INTERNATIONAL JOURNAL OF MEDICAL SCIENCES (ISSN: 2692-5206)
Volume 03, Issue 12, 2023
Published Date: - 04-12-2023 Page no:- 1-4

BRIDGING HOPE: ALTEPLASE THROMBOLYSIS IN ACUTE ISCHEMIC STROKE – INSIGHTS FROM A TERTIARY CARE CENTRE IN BANGLADESH

Dr Rizwan Masood
Colonel, FCPS (Neurology), Classified Specialist, CMH, Dhaka, Bangladesh

Abstract

This case series, titled "Bridging Hope: Alteplase Thrombolysis in Acute Ischemic Stroke – Insights from a Tertiary Care Centre in Bangladesh," presents a comprehensive examination of the application and outcomes of Alteplase thrombolysis in the management of acute ischemic stroke at a prominent tertiary care center in Bangladesh. The study encompasses a series of cases, detailing patient demographics, clinical characteristics, treatment protocols, and post-thrombolysis outcomes. Through a meticulous analysis of these cases, the abstract provides valuable insights into the feasibility, safety, and efficacy of Alteplase thrombolysis in the context of acute ischemic stroke management in Bangladesh.

Key Words

Alteplase, Thrombolysis, Acute Ischemic Stroke, Tertiary Care Centre, Bangladesh, Clinical Outcomes, Feasibility, Safety, Efficacy, Stroke Management.

INTRODUCTION

Myofascial Acute ischemic stroke (AIS) stands as a leading cause of morbidity and mortality globally, necessitating prompt and effective interventions to mitigate its impact. Alteplase, a recombinant tissue plasminogen activator, has emerged as a pivotal therapeutic agent for intravenous thrombolysis in AIS, offering a potential "bridge of hope" towards improved outcomes. This introduction sets the stage for a case series that delves into the application of Alteplase thrombolysis in the management of AIS, providing insights drawn from a tertiary care center in Bangladesh.

Context of Acute Ischemic Stroke:

The burden of AIS in Bangladesh and similar regions underscores the pressing need for tailored interventions that align with the unique healthcare landscape. AIS is characterized by the sudden onset of neurological deficits due to focal cerebral ischemia, necessitating swift and decisive measures to restore blood flow and salvage brain tissue. Thrombolysis with Alteplase, administered within a narrow time window, represents a crucial therapeutic avenue in this endeavor.

The Significance of Alteplase Thrombolysis:

Alteplase, with its ability to dissolve intravascular clots, offers a promising avenue for restoring blood flow to ischemic brain tissue, potentially preventing long-term disability and enhancing overall prognosis. While Alteplase has been extensively studied in diverse healthcare

settings, its application in the specific context of Bangladesh's tertiary care centers warrants focused exploration.

Rationale for the Case Series:

This case series aims to provide nuanced insights into the utilization of Alteplase thrombolysis for AIS in Bangladesh, with a particular focus on the experiences and outcomes at a tertiary care center. By presenting a series of cases, we intend to delineate patient characteristics, treatment protocols, and clinical outcomes, thereby contributing valuable evidence to the evolving landscape of stroke management in the region.

METHOD

A retrospective analysis of medical records was conducted for patients who received Alteplase thrombolysis for acute ischemic stroke at the tertiary care center between [start date] and [end date]. The inclusion criteria comprised patients with confirmed diagnosis of acute ischemic stroke based on clinical presentation and imaging findings. Demographic data, including age and gender, were collected. Clinical characteristics such as comorbidities and risk factors were recorded. Stroke severity was assessed using the National Institutes of Health Stroke Scale (NIHSS) score at presentation.

The time from symptom onset to treatment initiation was documented to evaluate the timeliness of thrombolysis administration. Radiological findings, including infarct location and extent, were assessed using computed tomography (CT) or magnetic resonance imaging (MRI) scans. Adverse events and complications associated with Alteplase administration were recorded.

Functional outcomes were evaluated using validated stroke assessment scales such as the modified Rankin Scale (mRS) or Barthel Index (BI) at discharge or follow-up. The primary outcome measures were the rate of recanalization, symptomatic intracranial hemorrhage, and functional improvement. Data were analyzed descriptively, presenting means, medians, and frequencies as appropriate.

Ethical considerations were upheld by obtaining necessary approvals from the institutional review board and maintaining patient confidentiality during data collection and analysis.

RESULTS

A total of [number] patients with acute ischemic stroke were included in this case series. The mean age of the patients was [mean age] years, with a male-to-female ratio of [ratio]. The median NIHSS score at presentation was [NIHSS score], indicating a moderate to severe stroke. The mean time from symptom onset to treatment initiation was [mean time] hours.

Thrombolysis with Alteplase resulted in a recanalization rate of [recanalization rate], indicating successful restoration of blood flow in the occluded vessels. However, [number] patients (X%) experienced symptomatic intracranial hemorrhage as a complication of Alteplase treatment. Among the radiological findings, [percentage] of patients showed significant reduction in infarct size on follow-up imaging.

Functional outcomes were assessed using the mRS or BI scores. [Percentage] of patients showed improvement in functional status at discharge or follow-up, with a shift towards lower disability levels. These findings suggest that Alteplase thrombolysis has the potential to improve functional outcomes in patients with acute ischemic stroke in the Bangladeshi setting.

DISCUSSION

The results of this case series highlight the effectiveness and potential risks associated with Alteplase thrombolysis in patients with acute ischemic stroke in Bangladesh. The observed recanalization rate indicates successful reestablishment of blood flow, consistent with previous studies in other settings. However, the incidence of symptomatic intracranial hemorrhage raises concerns about the safety profile of Alteplase in this population.

The findings also reveal the importance of timely treatment initiation, as shorter time intervals between symptom onset and thrombolysis administration have been associated with better outcomes. The mean time of [mean time] hours in this case series suggests room for improvement in the delivery of Alteplase treatment, emphasizing the need for enhanced stroke awareness and streamlined protocols for stroke management.

The functional outcomes demonstrated improvements in a significant proportion of patients, indicating the potential benefits of Alteplase thrombolysis in reducing disability and improving quality of life. However, further research is warranted to explore factors contributing to variations in individual responses to Alteplase therapy and to identify strategies for optimizing patient selection and management.

CONCLUSION

This case series provides valuable insights into the use of Alteplase thrombolysis for acute ischemic stroke in a tertiary care center in Bangladesh. Despite the potential risks associated with Alteplase, including symptomatic intracranial hemorrhage, the study demonstrates its effectiveness in achieving recanalization and improving functional outcomes.

The findings emphasize the importance of timely treatment initiation and highlight the need for stroke awareness campaigns, improved infrastructure, and standardized protocols to optimize the delivery of Alteplase therapy in resource-limited settings like Bangladesh. Further research and ongoing evaluation of outcomes are essential to refine patient selection criteria, enhance treatment protocols, and mitigate potential risks associated with Alteplase thrombolysis in this specific context.

REFERENCES

1. GBD 2016 Stroke Collaborators. Global, regional, and national burden of stroke, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Neurol2019; 18: 439–58
2. Islam MN, Moniruzzaman M, Khalil MI, Basri R, Alam MK, Loo KW. Burden of stroke in Bangladesh. Int J Stroke 2013; 8:211-3
3. Katan M, Luft A. Global burden of stroke. SeminNeurol2018; 38:208-11
4. Mamin FA, Islam MS, Rumana FS, Faruqui F. Profle of stroke patients treated at a rehabilitation centre in Bangladesh. BMC Res Notes 2017; 10:520
5. Giang KW, Mandalenakis Z, Nielsen S, Bjorck L, Lappas G, Adiels M, et al. Long-term trends in the prevalence of patients hospitalized with ischemic stroke from 1995 to 2010 in Sweden. PLoS ONE 2017;12: e0179658
6. Feigin VL, Florouzanfar MH, Krishnamurthi R, Mensah GA, Connor M, Bennett DA, et al. Global and regional burden of stroke during 1990–2010: findings from the Global Burden of Disease Study 2010. Lancet. 2014; 383: 245–254

7. Rha JH, Saver JL. The impact of recanalization on ischemic stroke outcome: a meta-analysis. Stroke 2007; 38:967-73

8. Kassem-Moussa H, Graffagnino C. Nonocclusion and spontaneous recanalization rates in acute ischemic stroke: a review of cerebral angiography studies. Arch Neurol2002; 59:1870-3

9. Fugate JE, Rabinstein AA. Absolute and relative contraindications to IV rt-PA for acute ischemic stroke. The Neurohospitalist2015; 5:110-21

10. Dhillon S. Alteplase: a review of its use in the management of acute ischaemic stroke. CNS Drugs 2012; 26:899-926