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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 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).

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

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)

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

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

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)

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

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References
Full reference list available by following QR code