


Improving EMS/Field Triage for Stroke


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BREMSS/UAB HEALTH SYSTEM



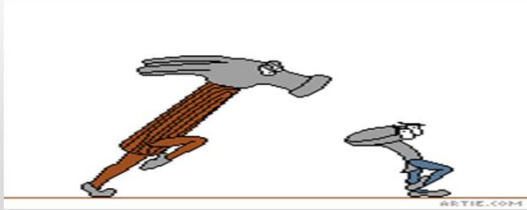
Improving EMS/Field Triage for Stroke

- TRIAGE – TO SORT DENOTES SCARCITY OF RESOURCES – IS THIS THE CORRECT NAME AND CONCEPT ?
- SELECTIVE PATIENT IDENTIFICATION AND ROUTING TO THE BEST AVAILABLE HOSPITAL
- WHY SELECTIVE PATIENT IDENTIFICATION AND ROUTING OF ACUTE STROKE PATIENTS
- UNDERSTAND YOUR EMSS AND LIMITATIONS OF SELECTIVE PATIENT IDENTIFICATION AND ROUTING
- AN EXAMPLE AND DATA REPORT OF A SYSTEM USING SELECTIVE PATIENT IDENTIFICATION AND ROUTING OF ACUTE STROKE PATIENTS
- RECOMMENDATIONS FOR EMSS , EMERGENCY MEDICINE, STROKE NEUROLOGY

Why Doesn't EMS Just Identify the STROKE patient and route to the Right Hospital?



IS THIS A HAMMER LOOKING FOR A NAIL ?



WHY ?

- PATIENT CARE/OUTCOMES
- COST EFFECTIVENESS OF MORBIDITY ISSUES
- RESEARCH/STUDIES OUTCOMES

WHY NOT ?

- TRAUMA SYSTEMS WORK SO STROKE SYSTEMS SHOULD ALSO BE SUCCESSFUL , IS THIS A PROVEN STATEMENT ?
- DO WE HAVE EMSP STROKE IDENTIFICATION TOOLS WHICH REALLY WORK?
- ARE THERE TOO MANY STROKE MIMICS ?
- IS IT COST EFFECTIVE ?
- WHILE THE INTERVENTION/TREATMENT FOR IDENTIFIED AND SELECTED STROKE PATIENTS IS EFFECTIVE. DOES THIS MAKE THE SYSTEM EFFECTIVE AND EFFICIENT FOR ALL STROKE PATIENTS ?
- HOW MANY SYSTEM ENTRY PATIENTS TO FIND A STROKE IDENTIFIED AND SELECTED PATIENT OR HOW MANY AIS PATIENTS FOR A LVO PATIENT ?

Faster Stroke Treatment is Better Treatment

Patients treated within 60 minutes experience improved outcomes, including lower in-hospital mortality and reduced long-term disability



GC Fonarow et al. JAMA. 2014;311(16):1632-1640
Saver et al. JAMA. 2013;309(23):2480-8

The New Standard of Care

- A. Patients eligible for IV rtPA should receive IV rtPA even if endovascular Rx is being considered
(Class I; Level of Evidence A). (Unchanged from the 2013 guideline)
- B. Patients should receive endovascular therapy with a stent retriever if they meet all the following criteria:
 - (1) acute ischemic stroke receiving IV rtPA within 4.5 hours of onset according to guidelines from professional medical societies,
 - (2) causative occlusion of the internal carotid artery or proximal middle cerebral artery (M1 or M2),
 - (3) age 18 years and over,
 - (4) NIHSS score of 6 or greater,
 - (5) Alberta Stroke Program Early Computed Tomography Score (ASPECTS) of 6 or greater, and
 - (6) treatment can be initiated (groin puncture) < 6 hrs of symptom onset

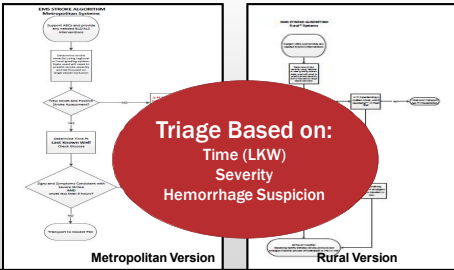
Revers WJ et al. 2015. AHA/ASA Focused Update. Stroke. 2015;46(12):e116-26. (Class I; Level of Evidence A). (New Recommendation)

Growing Evidence Supporting Acute Stroke Care

25% of AIS Patients May be Eligible for thrombolysis
10% of AIS Patients May be Eligible for Endovascular Thrombectomy (EVT)

Vanacker P, Lambrou D, Eskandari A, Mosimann PJ, Maghraoui A, Michel P. Eligibility and predictors for acute revascularization procedures in a stroke center. Stroke. 2016;47:1844-1849

Evolution and New Ideas



Challenges/Opportunities

- Access of New Therapies to ALL Patients
- Endovascular-Capable Hospitals Are Clustered
- Inter-Hospital Transfers Are Slow
- Knowledge Gaps (e.g. EM, EMS, Neurology)
- Existing Stroke Systems of Care Working
- How to Triage Patients Appropriately and Avoid Needless Diversion from PSCs
- > 90% are Appropriate for PSCs

CRASH & BURN (2012 SBC)

- PSC will likely lose substantial volume needed to maintain acute stroke service line
- CSC will overload from field as well as transfer patients (EMTALA)
- Compliance with treatment standards WILL BE A MAJOR ISSUE with the ASH
- CSC will become the center of a stroke system while the services of a PSC will be able to serve (estimated) over eighty per-cent of acute stroke patients
- CSC – cost & resources require an adequate patient volume/payer mix / for the extra interventional procedures

EMSS CHARACTERISTICS

STATE LAWS
LOCAL LAWS
EMS PROTOCOLS OR SOP's
MEDICAL DIRECTOR OF THE SERVICE(s)
THIRD PARTY PAYORS
HOSPITAL AGREEMENT
MD/DO SUB-SPECIALITY CHAMPION
IF YOU HAVE SEEN ONE EMSS , YOU HAVE SEEN ONE EMSS !!!!!

RECCOMENDATIONS

BUILD A SYSTEM — NOT AN INCIDENT RESPONSE MECHANISM
RECOGNIZE A SYSTEM IS NOT JUST A SUM OF IT'S COMPONENTS
BUT EACH OF THE COMPONENT'S HAVE INTER-DEPENDENT
RELATIONSHIPS
BUILD A NEUROLOGIC EMERGENCY SYSTEM
PATIENT MUST BE THE CENTER OF THE SYSTEM
DATA/OUTCOMES MUST BE INCLUDED IN SYSTEM DESIGN
SYSTEM/PROCESS MUST BE TRANSPARENT AND EVER CHANGING
CONSIDER AND CORRECT THE OUTLIERS

Stroke System Performance 01/01/2016 - 12/31/2016

TOTAL - 1,880 Reports 1,485- (79%) 96.5 % to CT
Stroke - 730 (49%)
Hem. 179 (24.5%)
Ischemic 515 (70.5%)
Unknown 36 (5%)
TPA 122 (24%)
Admitted 1400 (94%)

STROKE SYSTEM PERFORMANCE 2016

Hospital Report %	REPORT%	TPA
100%	25%	
98%	26.5%	
95%	9%	
95%	7.7%	
89%	20%	
81%	38%	
80%	33%	
76%	46%	
65%	25%	

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DO NO HARM !



Do No Harm
