2-20-2020

A Comparison of Models for Evaluation and Transfer of Patients With Suspected Large Vessel Occlusions

Edward Jauch
HCA Healthcare, Edward.Jauch@HCAHealthcare.com

Parita Bhuva
HCA Healthcare, Parita.Bhuva@hcahealthcare.com

Alex Schneider
HCA Healthcare, alexander.schneider@hcahealthcare.com

Jason Thurman
HCA Healthcare, Jason.Thurman@hcahealthcare.com

Josh Lewis
HCA Healthcare, Joshua.Lewis1@HCAHealthcare.com

See next page for additional authors

Authors

Edward Jauch, Parita Bhuva, Alex Schneider, Jason Thurman, Josh Lewis, Kathryn McCarthy, Debra Philpot, Robin Jones, Albert Yoo, and Don Frei

Title: A Comparison of Models for Evaluation and Transfer of Patients with Suspected Large Vessel Occlusions

Character count: 1669 not counting spaces (1950 max, 1700 with table)

Tables: 1 (250 characters)

Abbreviations (<3): 3

Abstract Category: Emergency Care / Systems

Introduction:
Mechanisms for the hospital identification of patients with suspected large vessel occlusions (LVO) vary widely based on referring and receiving stroke center resources. We compared processes for identifying patients with suspected LVO who may be candidates for endovascular therapy (EVT) at non-EVT hospitals and the criteria for interfacility transport to Comprehensive Stroke Centers (CSC) for potential EVT.

Methods:
Data were obtained from 4 CSC which serve distinct geographic regions, ranging from rural to urban environments, over a continuous 12 month period of time beginning year 2018. Patients transferred from all referring hospitals to these facilities were considered regardless of hospital affiliations (n=2213). Geographic description, imaging modalities and form of emergent neurologic consultation available and utilized, rates of stroke transfers for EVT, and rates of final EVT were recorded (table).

Results:
The process for identifying a patient with a likely LVO appropriate for interfacility transfer varied greatly by referring and receiving hospital (table). The intensity of referring hospital evaluation ranged from complete multimodal CT imaging and either onsite or video telestroke consultation with access to neuroimaging to simple noncontrast CT and telephone consultation. Rates of transfer and eventual EVT varied across the centers. Further details of the form of stroke expertise, penumbral imaging criteria, unique geographic variances, criteria for transfer, and final utilization of EVT will be presented.

Conclusions:
Optimal interfacility transfer procedures are essential to ensure patients with LVO are considered in a timely fashion, and that over triage does not overwhelm receiving CSC. We found significant process variations in identifying EVT candidates for interfacility transfer. Providing examples of multiple best practices allows for other centers to identify potential solutions for their unique circumstances.

Table. Regional Stroke Systems of Care (n=2213)

System	Region Characteristic	Referral Neurologic Expertise[N]	Referral CT Imaging Techniques[I]	Criteria for EVT Transfer[C]	Annual Number of Remote Acute Stroke Evaluations	Acute Strokes Transferred for EVT	EVT for Patients Transferred for LVO
A	Rural	P(40), S(246), T(12)	N,A,P	S+L+P	298	24 (8%)	22 (92%)
B	Urban	P(302), S(262)	N, A, P	S+L+P	564	53(9%)	31(58%)
C	Urban	T(82)	N, A, P	S+L+P	82	55(67%)	43(78%)
D	Urban	P (1269)	N, A	S + L	1269	148* (39%)	50 (34%)

N: O, onsite stroke expert; P, Phone; S, System telemedicine; T, Third party telemedicine
I: N, noncontrast CT; A, CT angiography; P, CT perfusion
C: S, Stroke severity; L, Presence of LVO; P, presence of penumbra

Facility

A Mission
B Skyline
C Swedish
D Med City Plano

Potential additional data points:

- Door-in-Door-out
- Means of interfacility transport
- Other interventions (higher level of care)
- ?Outcome measures (dichotomous outcome – DC home vs other, etc)
- ?delayed transfers for deterioration missed LVO, LHI, etc)