0.0001
Kidney diseases	27(8)	64(18)	13.455	0.5828	0.0002
Obesity	144(43)	108(30)	12.288	1.328	0.0005
Hypercholesterolemia	40(12)	21(6)	7.399	1.412	0.0065

Table 3 shows that maximum prevalence was found to be of HTN in older age group is 62% and 47% in younger age group and DM was found to be 48% and 20% in older and younger age group respectively. So, the risk factors HTN and DM were more frequent in the older group than in the younger group. Smoking was relatively common in younger age group than in older.

Discussion

Stroke is one of the leading cause of death and disability in India. This stroke registry based study analyzed the relation between different stroke risk factors and age. This study was done with duration of 6 months. This research was undertaken with the aim of comparative analysis of the associated risk factors in young and old stroke. Objectives of the study were to analyze the associated risk factors in young and old stroke survivors, to find the associated risk factors in young age patients having stroke, to find the associated risk factors in old age patients having stroke and to compare between the associated risk factors in young and old stroke. This study, Comparative analysis of associated risk factors in young and old stroke survivors was conducted on 696 subjects, amongst which 434 were Male (62%) and 262 were Female (38%). The age distribution was 335 people were belonging to 20-50 years (48%) and 361 people to 50 to 96 years (52%) i.e. above 50 yrs. This shows that, there is a more no. of old age male stroke survivors. But now days, even in young age also stroke is seen because of changing dietary habits, work habits, and changing lifestyle.

Prior consent was taken even from the hospital record room. The outcome measure for this study was: Distribution of risk factors. Patients were considered hypertensive if the average systolic blood pressure and diastolic blood pressure is 140 mm hg and 90 mm hg respectively. Prevalence of HTN in older age group is 62% and 47% in younger age group. Diabetes was defined by either of the following criteria: (1) if the patient is diagnosed with diabetes and (2) if at least two fasting glucose readings were 126 mg/dl or higher.⁷ And prevalence of DM was found to be 48% and 20% in older and younger age group respectively. So, the risk factors HTN and DM were more frequent in the older group than in the younger group. A patient is defined as smoker if he had been a current smoker in the past 6 months or more than 6 months. There is increased prevalence of smoking in younger age group (73%) Obesity is having body mass index above 25. Younger

patients are more likely prefer to western type diet, which contains higher total fat.⁸ Changing dietary habits and lifestyle has increased the prevalence of obesity in younger age (43%) than older age (30%). Prevalence of Hypercholesterolemia was comparatively very less in older age group. Cardiac disorders like rheumatic valvular heart disease, endocarditis, coronary artery bypass graft, Atrial fibrillation increase the risk of stroke.¹ Prevalence of heart disease was found to be 10% in younger and 40% in older age group. Alcohol and drug intake is also another considerable risk factor having prevalence 60% and 30% in younger and older age. Prevalence is increased in younger age than in the older age. Another risk factors for stroke are end stage renal diseases, chronic kidney disease, sleep apnea.¹ Kidney diseases have prevalence about 8% and 18% in young and old age stroke survivors respectively. Patients with marked elevations of hematocrit are at an increased risk of occlusive stroke.¹¹ Identification of these risk factors is important component of primary care.¹ Previous studies found that, Older patient group had higher frequency of HTN and DM while younger had obesity and elevated serum triglyceride level.⁷ Studies have concluded that prevalence of stroke is higher in individuals with family history of stroke, HTN, hyperlipidemia and physically inactive individuals mostly in males.⁹

Early detection of these risk factors leading to stroke will help for better treatment. This early detection will also help to improve health condition in old age people.

Conclusion

Following this hospital based study, it was concluded that influence of risk factors at different ages is different. Risk factors such as HTN and DM were frequent risk factors in older age group. There is a more no. of male stroke survivors than female. Risk factors such as smoking and alcohol and drug intake is more common in young age group. Risk of heart disease is more in older age and less in younger age.

Conflict of Interest: There were no conflict of interest in this study.

Source of Funding: Self

Ethical Clearance: Ethical clearance was taken from institutional committee of Krishna institute of medical sciences.

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