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Gender Differences in Administration of tPA in Treatment of Ischemic Stroke

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Introduction

As medicine and pharmacology have advanced through the years, new life-saving treatments are studied or discovered every day and having a medical emergency is no longer a death sentence. Even with conditions as serious as an ischemic stroke there is hope for survival and rehabilitation with the 'clot-busting' drug, tissue plasminogen activator, colloquially known as 'tPA'.

tPA is a thrombolytic agent, meaning that it is a substance that acts on the fibrin in clots in order to dissolve them and break them down so they can no longer cause a blockage in the blood vessel, also known as an ischemia, that results in a stroke or myocardial infarction (Vega, 2022).

Treating ischemia with tPA is so effective in conjunction with other modern treatments for ischemic stroke that from 1969 to 2013 the death rate from stroke in the United States has fallen by 77% (Vega, 2022).



However, not all patients may be equally as likely to receive tPA and experience its full therapeutic and life-saving effects. Despite women having a higher stroke rate than men on average (Gasbarrino et al, 2022), they are less likely to be triaged correctly and have rapid administration of tPA to treat their stroke or myocardial infarction symptoms when compared to their male counterparts (Bushnell et al, 2018).

Research Goals

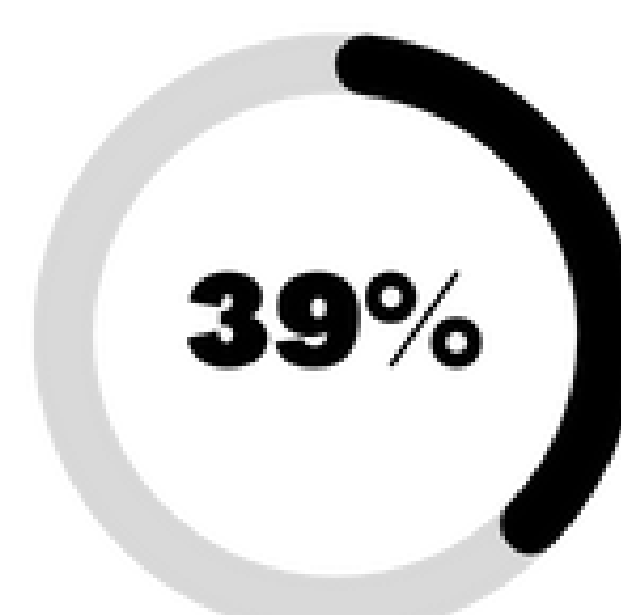
- Assessing the available literature to collect data on the administration of tPA to treat ischemic stroke as it varies by gender of patient
- Identifying if any disparity exists between gender identity and likelihood of tPA administration for the treatment of ischemic stroke
- Determining possible causes for disparities in tPA administration for the treatment of ischemic stroke

Methods

- Database search of available literature regarding tPA administration by gender for the treatment of ischemic stroke
- Source analysis completed by categorizing sources based on type of data available and research design used in the referenced study
- Compilation of ischemic stroke treatment data by gender with analysis for disparities
- Identifying potential factors that contribute to the disparity in administration based on the available data in the existing literature

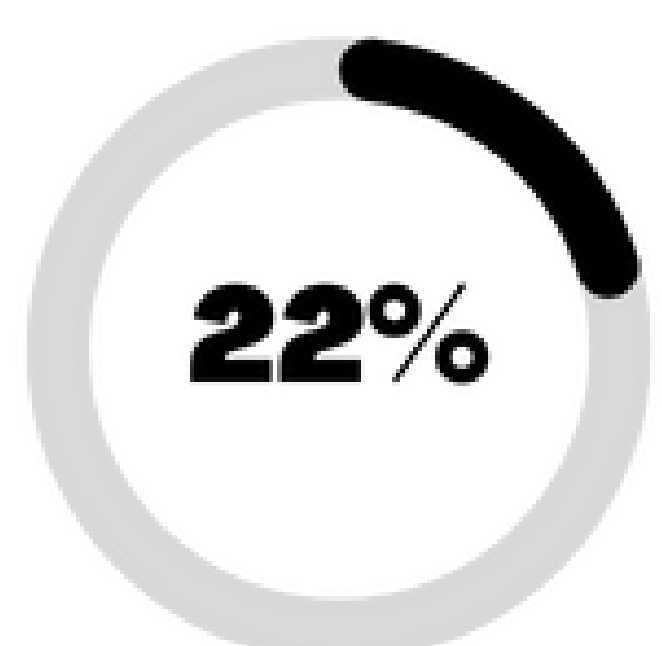
In a study of 1,011 women aged 25-60 years old, 200 primary care physicians, and 100 cardiologists

45% of women reported being unaware cardiovascular disease and related [stroke-causing] conditions were the number one killer of women. Reflecting a lack of adequate patient education that can aid in the rapid response necessary for tPA administration



Only 39% of primary care physicians rated prevention and care of cardiovascular disease and related [stroke-causing] conditions as their top concern for their female patients, after weight and breast health

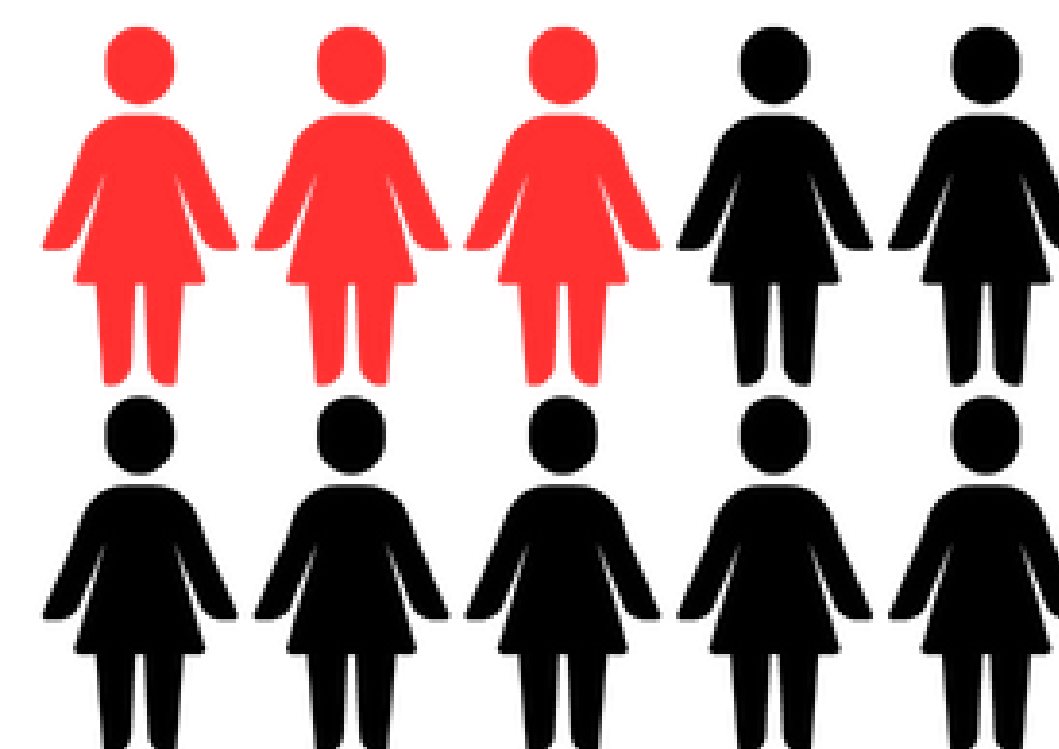
Only 22% of primary care physicians and 42% of cardiologists surveyed felt "extremely well prepared to assess cardiovascular disease risk in women" with very few of these providers comprehensively implementing the appropriate guidelines in the care they provided to female patients



(Merz et al., 2017)

Results

- Women are 30% less likely than their male counterparts to receive tPA to treat their ischemic stroke even when they meet eligibility criteria (Strong et al., 2020; Gasbarrino et al., 2021)



- Existing clinical guidelines for tPA administration are well-defined, but are not always effectively and consistently applied in practice (Nguyen, 2016)
- Repeated and significant assessment error in determining when women are truly experiencing symptoms of ischemic stroke was recorded
- The social and medical experiences that are unique to female patients dually increase their risk of stroke and their risk of remaining untreated for stroke even if they are symptomatic and report their symptoms (AHA, 2022; Ospel et al., 2023)
- There are several contraindications that are not explicitly stated in labeling and direction for tPA but are applied by providers in clinical practice, such as pregnancy, elevated blood pressure, or patients labeled as having 'poor baseline' which is often elderly women (Steinberg & Moreira, 2016; Ospel et al., 2023).

Conclusion

- The most discussed factor that may influence differences in administration was symptom presentation variance between men and women experiencing ischemic stroke
- Both social and medical factors pose barriers to care for female patients prior to arriving at the point of care and after
- The existing criteria and guidelines for tPA administration do not show any specific bias towards male or female patients
- The next steps in the continuation of this research involves the evaluation of attitudes, knowledge, and assessment behaviors of providers in immediate care and emergency care settings
- The goal of continued study is to determine if assessment and ischemic stroke protocol revisions are a possible opportunity for decreasing the disparity in tPA administration

Acknowledgements

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References

Full reference list available by following QR code

