Abstract 5: Prevalence, Characteristics, and Accuracy of Stroke Diagnosis for Scene Transports to a Comprehensive Stroke Center by Helicopter Emergency Medical Services: A One Year Retrospective Evaluation

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Ischemic strokes affect 795,000 people per year in the US and are a major cause of long-term disability and mortality. These patients are often assessed by EMS at the scene and transported to appropriate centers of care for further evaluation and treatment. Utilization of helicopter emergency medical services (HEMS) greatly improves access to comprehensive stroke centers (CSC). However, the number of patients who have been air lifted from scene calls to a single CSC for suspected stroke with a non-stroke final diagnosis remains unclear. In this retrospective observational study, we aim to determine the volume and demographics of patients with suspected stroke and subsequently transported via HEMS from scene to a CSC.

Between January 1, 2017 and December 31, 2017, 717 prehospital records of patients airlifted by a two-helicopter program from scene calls to a single CSC were analyzed for stroke alerts. Final diagnosis was determined from EMR. No patients were excluded. Parameters such as patient home county, age, race, sex, and transport times were collected from prehospital charts. Home counties were categorized according to the CDC Urban-Rural Classification Scheme for Counties. Counties were classified as one of four urban-rural designations: Large Central Metro, Large Fringe Metro, Medium/Small Metro and Nonmetro.

In 2017, of the 717 airlifted patients, 37 patients were airlifted from on-scene calls and suspected of stroke. Demographics of these suspected stroke patients include 49% African American (18), 49% White, Non-Hispanic (18) and 2% White, Hispanic (1). Most airlifted patients were home to rural counties (84%, 31) indicated as “Nonmetro”. Of the 37 patients suspected of stroke by EMS, 32% were diagnosed with ischemic stroke (12), 19% were diagnosed with intracerebral hemorrhage (7) and 8% were diagnosed with transient ischemic attack (3). 41% of the suspected ischemic stroke patients had a final diagnosis which was not stroke related and were admitted for other medical conditions (15). Demographics of the 15 stroke mimics included 47% African American (7) and 53% White, Non-Hispanic (8).

Our analysis revealed that 84% (31/37) transported to a CSC via HEMS from scene calls suspected of stroke were home to rural counties, classified as “Nonmetro”. Patients in rural counties are inherently at risk for increased stroke mortality due to geographic isolation from centers of higher stroke care. In our sample, HEMS appears to be most utilized by the rural population for stroke care and may help address the lack of access to advanced stroke services. Demographics did not vary between patients with true strokes and stroke mimics. Of all suspected stroke patients airlifted from scene to a CSC, 22 were true strokes and 15 were stroke mimics. Although this study has numerous limitations including small sample size, retrospective methodology, and from a single CSC, it suggests that HEMS may serve to equalize the barriers to access for timely and definitive stroke interventions in rural populations. Future analyses should consider including multiple CSCs and HEMS programs to determine the generalizability of these findings.