

A Study on Symptoms, Risk Factors and Prescribing Pattern of Drugs Used in Stroke Patients in A Tertiary Care Teaching Hospital

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ABSTRACT:

Stroke is the most common cerebrovascular disorder, with the prevalence progressively increasing with age and elderly subjects being more prone for various stroke related complications. Globally it is the second leading cause of death. The aim of this study is to evaluate the symptoms, risk factors and prescribing pattern of drugs in stroke patients. The study is a prospective observational study conducted at Government Cuddalore Medical College and Hospital (Erst Rajah Muthiah Medical College) over a period of three-month from May 24 to July 24, involving 80 patients aged 20 years to more than 80 years. Data were collected from case sheets of the patients. Among the 80 patients studied, 71 (88.7%) exhibited symptoms such as slurred speech, 69 (86.2%) had deviation of mouth, 65 (81.2%) experienced weakness on the left side and 8 (10%) had weakness on the right side. The most common risk factor associated with stroke was hypertension in 55 (68.7%) patients, followed by diabetes mellitus in 46 (57.5%) patients, old cerebrovascular accidents in 35 (43.7%), heart disease in 19 (23.7%), alcohol use in 22 (27.5%), and smoking in 13 (16.2%). The majority of stroke patients were prescribed lipid lowering agents (93.7%) and antiplatelet drugs (86.25%). This study highlighted the predominant symptoms of stroke and identified various risk factors in these patients. The findings emphasize the importance of early and appropriate management of stroke to prevent further complications. A combination of therapy, lifestyle changes, and better management of risk factors is crucial for improving recovery, quality of life, and reducing stroke symptoms.

Keywords: Risk factors, Symptoms, Stroke related complication, Prescribing pattern.

INTRODUCTION:

Stroke, a leading cause of morbidity and mortality worldwide, presents a significant public health challenge. It occurs when the blood supply to a part of the brain is interrupted or reduced, depriving brain tissue of oxygen and nutrients, which leads to the death of brain cells. The consequences of a stroke can be devastating, leading to long-term disability, cognitive impairment and in severe cases death. Secondary stroke prevention remains a top priority in treating patients after the first stroke, which mainly includes controlling of risk factors with drugs and lifestyle measures, post stroke infection control and rehabilitation to reduce the morbidity and mortality to improve the quality of life. Pharmacological intervention is a cornerstone in the management of stroke, involving the use of antiplatelets, lipid lowering agents, anticoagulants, thrombolytics, and neuroprotective agents, depending on the type and severity of the stroke. The prescribing pattern of these drugs is influenced by various factors including the patient's medical history, the type of stroke, and the presence of comorbid conditions. In a tertiary care teaching hospital, into where complex cases are often referred, the prescribing patterns for stroke patients offer valuable insights into the clinical management and therapeutic approaches used in such settings. This study aims to analyse the symptoms, risk factors and prescribing patterns of drugs used in stroke patients in a tertiary care teaching hospital. Understanding these aspects can provide a foundation for improving stroke management practices, enhancing patient outcomes, and in guiding future research development in stroke care.

MATERIALS AND METHODS:

STUDY DESIGN: This study is a prospective observational study.

STUDY SITE: Department of General Medicine, Government Cuddalore Medical College and Hospital, Tertiary Care Teaching Hospital [Erst. Rajah Muthiah Medical College], Chidambaram, Tamil Nadu.

STUDY PERIOD: 3 months (May 2024 - July 2024)

SAMPLE SIZE: 80 patients

SOURCES OF DATA: Case sheets of in-patients.

STUDY POPULATION:

Inclusion Criteria:

- Patients in the age group of >18 years who were diagnosed with stroke with or without comorbidities.

Exclusion Criteria:

- Patient below the age of 18.
- Patient who were pregnant.

STUDY METHOD: Case sheet based collection of data regarding patient's demographic factors like gender, age, patient medical conditions, comorbidities, prescribed drugs. The report will be analysed using suitable descriptive statistical tools.

RESULT:

Gender Distribution of Stroke Patients: This study involved 80 stroke patients over a three-month period. Among these 80 patients, 47 were male and 33 were female.

Age Distribution of Stroke Patients: The age of the patients ranged from 20 years to over 80 years. The highest percentage of stroke was observed in the age group of 60-80 years, which constituted 48.7% of the total patients. This was followed by the 40-60 year age group, making up 28.7% of the cases. Patients aged 20-40 years accounted for 15% of the total, while those aged >80 years represented 7.5% of the patient population

Types of Stroke Experienced by the Study Population: Out of the total study population, 78(97.5%) patients experienced Ischemic stroke, and 2(2.5%) Patients experienced Haemorrhagic stroke.

Symptoms Wise Distribution of Stroke: Out of 80 patients, 71(88.7%) patients presented with symptoms like slurred speech, followed by deviation of mouth in 69 (86.2%), weakness on left side in 65 (81.2%), weakness on right side in 35 (43.75%), facial palsy in 5(6.2%) patients.

Risk Factors:

In this group of 80 patients, the most prevalent risk factors for stroke were hypertension, diabetes mellitus, heart disease, smoking, and alcohol use. Hypertension was observed in 55 (68.7%) patients, followed by diabetes mellitus in 46 (57.5%), alcohol use in 22 (27.5%), heart disease in 19 (23.75%), and smoking in 13 (16.2%) patients.

Assessment of Past History in Stroke Patients

Among the total study population, 35 (43.7%) patients had a previous history of stroke, while 45 (56.25%) patients did not have a history of stroke in the past.

Table-1: Distribution of stroke patients based on gender, age, type, symptoms, past history, risk factors.

CATEGORY	NUMBER OF PATIENT	Percentage
GENDER		
Male	47	(58.7%)
Female	33	(41.2%)
AGE		
20-40	12	(15%)
40-60	23	(28.7%)
60-80	39	(48.7%)

>80	6	(7.5%)
TYPES OF STROKE		
Ischemic Stroke	78	(97.5%)
Haemorrhagic Stroke	2	(2.5%)
SYMPTOMS		
Slurred Speech	71	(88.7%)
Deviation of Mouth	69	(86.2%)
Weakness on Left Side	65	(81.2%)
Weakness on Right Side	8	(10%)
Facial Palsy	5	(6.2%)
PAST HISTORY OF STROKE		
Present	35	(43.7%)
Not Present	45	(56.2%)
RISK FACTORS		
Hypertension	55	(68.7%)
Diabetes Mellitus	46	(57.5%)
Alcohol	22	(27.5%)
Heart Disease	19	(23.7%)
Smoking	13	(16.2%)

Prescribing pattern of drugs in stroke

Among the 80 patients, lipid lowering agents specifically Atorvastatin, was given to 75 (93.7%) patients, antiplatelet drugs like Aspirin were given to 69 (86.25%) and Clopidogrel to 52 (65%) patients. For those with hypertension, various anti-hypertensive medications were used: beta blockers for 20 (25%), ACE inhibitors for 15 (18.75%), and calcium channel blockers for 9 (11.2%) patients. Stroke patients who experienced seizures were treated with antiepileptic drugs, including Levetiracetam for 8 (10%), Phenytoin for 4 (5%), and Carbamazepine for 1 (1.25%). Mannitol was administered to reduce intracranial oedema and this was prescribed to 45 (56.25%) patients. The anticoagulant drug Heparin was administered to 9 (11.2%) patients. Due to the high risk of hospital-

acquired infections in stroke patients, antibiotics such as Cefotaxime, Ceftriaxone, Metronidazole, and Azithromycin were administered. Thiamine was given to 51 (63.7%) patients. Overall, the majority of stroke patients were treated with antiplatelets and lipid lowering agents.

Table 2: Distribution of drugs prescribed in stroke patients

DRUGS	NUMBER OF PATIENTS	(Percentage)
Atorvastatin	75	(93.7%)
Aspirin	69	(86.2%)
Clopidogrel	52	(65%)
Thiamine	51	(63.7%)
Mannitol	45	(56.2%)
Beta blockers	20	(25%)
ACE inhibitors	15	(18.7%)
Calcium Channel Blockers	9	(11.2%)
Heparin	9	(11.2%)
Levetiracetam	8	(10%)
Phenytoin	4	(5%)
Carbamazepine	1	(1.2%)

DISCUSSION

This study provides valuable insights into the characteristics, risk factors, and treatment patterns of stroke patients at a tertiary care teaching hospital.

The gender distribution in this study revealed a higher number of male patients (58.7%) with stroke as compared to females (41.2%). This finding aligns with existing literature, which often shows a slightly higher prevalence of stroke in males. *Study by R P Eapen et al also suggests that clinically significant stroke events were more in males than females [8].* The age distribution highlighted that stroke predominantly affects older adults, with the highest prevalence observed in the 60-80year age group (48.7%). This is consistent with the well-documented increase in stroke risk with advancing age. *This findings were similar to the findings of a study done by Hussainy et al [2].* The 40-60year age group also represented a significant portion of the patients (28.7%), indicating that stroke is a considerable concern even in the middle-aged population.

Most patients in this study experienced ischemic stroke (97.5%), with only a small percentage having haemorrhagic stroke (2.5%). This high proportion of ischemic stroke cases is in line with global trends, where ischemic stroke is more common than haemorrhagic stroke. The focus on ischemic stroke may reflect underlying vascular risk factors prevalent in the studied population. *These findings were similar to findings of a study done by Aiyar et al and R P Eapen [8,9].*

The symptom distribution among stroke patients revealed that slurred speech (88.7%) and deviation of mouth (86.2%) were the most common manifestations, followed by weakness on the left side (81.2%) and right side (43.75%). Facial palsy was less common (6.2%). These findings are

consistent with typical stroke symptoms, which often involve sudden onset of speech difficulties and unilateral weakness. The predominance of slurred speech and deviation of mouth underscores the importance of early recognition of these symptoms for prompt intervention. *These findings were in concordance with the study conducted by Aiyar et al [9].*

The risk factor analysis revealed that hypertension was the most prevalent risk factor (68.7%), followed by diabetes mellitus (57.5%), alcohol use (27.5%), heart disease (23.75%), and smoking (16.2%). *Similar findings were found in data from the study as Inter heart and Inter stroke studies conducted in 22 countries included India by Donnell et al identified major risk factors for stroke [10].* These results corroborate well-established associations between stroke and these risk factors. The high prevalence of hypertension and diabetes highlights the need for rigorous management of these conditions to mitigate stroke risk. A substantial portion of the study population (43.7%) had a history of previous stroke, indicating a significant risk for recurrent stroke in these patients. This finding emphasizes the importance of secondary prevention strategies and ongoing monitoring for patients with a history of stroke.

The treatment patterns observed in this study reflects current clinical practices for stroke management. The use of lipid lowering therapy particularly Atorvastatin (93.7%) underscores the importance of lipid management in stroke patients. *which is similar to the findings conducted by Preethi et al where the same drugs were prescribed in stroke patients [11].* Antiplatelet drugs Aspirin (86.25%) and Clopidogrel (65%) were commonly prescribed aligning with guidelines recommending their use in the acute phase and secondary prevention of ischemic stroke.

The administration of Mannitol (56.25%) for reducing intracranial oedema, as well as antiepileptic drugs for those with seizures, reflects the tailored approach to addressing specific complications of stroke. *In the study by Preethi et al, she reported that patients were given Phenytoin for control of seizures, which showed uniform results as that of the present study [11].* Antibiotic use was also prevalent, addressing the high risk of hospital-acquired infections in stroke patients. The provision of Thiamine (63.7%) highlights the attention to nutritional support. Anticoagulant therapy with Heparin was less common (11.2%), which is expected given its specific indications for certain stroke type.

CONCLUSION:

This study provides a comprehensive overview of stroke characteristics, risk factors, and treatment patterns among 80 patients at a tertiary care teaching hospital. Among the study population, the gender distribution in this study revealed a higher incidence of stroke in male patients (47) as compared to female (33). The age distribution highlighted that stroke predominantly affects older adults, with the highest prevalence observed in the 60-80year age group (48.7%). The predominance of slurred speech and deviation of mouth underscores the importance of early recognition of these symptoms for prompt intervention. Hypertension and diabetes mellitus emerged as the predominant risk factors for stroke in this population, reinforcing the critical need for effective management of these conditions to prevent stroke. The treatment patterns observed align with current clinical guidelines, emphasizing the use of antiplatelet medications like Aspirin and Clopidogrel for acute and secondary prevention, and lipid lowering agent like Atorvastatin to manage lipid levels. The study also highlights the importance of addressing stroke-related complications with targeted interventions, such as Mannitol for intracranial oedema, antiepileptic drugs for seizure management, and antibiotics to prevent hospital-acquired infections. The administration of Thiamine underscores the role of nutritional support in stroke care.

Overall, this study underscores the importance of a multifaceted approach to stroke management, including early symptom recognition, rigorous control of risk factors and tailored treatment strategies. Adhering to these practices can significantly improve patient outcomes and quality of life, while also contributing to the goal of reducing the global burden of stroke.

CONFLICT OF INTEREST:

There is no potential conflict of interest in this study.

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