

# Patient with acute ischemic stroke

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## Abstract

### Background

As the most common type of stroke, ischemic strokes pose a significant burden on public health systems and individuals alike. With its pervasive impact across diverse patient populations, strokes constitute a significant source of morbidity and mortality worldwide.

### Objective

To determine the patient with acute ischemic stroke

### Methods

A cross-sectional study was conducted at First affiliated hospital of Xinjiang Medical University, Urumqi, Xinjiang, China which was performed between September 2023 to August 2024, The total number of patients in our study were 100. The number of Male patients in our study were 65 and female were 35. For all patients, we did diagnostic tests, (Angiography, CT Scan, MRI). For treatment, we used angioplasty and student procedure. We also took parameters of BMI (kg/m<sup>2</sup>). We excluded pregnant women and children in our study. Data was tabulated and analyzed by SPSS version 27.

### Results

In a current study total 100 patients were enrolled. The minimum age of patients were 54 years and the maximum age of the patients were 85 years. The mean age were  $67.60 \pm 10.345$  years. The minimum BMI of patients were 24 (Kg/m<sup>2</sup>) and the maximum BMI were 37 (Kg/m<sup>2</sup>). The mean BMI were  $29.80 \pm 4.078$  (Kg/m<sup>2</sup>). The frequency of thrombus were not present in 30 patients and its percentage were 30% and the frequency of thrombus were present in 70 patients. P-value were 0.02. The frequency of atherosclerosis were not present in 80 patients and were present in 20 patients. The frequency of embolus were not present in 90 patients and were present in 10 patients. The frequency of arm weakness were not present in 85 patients and were present in 15 patients. The frequency of patients diagnosed on Angiography were 40, diagnosed on CT scan were 50 and patients diagnosed on flair MRI were 10. The frequency of treatment angioplasty were 40 and its percentage were 40%. The frequency of emergency IV (TPA) were 60. The frequency of complications of chest infection were 3, the frequency of fever were 9, the frequency of no complication were 83 and the frequency of UTI were 5 and its percentage were 5%.

In our study P-Value were less than ( $< 0.05$ ).

### Conclusion

We concluded that angioplasty and stenting is the best procedure used to treat acute ischemic stroke (AIS) by opening blocked arteries and restoring blood flow to the brain. We can diagnose acute ischemic stroke in emergency condition by CT scan. In a current study males were more as compared to females.

**Keywords:** Acute ischemic stroke (AIS), Computed tomography (CT), Magnetic resonance imaging (MRI), American Stroke Association (ASA) and American Heart Association (AHA).

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## Patient with acute ischemic stroke

### Introduction

Ischemic stroke is the fifth leading cause of death in the United States, leading cause of long-term impairment and the second most common cause of mortality in the EU. However, the most significant modifiable risk factor is hypertension [1]. The outcome of a stroke and the presenting blood pressure have a complicated relationship. A U-shaped association has been shown in a number of studies, with poorer results when presenting blood pressure is either high or low [2-3-4]. Trials to ascertain whether lowering blood pressure following an ischemic stroke is advantageous, however, have shown conflicting findings. Patients with acute ischemic stroke frequently have high blood pressure; more than half of them have an SBP of greater than 160 mmHg [5]. High blood pressure has many causes, some of which are believed to be related to the "cerebral ischemic response," which is a mammalian adaptation of the diving reflex. In particular, the rostral ventrolateral medullary nucleus has an autonomic reaction in response to cerebral ischemia. When these neurons are activated, they send signals to the sympathetic preganglionic fibers in the spinal cord, which raise blood pressure, and to the cortex, which causes local vasodilation, which increases cerebral blood flow, via the subthalamic nucleus [6]. An embolic or thrombotic event that impairs blood flow to a part of the brain is the cause of an ischemic stroke. A thrombus (clot) within the blood vessel itself, typically as a result of atherosclerotic disease, arterial dissection, fibromuscular dysplasia, or inflammatory diseases, obstructs blood flow to the brain in a thrombotic event. Debris from other parts of the body obstructs blood flow via the damaged vessel during an embolic event [7-8]. Possible major artery atherosclerotic origin is indicated by lesions in the brainstem, cortex, cerebellum, or subcortical hemisphere infarctions bigger than 1.5 cm in diameter shown on computed tomography (CT) or magnetic resonance imaging (MRI). If a relevant intracranial or extracranial artery has more than 50% stenosis, more supporting evidence in the form of duplex imaging or arteriography is required [9-10]. IV alteplase (TPA) is advised by the American Heart Association (AHA)/American Stroke Association (ASA) for patients who meet the inclusion criteria and whose last known baseline or symptom onset occurs within three hours [11]. Cerebral autoregulation is compromised in some pathological situations, including ischemic stroke. Cerebral blood arteries widen to increase cerebral blood flow when cerebral perfusion pressure drops [12-13]. Given the different time frames for intervention based on these physiological discoveries, this approach emphasizes the significance of prompt revascularization

therapy in acute ischemic stroke [14-15-16]. Rare signs of bilateral PCA infarcts include amnesia and cortical blindness [17–18]. Ataxia, vertigo, headache, vomiting, oropharyngeal dysfunction, visual field abnormalities, and aberrant oculomotor findings are among the clinical manifestations. The location and the infarction pattern of atherosclerosis or embolism affect the clinical presentation patterns. An ECG, troponin levels, complete blood count (CBC), electrolytes, blood urea nitrogen (BUN), creatinine (Cr), and coagulation factors are further diagnostic tests. Given that coronary artery disease is frequently linked to stroke, the medical professional should assess an ECG and troponin [19-20].

## MATERIALS AND METHODS

A cross-sectional study was conducted at First affiliated hospital of Xinjiang Medical University, Urumqi, Xinjiang, China which was performed between September 2023 to August 2024, The total number of patients in our study were 100. The number of Male patients in our study were 65 and female were 35. For all patients, we did diagnostic tests, (Angiography, CT Scan, MRI). For treatment, we used angioplasty and stent procedure. We also took parameters of BMI (kg/m<sup>2</sup>). We excluded pregnant women and children in our study. Data was tabulated and analyzed by SPSS version 27.

**Inclusive criteria:** Included all patients who have acute ischemic stroke

**Exclusive criteria:** We excluded pregnant women and children.

## Results

**Table 1:** Mean age, BMI (kg/m<sup>2</sup>) of all the enrolled patients (n=100)

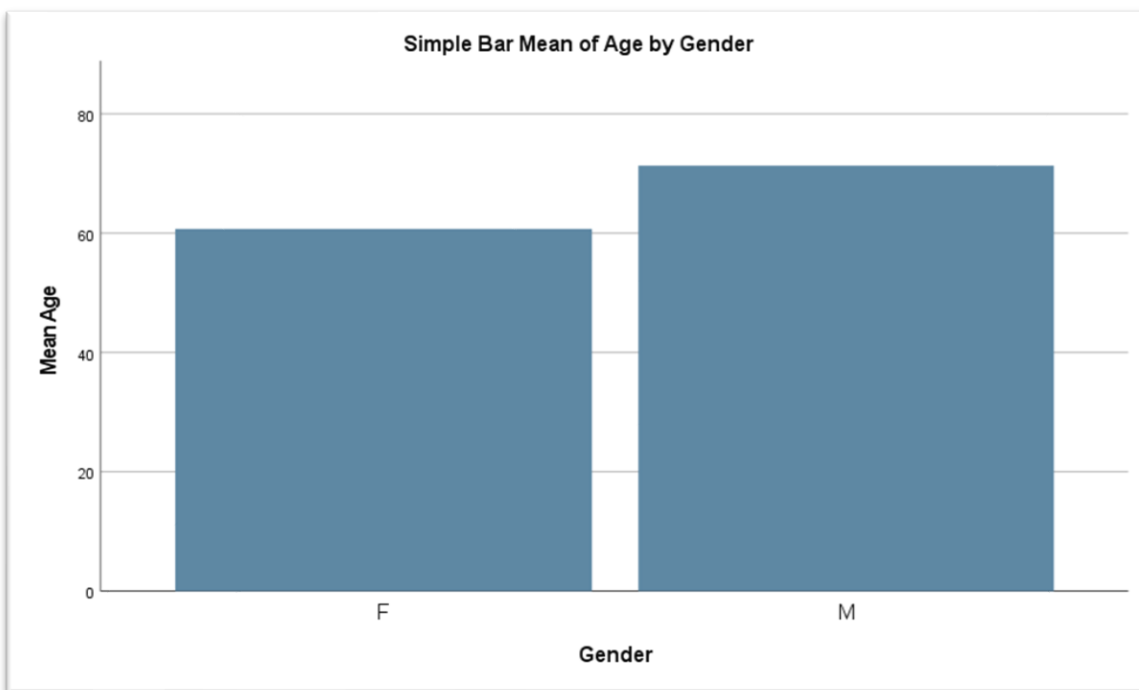
Variables	Minimum	Maximum	Mean±SD
Age (Years)	54	85	67.60±10.345
BMI (kg/m <sup>2</sup> )	24	37	29.80±4.078

In a current study total 100 patients were enrolled. The minimum age of patients were 54 years and the maximum age of the patients were 85 years. The mean age were 67.60±10.345 years. The minimum BMI of patients were 24 (Kg/m<sup>2</sup>) and the maximum BMI were 37 (Kg/m<sup>2</sup>). The mean BMI were 29.80±4.078 (Kg/m<sup>2</sup>).

**Table 2:** Frequency and Percentage of Gender (n=100)

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
F	35	35.0	35.0	35.0
M	65	65.0	65.0	100.0
Total	100	100.0	100.0	

In the above table 2, the frequency of Female patients were 35 and the percentage were 35. The cumulative percent were the same 35%. The frequency of male patients were 65 and the percentage were 65. Total number of patients were 100 (100 %) in our study.



**Figure 1:** Bar chart of gender distribution.

In Figure 1, we did a gender distribution, we can see the male and female patient frequency in the above bar chart.

**Table 3:** Patient characteristics of enrolled patients (n=100)

Variables	Frequency	Percentage	P-Value
<b>Thrombus</b>			
NO	30	30.0	0.02
YES	70	70.0	
<b>Atherosclerosis</b>			
NO	80	80.0	
YES	20	20.0	
<b>Embolus</b>			
NO	90	90.0	
YES	10	10.0	
<b>Speech difficulties</b>			
NO	40	40.0	0.04
YES	60	60.0	
<b>Facial drooping</b>			
NO	75	75.0	
YES	25	25.0	
<b>Arm weakness</b>			
NO	85	85.0	

YES	15	15.0	
<b>Diagnose on</b>			
Angiography	40	40.0	
CT Scan	50	50.0	0.03
Flair MRI	10	10.0	
<b>Treatment</b>			
Angioplasty	40	40.0	
Emergency IV (TPA)	60	60.0	
<b>Complications</b>			
Chest infection	3	3.0	
Fever	9	9.0	
NO	83	83.0	
UTI	5	5.0	

The current study included total of 100 patients with acute ischemic stroke whose characteristics are summarized in Table 3. The frequency of thrombus were not present in 30 patients and its percentage were 30% and the frequency of thrombus were present in 70 patients. P-value were 0.02. The frequency of atherosclerosis were not present in 80 patients and were present in 20 patients. The frequency of embolus were not present in 90 patients and were present in 10 patients. The frequency of speech difficulties were not present in 40 patients and were present in 60 patients. P-Value were 0.04. The frequency of facial drooping were not present in 75 patients and were present in 25 patients. The frequency of arm weakness were not present in 85 patients and were present in 15 patients. The frequency of patients diagnosed on Angiography were 40, diagnosed on CT scan were 50 and patients diagnosed on flair MRI were 10. The P-Value were 0.03.

The frequency of treatment angioplasty were 40 and its percentage were 40%. The frequency of emergency IV (TPA) were 60. The frequency of complications of chest infection were 3, the frequency of fever were 9, the frequency of no complication were 83 and the frequency of UTI were 5 and its percentage were 5%.

In our study, P-value were <0.05.

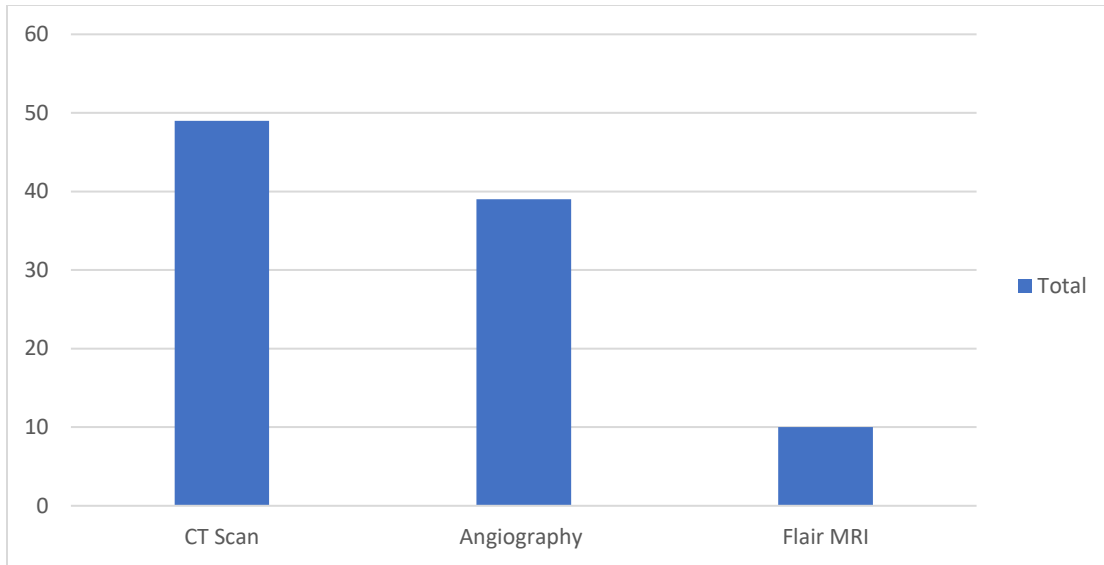


Figure 2: Bar chart of patients diagnosed on CT scan, Angiography, and flair MRI.

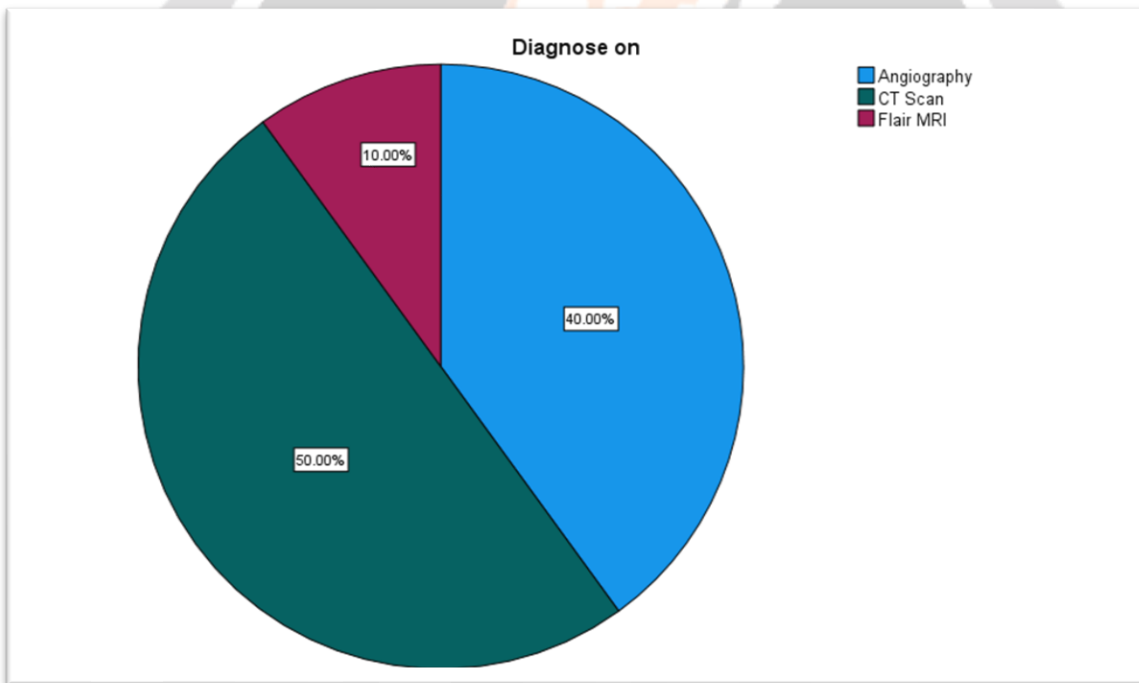
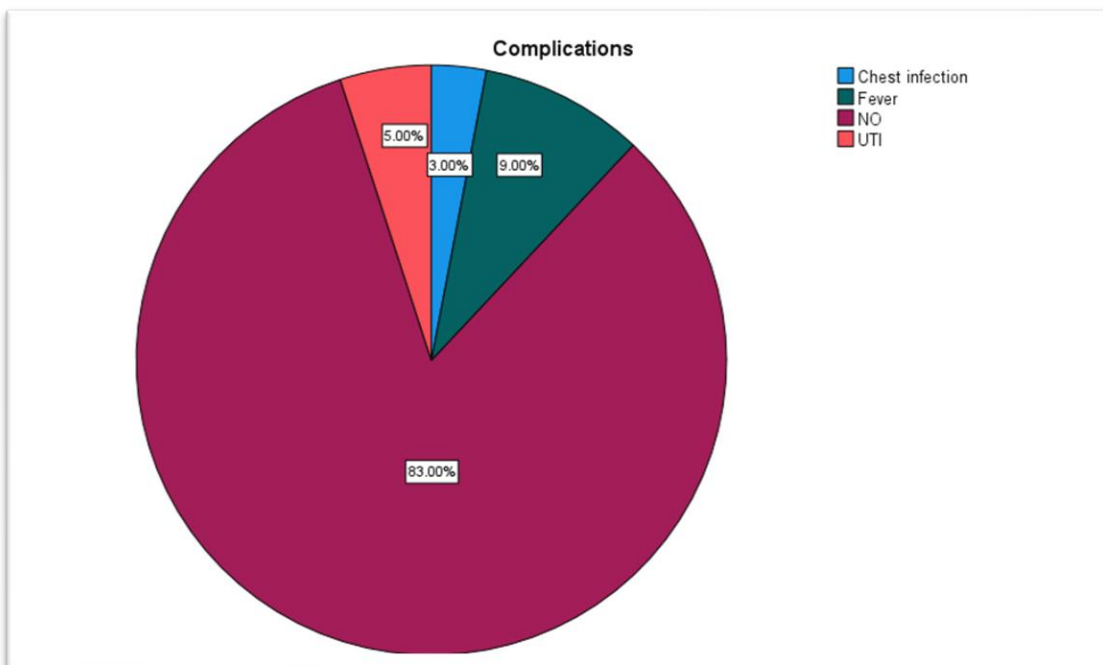


Figure 3: Pie chart of patients diagnosed on CT scan 50%, Angiography 40% and Flair MRI 10%.



**Figure 4:** In Figure 4 we can see the complications of patients with acute ischemic stroke.

### Discussion

For stroke patients and their families, the discharge transfer from the acute setting to the community is one of the most crucial and vulnerable times in the treatment continuum. As a result, the members of the health care team must be committed to communication and organization [21]. Preparing stroke survivors and their families for discharge, preventing secondary strokes as effectively as possible, optimizing stroke recovery and rehabilitation, preventing needless complications and readmissions to the hospital, and guaranteeing the highest possible quality of life for patients and their caregivers are the main objectives of a healthy transition [22]. Poststroke pain patients suffer from despair, exhaustion, a worse quality of life, and a greater cognitive and functional deterioration. It is common for poststroke pain symptoms to go undiagnosed and untreated [23–24]. Identifying and evaluating sleep disturbances is crucial since they have been found to be independent risk factors for stroke and may impact stroke recovery and post-stroke tiredness. Sleep apnea, nightly sleep disruptions, and excessive daytime sleepiness are the three primary sleep disorders among stroke survivors. The frequency of sleep disturbances following a stroke [26-27].

### CONCLUSION

We concluded that angioplasty and stenting is the best procedure used to treat acute ischemic stroke (AIS) by opening blocked arteries and restoring blood flow to the brain. We can diagnose acute ischemic stroke in emergency condition by CT scan. In a current study males were more as compared to females.

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