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Study of Prevalence of Stroke and Prescribing Pattern of medication for Stroke Patients

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Abstract

Aim and Objectives: To study the prevalence of stroke and prescribing pattern of medications for stroke patients.

Methodology: This prospective observational study conducted at Aware Global Hospital inHyderabad aimed to investigate stroke prevalence and prescribing patterns for stroke patients.Over a 6-month period, data was collected from 100 neurology department.

Results: The research findings reveal a higher stroke incidence in males (54%) than females(46%), predominantly ischemic stroke (48%). The 41 to 50 age group faces a higher risk (25%),often linked to hypertension and diabetes. Treatmentinvolves use of Proton pump inhibitors (90%), Antiplatelets (86%), Statins(85%), Anti-hypertensives (64%), Antipyretics/Analgesics (48%), and Anti-emetics(30%). Multivitamins(92%) and Anti-diabetic medication(48%) were also frequently administered. Commonly prescribed Antiplatelet therapy often combines Aspirin and clopidogrel (86%).

Conclusion: The study, focused on stroke demographics, found a peak in the 41-50 age group,with a higherincidencein males when compared tofemales. Smoking and alcohol use weremore prevalent. Ischemic strokes were predominant, often linked with hypertension and diabetes.Prescribing patterns included proton pump inhibitors, antiplatelets, statins, and multivitamins.Drug combinations for diabetes and antiplatelet therapy were identified, offering insights intostroke management.

Keywords: Ischemic stroke, hemorrhagic stroke, diabetes, hypertension, aspirin

Introduction
Definition
Stroke is a neurological condition causedby vascular issues, including cerebral infarction, intracranial hemorrhage, and subarachnoid hemorrhage especially when conditions like a trial fibrillation or valvular heart disease are present.[1] A stroke is aneurological condition marked by the obstruction of blood vessels. It occurs when clots developin the brain, disrupting blood flow and causing arteries to become blocked or break, leading tobleeding.[2] Stroke rehabilitation should start promptly after a stroke and continue as long asneededforclinicalreasons.[3]

Epidemiology
Stroke is a significantglobal cause of death, and while itis more common among elderlyindividuals. [4] The population-basedcalculations confirm a rising in both of the incidence and prevalence risk of stroke in India.[5]By 2025, it is estimated that four out offive stroke cases will occur in India. Stroke prevalence varies across different regions, rangingfrom 40to270cases per100,000 people.Surprisingly,about12% of all strokes occurinindividuals under 40 years old. [6] Stroke is a major health concernglobally, causing both permanent disability and significant mortality, especially in high-incomenations. [7]

ClinicalPresentations
The patients suffering from strokemay not be able to give proper history due to their defects in cognation and language, hence the information need to be collected from the patients care takers or other witnesses. The patient may show weakness on one part of the body, difficulty in speaking, vision loss, vertigo etc. [8]Whensomeone is having a stroke, they may show signs like confusion, difficulty speaking, headache,numbness or inability to move parts of the face, arm, or leg, vision problems, and difficulty walking. Strokes can result in long-term health issues, varying from temporary top ermanent disabilities, depending on the speed of diagnosis and treatment. Additional effects can include bladder or bowel control problems, depression, paralysis, or emotional difficulties. Recognizing stroke symptoms using the "FAST" acronym-checking for face drooping, arm weakness, speech difficulty, and time to act quickly-helps in seeking prompt medical attention, reducing the risk of permanent damage or death.[9] The majority of patientsexhibited prevalent symptom's suchasslurred speech, changes in speech, right-sided weakness,headaches, left-sided weakness, and mouth deviation.[10]

Treatment
Thedrugtreatmentapproachencompassesoptionssuchasthrombolytics,anticoagulants,antihypert ensives,bloodlipid-loweringagents,andantiplateletmedications.Selecting the right route and dosage form is emphasized for optimal therapeutic effects in strokemanagement[11,12]

Primary prevention involves medications like aspirin, statins, and BloodPressure [BP] control, while secondary prevention includes interventions like artery excision,surgery, and anticoagulants. Additionally, preventive antibiotic therapy in the acute stroke phaseis highlighted to reduce infections and enhance overall outcomes. Managing infectionsbecomesa critical aspect in minimizing the impact of stroke, especially during the acute phase. [13]

Methodology
Study Site: The study was carried out at Aware Global Hospital (Gleneagles Global Hospital)located at LB Nagar, Hyderabad. It is a multi-specialty tertiary care hospital, offering treatmentrelatedto health issues of all departments.
Study Design: A prospective observational study was carried out for a period of 6 months inpatientsof neurologydepartment based onthe prescribingpatterns ofdrugsin strokepatients.
Study Period: The current prospective, observational study was conducted at Global Hospitals,Hyderabad,overaperiodof 6months i.e., from July2023 to January2024**.**

Study Population: The study involved 100 patients' medical records in neurology department ofgeneralmedicine andICU.
StudyCriteria:

InclusionCriteria:
- All the patients between the age group of 20-90 years of old with stroke:Ischemic stroke, hemorrhagic stroke, transientischemicstroke
- Patientswith Comorbidconditions.
- Patientsreferredfromotherhospitalswerealsoincludedinthestudy.
- AllIn-patients withstrokeadmitted for>24hrswereincludedinthestudy.

ExclusionCriteria:

- Patientswhoweredischargedwithin24hrswereexcludedfromthestudy.
- Pregnantwomen/lactatingwomen.
- Patientswhowerebelow18yearsareexcludedfromthestudy.
- Patientswithincompletemedicalrecords.
- Misdiagnosis
- Patientsinwhom CT/ MRIscancouldn't beobtained wereexcludedfrom thestudy.

Results

Table1:Different types of agegroups of patients with stroke

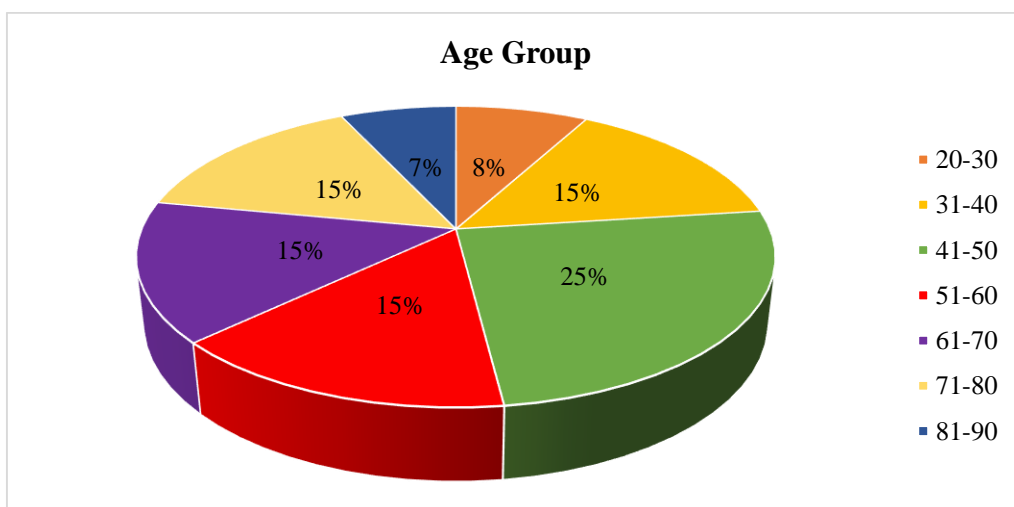| Age Group	Number of Patients
20-30	8
31-40	15
41-50	25
51-60	15
61-70	15
71-80	15
81-90	7

Figure1:Piegraph presentation ofdifferent types of age groups

In this study, subjectsunder the age of 20 were excluded, and the age groups which has been most affected was the age group between 41-50 years, and the least affected age group was the age group of 81-90 years.

Table 2: Distribution of subjects based on type of stroke

TypeofStrokes	Number of Patients
IschemicStroke	48
HaemorrhagicStroke	14
RecurrentStroke	4
PosteriorCirculatoryStroke	7
TransientIschemicAttack	4
AcuteIschemicStroke	23

Types of Stroke

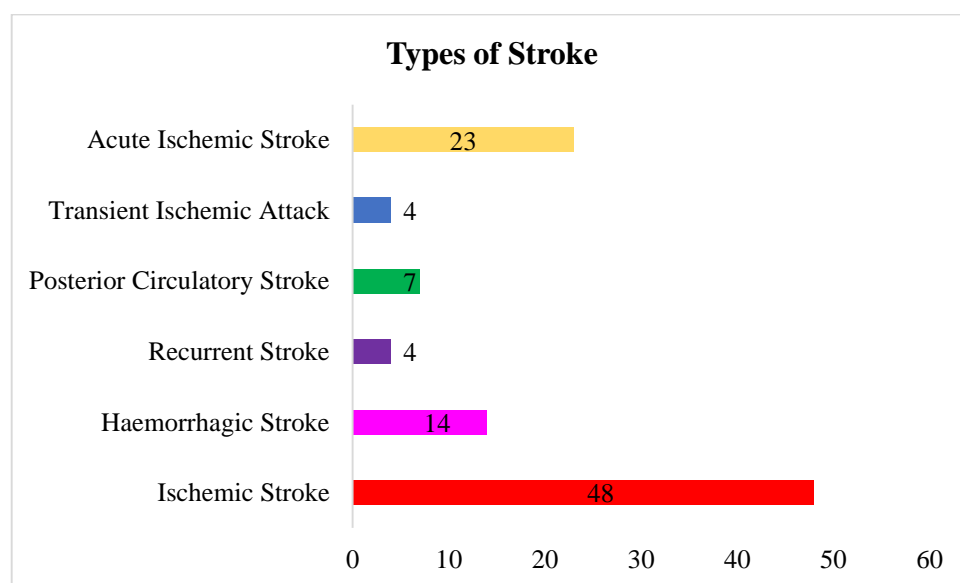|	
Acute Ischemic Stroke	23
Transient Ischemic Attack	4
Posterior Circulatory Stroke	7
Recurrent Stroke	4
Haemorrhagic Stroke	14
Ischemic Stroke	48

Figure2:Bar graph presentation of distribution of subjects based on type of strokes

In this study, the types of strokes among the subjects were as follows: 4 subjects had transient is chemic attack, 4subjects had recurrent stroke, 7subjects had posterior circulatory stroke, 14subjectshadhemorrhagicstroke,23subjectshad acute is chemic stroke, and 48 subjects had ischemic stroke.

Discussion

In the previous study Lavanya.S et al carried-on stroke patient the mostcommon age groupwhich was found to be affect was between the age group 60-80 years [14]. In the current studycarried on stroke patients the patients who were commonly affected with stroke was found in theagegroupofbetween41-50years.

In the previous study of B. PreethiPrathyusha, et al which was carried on stroke patients among124 patient's aspirin was administered to 84 patients and clopidogrel was administered to 19patients [15]. In the current study on stroke patients, 17 patients received Aspirin and 21 patientswere administered with clopidogrel and 48 patients were given the combination of aspirin +clopidogrel.

In the previous study of Swetha K et al which was carried on stroke patients, the most commontype of stroke was Ischemic Stroke [IS] which is 78% while 22% experienced HemorrhagicStroke [HS] [16]. In the current study carried on stroke patients,48% experienced Ischemic Stroke[IS], 14% Hemorrhagic Stroke [HS], Acute Ischemic Stroke [AIS] [IS] 23%,7% Posterior CirculatoryStroke[PCS],4% Recurrent Stroke[RS],4% Transient is chemicstroke[TIA][IS].

In the previous study of ProveenKothagundla et al, which was carried on stroke patients, themajor risk factors found to be Hypertension [HTN] 30% & Diabetes Mellitus [DS] 18% [17]. Inthe current study carried on the stroke patients, the major risk factors found to be Hypertension[HTN]64%,Diabetes Mellitus [DS]was43%.

In theprevious study of MathewGeorge etal which was carriedon stroke patients, thereprescriptionpatternincludedmedicationssuchasanti-platelets,neuroprotective,anti-hypertensive's, dyslipidemics[18]. In the current study carried on stroke patients, the prescriptionpattern included medications such as antiplatelets, anti-hypertensives, anti-diabetic drugs, anti-epileptics,statins,antibiotics,protonpumpinhibitors,anti-pyretic/analgesics,anti-emetics,multivitamins,anti-coagulants,laxatives,anti-depressants,vasopressiny2receptors,bronchodilators.

InthepreviousstudyofN.SurendraReddyetalwhichwascarriedonstrokepatients,considering the social history of the patients, alcoholics were 63.18% and smokers were 49.46%[19]. Inthecurrentstudycarried onstrokepatients,thealcoholicswere32%&smokerswere24%.

In the previous study of N.Manichandana etal which was carried out, stroke patients weremostly males (61%) who were affected with co morbid conditions than females (39%) [20]. In thecurrent study carried on stroke patients (56.9%) males were affected with co morbid conditionsand(43.1%)offemales wereaffected.

Conclusion

- In this study, the stroke was more observed in males (54%) than in females (46%). Themostobservedstrokeis Ischemicstroke(48%).
- Theriskofstrokeismostlyobservedintheagegroupof41to50years(25%).Hypertension and diabetes mellitus were the most common conditions associated withstroke.
- In the stroke, the social history of the patients was observed were alcoholic (32%) and theremainingweresmoker(24%).
- The most commonly prescribed drug classes for stroke patients were found to be Protonpumpinhibitor(90%), Anti-platelet(86%),Statins(85%), Anti-hypertensive(64%),Antipyretics, Analgesics (48%), Anti-emetics (30%), Multivitamins (92%), Anti-diabetic(48%), Antiepileptic (18%), Anticoagulants (44%), Antibiotics (76%), Laxatives (8%),Antidepressants (28%) followed by Vasopressin V2 receptor (26%) and Bronchodilators(8%).
- The most used drug under Anti-diabetic was found to be the combination of MetforminandGlimepiride(43%).
- Common drugs used under Anti-platelets were found to be the combination therapy ofAspirin and clopidogrel (86%), and common drugs used under the Anti-hypertensiveswere found to be the combination therapy of telmisartan, amlodipine and telmisartanamlodipine(48%)andtheremainingdrugswereclonidine(4%), bisoprolol(3%),labetalol(4%) andsacubitril+valsartan(2%).
- It was found that atorvastatin was given to 63 subjects and rosuvastatin was given to 22subjects.
- Hospital acquired infections among the subjects were as follows 12 subjects have urinarytract infection, 16 subjects have pneumonia ,7 subjects have fungal infection,5 subjectshaveviralinfectionand8subjects havebacterialinfection.
- 63 subjects were found to be having family history of stroke and 37 subjects were foundwithoutfamilyhistory.

Conflict of interest: Nil

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