**Introduction and Objective**

The annual incidence of stroke in the United States is approximately 795,000. Acute ischemic stroke (AIS) is a common medical problem associated with significant morbidity and mortality worldwide.

Since the advent of endovascular procedures, mechanical thrombectomy (MT) has become an effective option for the treatment of AIS. MT can be performed either alone or in combination with administration of tissue plasminogen activator (tPA). With recent advances in device technology, MT has significantly altered the hospital course and functional outcomes associated with the evolution of MT technology.

This analysis aims to establish the most up-to-date recanalization and functional outcomes associated with the evolution of MT technology.

**Methods**

A retrospective analysis of 419 patients who underwent MT for ischemic stroke at Thomas Jefferson University Hospital from 2010-2017 was performed.

Data was collected for National Institutes of Health Stroke Scale (NIHSS) on arrival, tPA administration, patient comorbidities, revascularization outcomes, complications, and functional outcomes on discharge.

**Results**

In a sample of 419 patients, 54.4% were female and 45.6% were male. Prior history of cerebrovascular accident was observed in 14.1% of patients. Hypertension, hyperlipidemia, and atrial fibrillation were observed in 82.8%, 57.9%, and 43.1%, respectively. 27.3% of patients had diabetes, and 15.3% had coronary artery disease.

Proximal vessel occlusions comprised 83.5% of all occlusions, while 16.5% occurred in distal vessels. 80% of all occlusions were treated within 3-6 hours.

**Conclusions**

As AIS continues to be a highly prevalent neurosurgical disease, there is a pressing need to understand the course of this diagnosis as well as its effective treatments.

This study investigates the hospital admissions, complications, revascularization, and functional outcomes for this patient population and provides a detailed account of key metrics for MT performed with the latest device technology.

These findings contribute to the advancement of acute stroke management strategies and, ultimately, improved patient care.

**Acknowledgements**

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**References**


**Figure 1.** A visual representation of MT used to treat AIS.

**Figure 2.** Successful recanalization (Thrombolysis in Cerebral Infarction (TICI) score 2b or 3) was achieved in 88.6% of patients.

**Figure 3.** Periprocedural complications (intracerebral hemorrhage (ICH), subarachnoid hemorrhage (SAH), or air embolism (AE)) occurred in 6.9% of patients. Distal emboli occurred in 2.6%. Vessel dissection occurred in 1.4%. Reoclusion occurred in 4.8%. Perforation occurred in 1%. Post-procedure symptomatic ICH (sICH) occurred in 5%.

**Figure 4.** In-patient mortality was 11.7%, while favorable functional outcome (modified Rankin Scale (mRS) < 2) was achieved in 50% of patients.