



CLINICAL PROFILE OF ACUTE ISCHEMIC STROKE IN YOUNG ADULTS: A PROSPECTIVE STUDY

General Medicine

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ABSTRACT

Acute ischemic stroke (AIS) in young adults (aged 18–49) is a rising public health concern due to its long-term socioeconomic impact. This prospective observational study evaluated 50 patients to characterize the clinical, etiological, and radiological profiles of AIS in this demographic.

KEYWORDS

stroke, young adults, clinical profile, TOAST classification, modified rankin scale

INTRODUCTION

While stroke is traditionally associated with the elderly, incidence is increasing among younger populations. In young adults, AIS often results from a complex interplay of traditional risk factors, such as hypertension, and non traditional factors like arterial dissections or prothrombotic states⁹. Early recognition is critical for optimizing outcomes in this productive age group.

Material and Methods

Study Design: Prospective observational hospital-based study.

Setting: Medicine Intensive Care Unit (ICU) and wards of a tertiary care hospital.

Duration: 18 months (November 2023 – April 2025).

Participants: 50 patients aged 18–49 years with confirmed AIS. Exclusion Criteria: Patients under 18 or over 50, and those with hemorrhagic stroke.

Assessment Tools: TOAST classification for etiology and Modified Rankin Scale (mRS) for functional outcomes.

OBSERVATIONS AND RESULTS :

1. Age Distribution: The 26–35 age group was most affected (40%), followed by 36–45 years (24%).

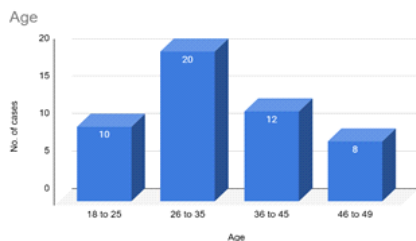


Figure 1: Age distribution

2. Gender: A clear male predominance was observed (66% male vs. 34% female).

3. Primary Risk Factors: Hypertension: 34% Diabetes Mellitus: 28% Dyslipidemia: 26% Smoking: 22%

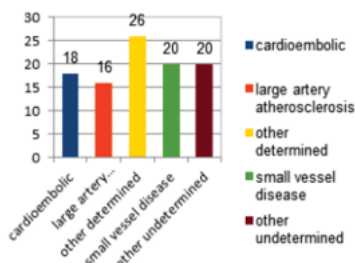


Figure 2: TOAST classification

Etiology (TOAST Classification) Determining a precise cause proved challenging, with undetermined etiology or other determined causes (such as vasculitis) being the most frequent. Cardiac embolism accounted for 18%, while large artery atherosclerosis was seen in 16%.

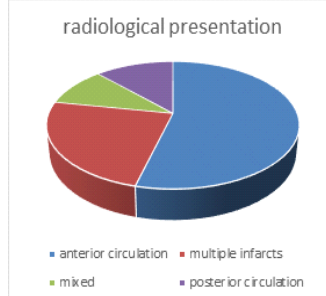


Figure 3: Radiological presentation

5. Radiological and Clinical Outcomes Imaging: Anterior circulation infarcts were most common (54%), followed by multiple infarcts (24%).

6. Survival: Mortality was low at 6%, with a 94% survival rate.

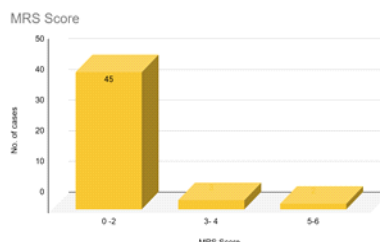


Figure 4: Modified Rankin scale

7. Functional Recovery: 90% of patients achieved a favorable outcome (mRS 0–2), indicating good neurological recovery.

DISCUSSION :

The predominance of males and individuals in their third decade of life suggests a high vulnerability linked to lifestyle-related risk factors and occupational stress. While traditional factors like hypertension remain dominant, the high rate of undetermined etiology highlights the need for advanced diagnostic testing (e.g., genetic screening or transesophageal echocardiography) in younger cohorts. The favorable mRS scores compared to elderly populations likely reflect better neuroplasticity and fewer baseline comorbidities. In the present study, the majority of cases (60%) were observed in the 26–45 years age group, followed by 22.5% in the 26–35 years group, 10% 45 to 49 years, and only 7.5% in the 15–25 years group. This indicates that the highest burden was among individuals in the middle-aged group (36–45 years). Similar findings were also reported by A. Aslam et al.¹⁴, who observed a comparable age distribution pattern, suggesting that this age group is more vulnerable due to greater exposure to both traditional and lifestyle-related risk factors.

Similar findings were reported by Aslam et al.14, and Deuri et al.15, who also observed that a majority of the participants in their study were males (55%) compared to females (45%), indicating a consistent gender-related distribution pattern.

Similar findings were reported by Deuri et al.15, who observed that in their study population, the most commonly identified risk factors were hypertension (70%), followed by diabetes (23%) and dyslipidaemia (27%), all of which emerged as the leading contributors to the condition.

Etiology wise Similar findings were also reported by K. Spengos and K. Vemmos et al.16, supporting the consistency of these observations across different populations.

Similar findings were reported by Deuri et al.15, who noted that among cases of ischemic stroke classified according to the TOAST criteria, stroke of undetermined etiology was the most predominant subtype, accounting for 43.62% of cases in their study.

CT scan findings revealed that infarct was the most common presentation, seen in 70% of cases. These results indicate that ischemic infarction remains the predominant radiological finding in stroke cases.

In the present study, the majority of patients (87.5%) had a favorable functional outcome with an mRS score of 0–2, while 6.25% each fell into the categories of moderate-to-severe disability (mRS 3–4) and severe disability or death (mRS 5–6). These findings are consistent with the study by Ayesha Aslam et al.14, which also reported predominantly good recovery outcomes.

CONCLUSION

Acute ischemic stroke in young adults at this center is primarily driven by traditional vascular risk factors but features a highly heterogeneous etiological spectrum. Despite a low mortality rate, the potential for long-term disability necessitates aggressive early screening and targeted prevention strategies.

Limitations: This was a single-center study with a relatively small sample size and lacked long-term post-discharge follow-up

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