



Clinico-epidemiological Profile of Stroke Patients admitted in a Tertiary Care Hospital of Tripura

Authors

Dr Parimal Sarkar¹, Dr Subhadip Paul²

¹Associate Professor, Department of General Medicine, AGMC & G.B. Pant Hospital, Agartala

²MD General Medicine, Medical Officer, Grade IV Tripura Health Service. (Post graduate Resident from 2017-2020)

Abstract

Introduction: Stroke is defined as an abrupt onset of a neurologic deficit lasting for more than 24 hours due to a focal vascular cause. Globally, the incidence of stroke due to ischemia is 68%, while the incidence of hemorrhagic stroke is 32%, reflecting a higher incidence of hemorrhagic stroke in low and middle income countries. A global systematic review of population-based stroke studies has documented that the highest risk of stroke is found in East Asia, Central Europe and Eastern Europe. The estimated incidence rate of stroke in India as per different studies show that 145-154 per lakh per year, where as in US , it is 107 per 1 lakh per year & 87% cases are ischemic stroke. Mumbai, Bangalore and Trivandrum studies revealed more no of ischemic strokes compared to hemorrhagic strokes.

Aim and Objectives: To estimate the clinico-epidemiological profile of stroke cases admitted in Agartala Government Medical College and GBP Hospital.

Materials and Methods: Cross Sectional hospital based study conducted in Department of Medicine, AGMC & GBP Hospital, Agartala within a period of January 2019 to December 2019. Data was analysed by SPSS software ver. 15 using appropriate statistical tests.

Results: Age of onset of stroke is highest in 60–75 years of life. Ischaemic stroke is the commonest occurrence in our study. Males (52%) are more affected compared to females. Rural population (41%) more affected Majority (81%) of the stroke occurs during home stay. Hypertension (47.2%) and diabetes (41.9%) are the major risk factor for the stroke. Hemiplegia and hemiparesis (70%) is the most common presentation followed by loss of consciousness (55%) & speech abnormality (35%). Seasonal variation of stroke is observed in this study as more number of hemorrhagic stroke cases seen during winter season. Higher incidence of hemorrhagic stroke (22%) is observed compared to national data of 18%.

Conclusion: Poor management of hypertension one of the major factors along with diabetes, smoking and high saturated fats in stroke incidence and mortality in low and middle class population. Reduction in LDL cholesterol using statin therapy results in decreased incidence of ischemic stroke by 16–17%. Preventive strategies for rheumatic heart disease and pregnancy in stroke in young. Seasonal variation of blood pressure probably the reason of increase incidence of ICH in winter. Vegetarians are 20% higher risk of stroke.

Introduction

Stroke was defined according to WHO criteria as rapidly developing clinical signs of focal (at times global) disturbance of cerebral function lasting more than 24 h or leading to death with no apparent cause other than that of vascular origin¹.

Stroke is a major global public health problem. According to the Global Burden of Diseases (GBD) study in 1990, stroke was the second leading cause of death worldwide⁸. GBD study reported nearly 5.87 million stroke deaths globally in 2010, as compared to 4.66 million in 1990. This

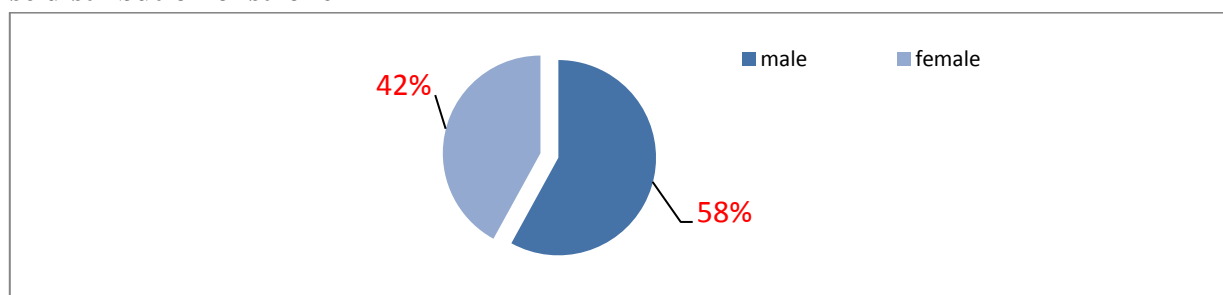
indicated a 26 per cent increase in global stroke deaths during the past two decades. With the rising proportion of mortality, stroke still remains the second leading cause of death worldwide^{2,3}

The estimated incidence rate of stroke in India as per different studies shown that 145-154 per 1lakh per year, where as in US , it is 107 per 1 lakh per year & 87% cases are ischemic stroke. Mumbai, Bangalore and Trivandrum studies revealed more no of ischemic strokes compared to hemorrhagic strokes^{4,7}

Stroke is becoming an important cause of premature death and disability in low-income and middle-income countries like India^{5,6}. A global systematic review of population-based stroke studies has documented that the incidence rate of stroke in low- and middle-income countries (LMICs) has increased from 56/100,000 person-years during 1970-1979 to 117/100,000 person-years during the period 2000-2008 largely driven by demographic changes and enhanced by the increasing prevalence of the key modifiable risk factors. The poor are increasingly affected by stroke, because of both the changing population exposures to risk factors and, most tragically, not being able to afford the high cost for stroke care⁹ India has been experiencing significant demographic, economic and epidemiological transition during the past two decades¹⁰. These have resulted in an increase in life expectancy and consequently an increase in ageing population¹¹. Reliable morbidity and mortality estimates for stroke in India are very limited¹²

Results and Analysis

Sex wise distribution of stroke



Due to this variable epidemiology, the paucity of data and lack of reliable reporting mechanisms the present study is designed to estimate the clinico-epidemiological pattern of stroke in Agartala Government Medical College and GBP Hospital.

Aim and Objectives

To estimate the clinico-epidemiological profile of stroke cases admitted in Agartala Government Medical College and GBP Hospital

Methodology

A cross sectional study hospital based study (IPD) at department of medicine, AGMC and study duration (one year).

Study Population

Patient those will be diagnosed to have cerebrovascular stroke admitted at Agartala Government Medical College & GBP Hospital during this study duration, will be included in the study.

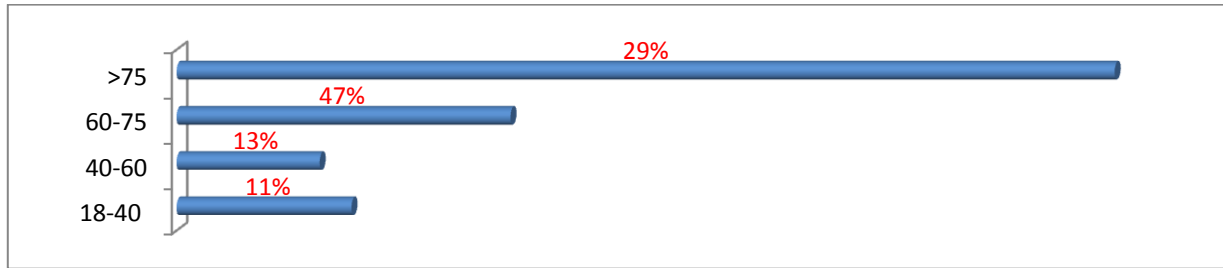
Sample Size

All the patients suffering from cerebrovascular stroke admitted in Agartala Government Medical College & GBP Hospital following exclusion and inclusion criteria will be included in the study. From previous records it is found that in one year approximately 1450 patients was admitted at medicine department.

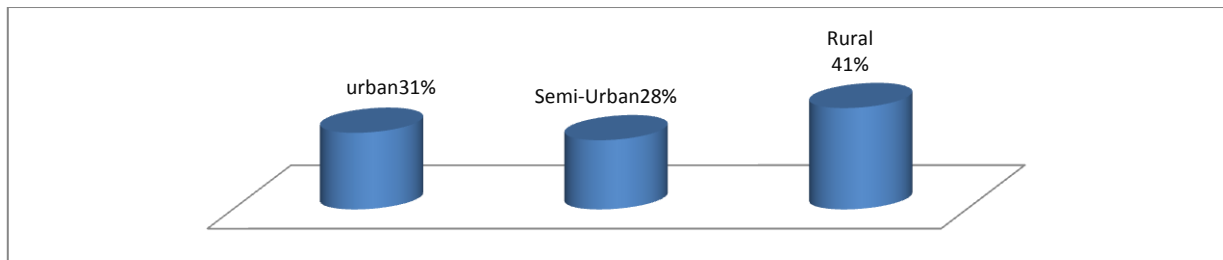
Sample Technique

No sampling technique is required as approximately all the patients, diagnosed with cerebrovascular stroke has been included in te study.

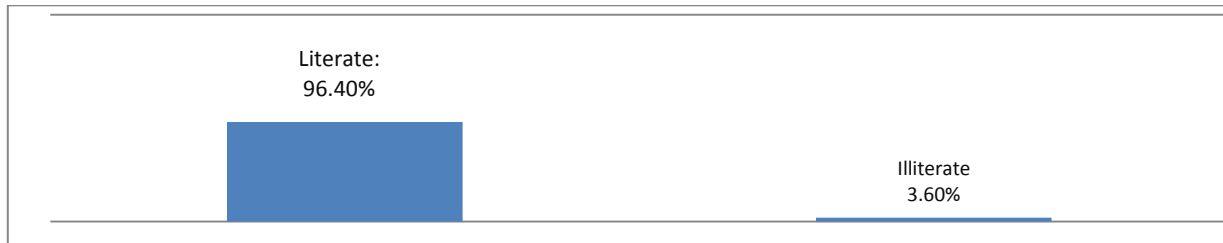
Age wise distribution of stroke



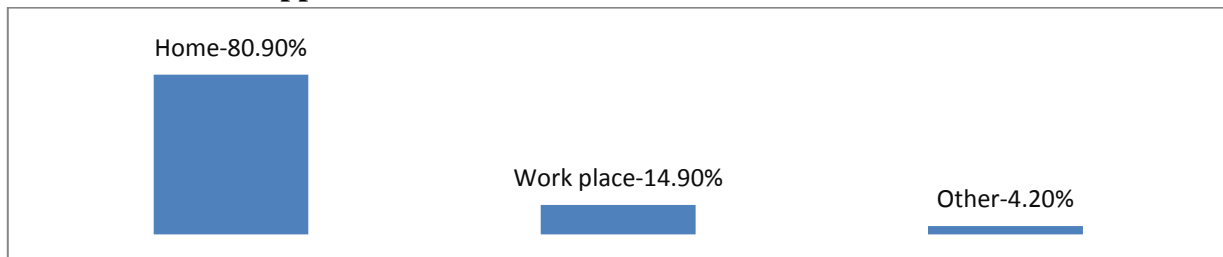
Distribution Area of Residence of Stroke Patients



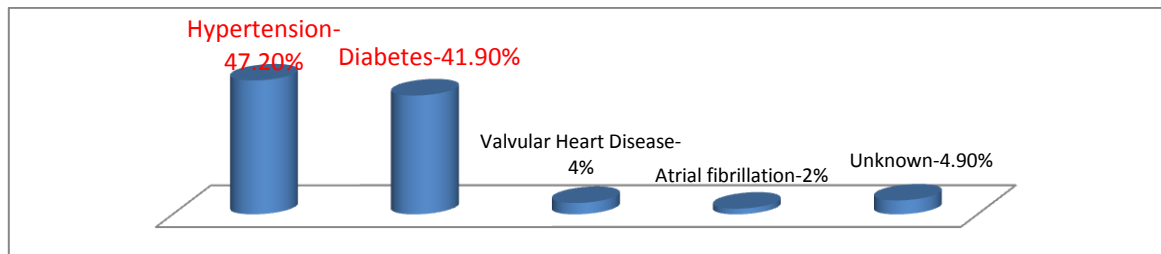
Education Status of Stroke Patients



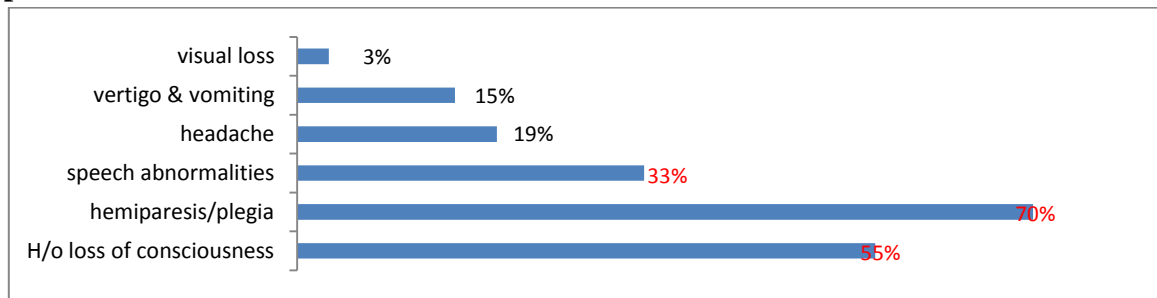
Symptoms of stroke first appears



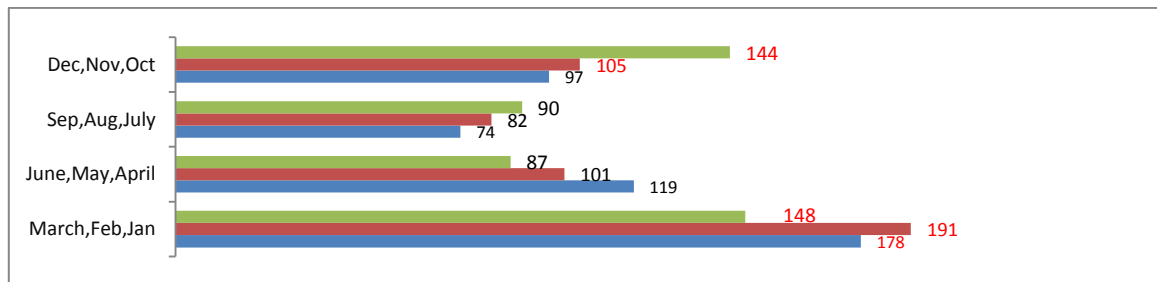
Risk factors of stroke



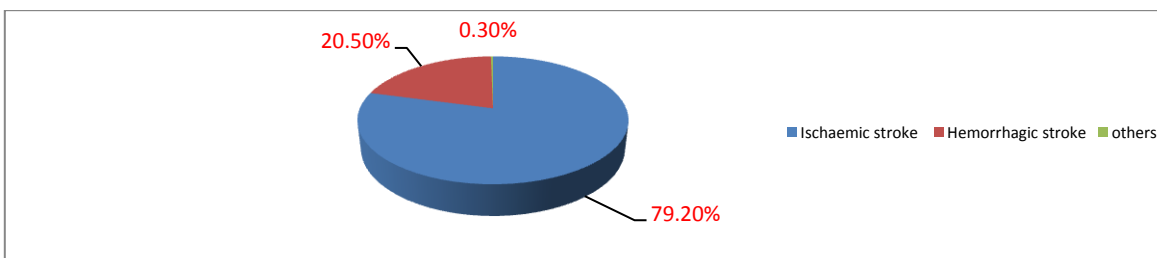
Clinical presentation of Stroke



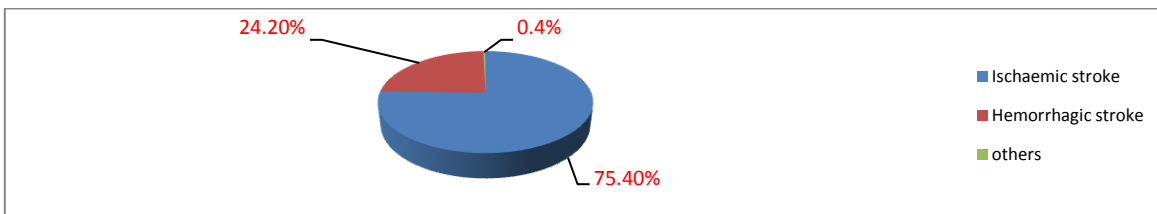
Seasonal Variation of Stroke



Pattern of Stroke in Females



Pattern of Stroke in Males



Discussion

Age of onset of stroke is highest in 60–75 years of life. Ischaemic stroke is the commonest occurrence in our study. Males (52%) are more affected compared to females. Rural population (41%) more affected and most of them are self employed and retired. Majority (81%) of the stroke occurs during home stay. Hypertension (47.2%) and diabetes (41.9%) are the major risk factor for the stroke. Hemiplegia and hemiparesis (70%) is the most common presentation followed by loss of consciousness (55%) & speech

abnormality (35%). Mean blood pressure was higher 162/98mm of Hg. Seasonal variation of stroke is observed in this study as more number of hemorrhagic stroke cases seen during winter season. Higher incidence of hemorrhagic stroke (22%) is observed compared to national data of 18%. This high proportion of cerebral hemorrhage in the North-Eastern India than in other part of the Country may be due to of lifestyle changes and possibly economic transition of the general population.

Conclusion

There is a paucity of epidemiological studies on stroke in north-eastern region of India which emphasizes the need for a focussed, coordinated effort to study the extent of stroke. This would facilitate planning policies and programmes for primary prevention of stroke and address the existing magnitude of stroke-related disability in this region. Given the disabling nature of the condition and available evidence on the silent stroke epidemic in India, the rehabilitation needs of the stroke survivors are also expected to be high. Thus, future investment in the study of clinico-epidemiology of stroke in this region would lead to the development of better preventive and cost-effective measures against stroke and related mortality. It can also enhance organizing stroke care services and better rehabilitation measures to address the unmet needs of the stroke survivors which are expected to be varied and substantial.

References

1. Aho K, Harmsen P, Hatano S et al. Cerebrovascular disease in the community: results of a WHO collaborative study 1980; 58: 113-130
2. Strong K, Mathers C, Bonita R. Preventing stroke: Saving lives around the world. *Lancet Neurol* 2007; 6 : 182-7
3. Strong K, Mathers C. The global burden of stroke. In: Mohr JP, Grotta JC, Wolf PA, Moskowitz MA, Mayberg MR, Von Kummer R, editors. *Stroke: Pathophysiology, Diagnosis and Management*. 5th ed. Philadelphia, PA: Elsevier; 2011. p. 279-89.
4. Bhupendra Narayan Mahanta, Tulika Goswami Mahanta: Clinico-epidemiological profile of stroke patients admitted in a tertiary care Hospital of Assam: *Clinical epidemiology and global health* 2018;vol 6(3) :122-129.
5. Bonita R, Beaglehole R. Stroke prevention in poor countries. Time for action. *Stroke*. 2007;38:2871–2872.
6. Pandian JD, Srikanth V, Read SJ, Thrift AG. Poverty and stroke in India. A time to act. *Stroke*. 2007;38:3063–3069.
7. Praful M Dalal et al Population based stroke survey in Mumbai, India: Incidence and 28 day case fatality: *Neuro-epidemiology journal* 2008;31:254–261.
8. Murray C, Lopez A. *Global health statistics: A compendium of incidence, prevalence and mortality estimates for over 200 conditions*. Cambridge, MA: Harvard University Press; 1996.
9. Feigin VL, Lawes CMM, Bennett DA, Barker-Collo SL, Parag V. Worldwide stroke incidence and early case fatality reported in 56 population-based studies: A systematic review. *Lancet Neurol* 2009; 8 : 355-69.
10. Horton R, Das P. Indian health: The path from crisis to progress. *Lancet* 2011; 377 : 181-3.
11. Dalal P, Bhattacharjee M, Vairale J, Bhat P. UN millennium development goals: Can we halt the stroke epidemic in India? *Ann Indian Acad Neurol* 2007; 10 : 130-6.
12. Kamalakannan SK, Gudlavalleti ASV, Murthy Gudlavalleti VS, Goenka S, Kuper H. Challenges in understanding the epidemiology of acquired brain injury in India. *Ann Indian Acad Neurol* 2015; 18 : 66-70.

Abbreviation

ICH: Intra cerebral hemorrhage
LDL: low density lipoprotein.