

Abstract

Introduction: Early identification of strokes is critical for timely treatment. Emergency medical services (EMS) use stroke screening tools, such as the Cincinnati Prehospital Stroke Scale (CPSS) and Balance, Eyes, Face, Arm, Speech, Time (BE-FAST). Female and male patients may present with different symptoms, potentially affecting the sensitivity of these scales. This study evaluates sex-based differences in prehospital stroke scale sensitivity.

Methods: This retrospective cohort study included adults (ages ≥ 18 years) transported by EMS between January 1, 2020 and December 31, 2022. Eligible patients included those with a prehospital impression of stroke or transient ischemic attack (TIA) and a final hospital diagnosis of stroke or TIA. No thrombectomy-capable centers participated in this study. Multiple logistic regression and descriptive statistics characterized the population, and the sensitivity of prehospital stroke scales was assessed by sex.

Results: Among patients for whom a stroke scale was used ($n=2,927$), the CPSS was the most common, (51.1%; $n=1,496$), followed by BE-FAST (18.0%; $n=527$). In females, the CPSS was 79.9% (95% CI 77.0% - 82.8%) sensitive and BE-FAST was 87.2% (95% CI 83.3% - 91.1%) sensitive. In males, the CPSS was 77.2% (95% CI 74.3% - 80.2%) sensitive and the BE-FAST was 89.4% (95% CI 85.5% - 93.2%) sensitive. No significant difference in the sensitivity of either scale existed between sexes ($p=0.20$ and $p=0.44$, respectively).

Conclusion: CPSS and BE-FAST demonstrated moderate to high sensitivity for prehospital stroke detection, with no significant sex-based differences found in their sensitivities. Future work should examine factors influencing scale utilization to optimize early stroke recognition.