DISPARITIES IN THE USE OF INTRAVENOUS t-PA AMONG ISCHEMIC STROKE PATIENTS: POPULATION-BASED RECENT TEMPORAL TRENDS

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Background and Aims: To explore a 5-year comparison of disparities in intravenous t-PA use among acute ischemic stroke (AIS) patients based on race, gender, age, ethnic origin, hospital status, and geographic location.

Methods: We extracted patients' demographic information/hospital characteristics for 2010 and 2014 from the population-based New York Statewide Planning and Research Cooperative System (SPARCS). We compared disparities in t-PA use among AIS in 2010 and 2014 to estimate temporal trends. Multiple logistic regression was performed to compare disparities based on demographic variables, hospital stroke center designation, insurance status, and geographic location within New York State (NYS).

Results: There was a 1.9% increase in t-PA from 2010 (4.9% in 32,546 stroke-related discharges) to 2014 (6.8% in 33,190 stroke-related discharges), $p<0.0001$. Blacks were 15% less likely to receive t-PA compared to whites in 2014 (OR 0.85, 95%CI 0.75,0.96), without a difference in 2010. Patients aged 62-73 (second quartile) had lower odds of receiving t-PA than those ≤ 61 years old in 2010 (OR 0.74 95%CI 0.62,0.87) and 2014 (OR 0.78, 95%CI 0.68,0.89). Designated stroke centers (2010: 88/197; 2014: 94/198) in lower NYS were associated with lower odds of t-PA use in 2010 while those in upper NYS were associated with increased odds of t-PA in 2010 and 2014 compared to non-designated hospitals. Gender, ethnic origin, and insurance status were not associated with t-PA utilization in either year.

Conclusions: NYS t-PA utilization increased between 2010 and 2014. Disparities in t-PA use include race, age, hospital geography and stroke designation status. Variables influencing these disparities require study.

Limitations: There are several important limitations to our study:

- Findings may not be generalizable to other regions of the United States. In support of generalizability, NY is one of the most diverse states in the United States and the demographic variables of the sample reflected that of the general US population closer than previous literature.
- IV t-PA eligibility information of patients who presented to the hospital for AIS were not available in the data set, so it is unclear if the variation in administration was influenced by patients' waiting window.
- Our large-scale SPARCS database did not have data on absolute tPA contraindications (e.g. blood pressure too high, glucose too low or too high, NIHSS score, prior level of functional disability, etc.) and therefore, we were unable to calculate a "t-PA eligible" denominator.
- The database does not include training background of a practitioner (such as ED physician, fellow, attending neurologist, attending vascular neurologist, etc.) who actually treated the patient with tPA administration. SPARCS database does not have information on whether telestroke/teleneurology consultations were performed for consideration of treatment with tPA and therefore, we were unable to address how this mode of treatment would have impacted the study.

DISPARITIES IN IV t-PA USE

Figure 2. Stroke incidence and hospital designation by County 2010 and 2014. Abbreviations: DST, designated stroke center; NON-DST, nondesignated center.