

Evaluation of Geographic Factors For Rural Patients Needing Access To Mechanical Thrombectomy At a Comprehensive Stroke Center

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Abstracts will be considered for both poster and platform presentations

Stroke/Neurovascular

Introduction: Over 1.8 million Kentuckians live in rural areas¹, and timely access to acute stroke treatments, such as tPA and thrombectomy, is challenging. We evaluated transport patterns for thrombectomy patients, analyzing outcomes related to aspects of transport to our Comprehensive Stroke Center (CSC) from rural Kentucky. Our goal was to quantify the average amount of time our rural patients would actually save during transport.

Methods: Records of all patients who were evaluated for thrombectomy at our CSC between July 2011 to March 2017 were reviewed through an IRB-approved protocol. Demographics, comorbidities, time intervals, NIHSS scores, and inpatient outcome were collected retrospectively. These variables were analyzed against geographic maps of patient origins by county. Currently, our referral region has no Thrombectomy-capable Stroke Centers (TSC). To further understand resource capability, we mapped county of origin against Percutaneous Coronary Intervention (PCI) centers.

Result: Sixty-three percent of all patients included in our analysis originated from less than 65 miles away. The patients furthest from the CSC originated in counties 159 miles away. Patients that came from 50 miles or less (N=78) had last known normal (LKN) to recanalization times of 6.1 hours, while patients that came to CSC more than 50 miles away had times of 7.7 hours ($p=.015$). The number of patients originating from counties with a PCI ranged from 2 to 12.

Conclusion: From 2011 to early 2017, most thrombectomy patients at our CSC came from counties within 65 miles away. Most importantly, a significant number came from rural environments. This underscores the need for stroke systems of care that address rural needs. Certification of PCI centers for stroke is not a viable option in rural environments, as the average PCI facility in our region would only see 5 to 6 thrombectomy patients over 5.5 years. It is also important to note that a major hurdle in stroke care is recognition of symptoms and initiating contact with EMS. When timeline of stroke care was studied, the time interval between LKN and arrival to a hospital (CSC or regional) is significant for both patients brought directly to CSC and those taken to a regional hospital before being transferred to our CSC.

1. <https://www.ruralhealthinfo.org/states/kentucky>