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"COMPARISON OF OUTCOMES AFTER TRANSITION FROM ALTEPLASE TO TENECTEPLASE FOR THE TREATMENT OF ACUTE ISCHEMIC STROKE AT A SINGLE STROKE CENTER"

Background

Since 1995 alteplase has been the preferred thrombolytic for acute ischemic stroke. Recently, data from prospective trials has shown that treatment with tenecteplase results in similar clinical outcomes. The purpose of this study is to evaluate clinical outcomes after transition from alteplase to tenecteplase for treatment of acute ischemic stroke at our institution.

Objective

The primary objective was to determine if there was a difference in excellent 90-day functional outcome, defined as a modified Rankin Scale (mRS) score of 0 or 1,or adverse events, including symptomatic intracranial hemorrhage (sICH), in patients treated with tenecteplase versus alteplase for AIS in routine clinical care.

Methods

This single center, retrospective cohort study conducted from March 2019 to July 2021 used a pre-test post-test design. Data from two cohorts was collected: the first cohort included patients routinely treated with alteplase for AIS from March 2019 to March 2020, and the second cohort included patients routinely treated with tenecteplase for AIS from July 2020 to July 2021. We collected baseline demographics and assessed outcomes including favorable mRS at 90 days, major neurologic improvement at 36 hours, time to thrombolytics, and sICH rates. Data collected was adjusted for age and presenting NIH scores.

Results

We included 136 patients treated with alteplase and 120 patients treated with tenecteplase. Patients were found to have a significant difference in median NIH score at arrival (8 vs 9, p=0.02), as well as a difference in each stroke severity category (p=0.01). There was no statistically significant difference between groups in age (70 vs 74, p=0.07), comorbidities, mean premorbid mRS (0.6±1.1 vs 0.58±1.19, p=0.886), or number of patients with large vessel occlusion (32% vs 42%, p=0.16). We found no difference in favorable mRS at 90 days between groups (59% vs 61%, p=0.89), major neurologic improvement at 36 hours (57% vs 51%, p=0.48), or sICH rates (2% vs 0%, p=0.48). We saw a decrease in time from arrival to thrombolytic administration (28 vs 22 minutes, p<0.001).

Conclusion

Routine use of tenecteplase was found to have similar efficacy and safety to that of alteplase, and a shorter door-to-needle time.