



A Review of Retrospective Study on Drug Utilization Pattern of Brain Stroke

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Abstract

Neurologists now treat an increasing number of strokes as a major public health concern, with neuroprotective medications serving as the cornerstone of care. Further research in this area is necessary because India lacks well-defined studies regarding the clinical symptomatology of stroke medications. The term "stroke" refers to a broad range of disorders involving the blood vessels of the central nervous system. These disorders can arise from either hemorrhaging into the parenchyma or subarachnoid space of the CNS, causing neurologic dysfunction, or from inadequate blood flow to the brain, leading to infarction of the involved portion of the CNS. One of the leading causes of death in the world is stroke. This review looks at a study that was conducted in the past on the drug use habits of stroke of the brain. The study's objectives are to examine the medications that are prescribed to stroke victims and identify the variables that affect the selection of treatments. The review highlights the most commonly prescribed medications for the treatment of stroke and any potential gaps in medication use. It also provides a summary of the study methodology and findings. It also identifies areas for future research and talks about how the study's conclusions might improve the outcomes of stroke treatment. In summary, this review offers significant new information about the drug use pattern associated with brain stroke and how it affects patient care and healthcare planning.

Keywords: Drug utilization pattern, Medication adherence, Patient counseling, stroke, dyslipidemia, hypertension.

Article Info

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1. Introduction

In the world, stroke ranks third in terms of disability and is the second most common cause of death. An abrupt onset of neurological dysfunction is known as a stroke. Restoring blood flow to the brain and treating stroke-induced neurological damage are the main goals of stroke therapy. When the arteries supplying the brain burst during a stroke, brain cells suddenly die from a shortage of oxygen. Neuroprotective medications are now the go-to tool in the battle against stroke disease. It is the most prevalent neurological disorder that results in permanent disability and has a significant socioeconomic impact on medical services, patients, and their families. Drug utilization

studies that assessed and examined the economic, social, and medical effects of medication therapy take note of the prescribing mindset of doctors treating stroke patients. WHO defined prescription drug use as the use of drugs in a society taking into account its medical, social, or economic constituents, and drug utilization as marketing distribution.

Affected areas of brain stroke

- Frontal lobe stroke.
- Parietal lobe stroke.
- Temporal lobe stroke.
- Occipital lobe stroke.

- Brain stem stroke.
- Cerebellar stroke.
- Thalamic stroke.
- Basal ganglia stroke.

Causes of Brain Stroke

- High blood pressure
- High cholesterol
- Diabetes
- Cardiovascular diseases include heart failure, infections, and irregular heart rhythms.
- Cigarette smoking or secondhand smoke exposure.
- Overweight and obesity
- Clotting disorders
- Atrial fibrillation
- Smoking

Signs and Symptoms

- Arms and legs weakness
- Speech difficulties
- Vision loss
- Dizziness
- Confusion
- Facial drooping
- Off-balance.
- Nausea
- Vomiting

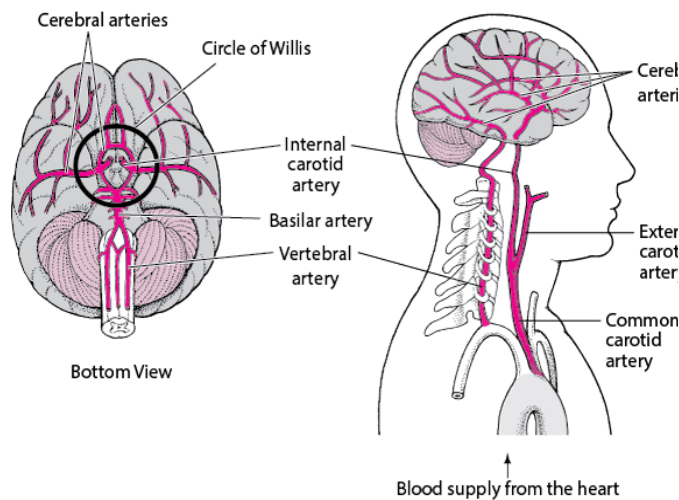


Fig.1. Anatomy of the brain

Pathophysiology

Cerebral damage caused by an ischemic cascade. An area of the brain that is hypoperfused after an ischemic stroke sets off a convoluted chain of events. Neurons, glia, and endothelial cells eventually die from excitotoxicity, oxidative stress, microvascular injury, blood-brain barrier dysfunction, and postischemic inflammation. The amount of cerebral damage depends on the severity and length of the ischemia.

Pharmacological Treatment

Anti-platelet agent: Aspirin, dipyridamole

Oral coagulants: Warfarin

Thrombolytics: Streptokinase, urokinase

HMG co A reductase inhibitors: Atorvastatin, simvastatin

ACE inhibitors: captopril, enalapril

2. Methodology

A Retrospective Observational study was conducted for a period at the General Medicine and Neurology department of a tertiary care teaching hospital with a sample size of 50 patients.

Inclusion criteria:

- Both males and females are included in the study.
- Patients of age >18 years diagnosed with ischemic stroke and hemorrhagic stroke were included in the study.
- Those patients who had radiologically confirmed diagnoses of stroke using CT/MRI scans were included.

Exclusion criteria:

- Patients of age <18 years, were excluded.
- Pregnant women were excluded
- Lactating women were excluded

3. Results and Discussion

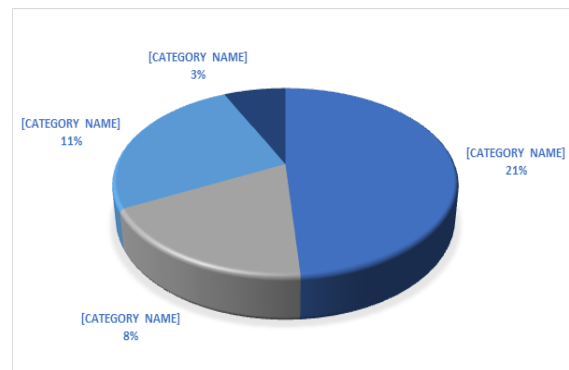


Fig.2. Frequency of Causes of Brain Stroke

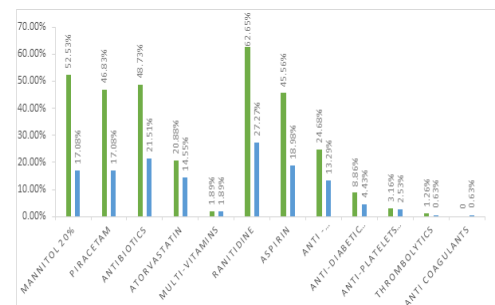


Fig.3. Frequency of Drugs Used For Stroke

A total of 50 prescriptions were collected and analysed for the drug utilization pattern and drug-related problems in stroke. Among 50 patients with stroke, 26% of males and 14% of females were found with stroke. Stroke is more prevalent in males than females. From the records ischaemic stroke was higher than the haemorrhagic stroke. Mostly 43% were identified as ischaemic stroke patients and 7% were diagnosed with haemorrhagic stroke. The study revealed that stroke was more prevalent in the age group above 50-60 years (28%), followed by the age group 60-70 (26%). The social history of the patients revealed that 21% of patients were smokers 8% of patients were alcoholics, 11% had a history of both smoking and alcohol and 3% were tobacco users.

Table 1: Drugs Used in stroke patients

| DRUGS | Male N (%) | Female N (%) |
|----------------------|---------------|-----------------|
| Mannitol 20% | 52.53% | 17.08% |
| Piracetam | 46.83% | 17.08% |
| Antibiotics | 48.73% | 21.51% |
| Atorvastatin | 20.88% | 14.55% |
| Multi-vitamins | 1.89% | 1.89% |
| Ranitidine | 62.65% | 27.27% |
| Aspirin | 45.56% | 18.98% |
| Antihypertensive | 24.68% | 13.29% |
| Anti-diabetic drugs | 8.86% | 4.43% |
| Anti-platelets drugs | 3.16% | 2.53% |
| Thrombolytics | 1.26% | 0.63% |
| Anti-coagulants | 0 | 0.63% |

4. Conclusion

The present study was designed to assess the drug use pattern and drug-drug interactions in hospitalized stroke patients in a tertiary care hospital. The results revealed that stroke is more prevalent in males than females. The incidence of ischemic stroke is higher than that of hemorrhagic stroke. The drugs that are majorly prescribed in stroke patients are antihypertensives, Neuroprotective, anti-platelets, and dyslipidemic agents. In this study, DDI mainly occurred between antiplatelet drugs and clopidogrel. Physicians should remember interactions among those drugs while prescribing for stroke patients and thorough monitoring should be required for patient safety. Among 100 patients, 10 patients were experienced with ADR, particularly with antibiotics and anticoagulants in the geriatric population. Around 44 prescriptions were found to be prescribed irrationally among the geriatrics. Drug-related problems were substantially high among geriatric inpatients. Hence, special attention is required to stop the occurrence of DRPs in these patients. Therefore, necessary monitoring is important for preventing, identifying, and solving these problems.

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