Paramedic Prompt Card for Acute Stroke Protocol

Indications under the Acute Stroke Protocol

1. A patient with new onset or crescendo headache, or at least one of the following symptoms suggestive of the onset of an acute stroke:
   a. Unilateral numbness or weakness
   b. Slurred speech or inappropriate words in state
   c. Unexplained focal symptoms
2. The patient is at least 18 years old
3. The patient is not under a critical care transport protocol
4. The patient is not under a critical care transport protocol

Contraindications under the Acute Stroke Protocol

Any of the following excludes a patient from being transported under the Acute Stroke Protocol:

1. CTAS 5 and/or uncorrected abnormal
2. Hypotension in the absence of permissive hypotension
3. Hypotension in the absence of permissive hypotension
4. Hypotension in the absence of permissive hypotension
5. Glasgow Coma Scale (GCS) < 10
6. Temperature > 102°F
7. Duration of out of hospital transport will exceed two hours

“Clot Alert” Acute Stroke Protocol
Multiphase CTA Imaging Protocol

- Arterial: 6 sec
- Midvenous: 11 sec
- Late venous: 19 sec

CT Head, CT Angiogram (Arch to Vertex), Delayed Imaging

Clot Retrieval
Who is Eligible?

- 20% of stroke patients
- With or without IV-tPA
- Disabling stroke
- Stroke symptoms within 6 hours of time last seen normal
- Large blood vessel blockage with a reachable clot.
- Brain tissue that is still alive

Benefits of EVT

- ARR = 23.7%
- NNT = 4 (to live independently)
- Risk of ICH = 3%
Hyperacute Stroke Management: The New Era

Objectives
After this session participants will be able to understand:
1. Time is Brain - The New Era
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3. The Important Role of the Paramedic at the Scene
4. The Factors that Improve Stroke Treatment Times
5. Improving Door in to Door Out Time

Paramedics Interpret Prompt Card with 98% Accuracy

Impact of Expanding the Prehospital Stroke Bypass Time Window in a Large Geographic Region

Objective and Purpose: The Ontario Acute Stroke Medical Resident Paramedic Protocol (ASMRPP) was revised to allow paramedics to intercept stroke patients >6 hours out from symptom onset (5-6.5 hours). We sought to evaluate the impact and safety of implementing the Revised ASMRPP.

Method: We conducted a 12-month implementation study assessing neurological outcomes in patients with acute stroke symptoms. A total of 127 patients and advanced life support paramedics, off fixed service in Loyalton county and Ottawa, used the Revised ASMRPP to take appropriate action immediately in transit stroke centers. The Revised ASMRPP demonstrated excellent interpreter accuracy (95.6%), 95% confidence interval, 0.9% - 9.1% and 97.9% accuracy in interpretation of the Revised ASMRPP. Prehospital stroke events occurred

2/27/2019
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and Pre-hospital Preparation

- Establish strong relationship with each paramedic service
- Early recognition; establish time last seen normal; prompt card
- Pre-notification as soon as Paramedics go in service notify receiving ER – arriving under Acute Stroke Protocol X minutes out (60% of our patients outside of Kingston)
- Start 2 IVs if possible:
  - for ACP or for PCP trained in autonomous IV starts:
    - 1st in Right AG #18g (#20g min) - used for CT contrast dye
    - 2nd in Left arm above the hand - used for IPA
- Second patch 15 minutes out to give update to receiving facility (for those traveling a distance).

“Acute Stroke Protocol” ASP Activation Starts Pre-hospital

- ED Charge nurse/staff receives EMS call
- ED Charge/staff activates ASP through switchboard
- Switchboard activates calls to stroke team (neuro), CT, lab, registration, charge nurses etc.
- Team gets ready based on ETA:
  - Stroke team prepares to meet patient/EMS on ED arrival
  - CT prepares for next on scan
  - ED Nurse reads portable monitor, IV/blood draw equipment, Stroke package
Upon arrival in ED

- Immediate registration
- CT notified of arrival
- Ambulance triage and rapid handover to Stroke team who meet patient at offload; patient slays on EMS stretcher/monitor
- Neuro performs NIHSS; may use POCT device
- Nurse starts IVs if not already started and draws blood; right side IV takes priority

Move straight to CT within 5 mins
Door to 1st CT slice: <10 mins

- Move patient to CT on EMS stretcher
- Nurse/team follow with:
  - ED stretcher
  - ED monitor
  - IV pump
  - Transport kit
  - iPA from Omnicell
  - Stroke package

Upon arrival in CT

- Neurologist initiates process for consent
- Entire team assists with transfer to CT table using transfer board; EMS monitor switched to ED transport monitor
- Patient prepared for CT
- EMS Report given to RN; Paramedics leave
Original Article

Improving Door-to-Needle Times for Acute Ischemic Stroke
Effect of Rapid Patient Registration, Moving Directly to Computed Tomography, and Giving Alteplase at the Computed Tomography Scanner

Narayan Kanal, PhD, Ping Ying, Jessica K. Holowinsky, MS; Caroline Stephenson, RN; Devika Kishor, BA; Andrew M. Bhandari, MD; FRCPC; Michael D. Hill, MD; Renee L. Vitale, RN, MN, RN; Erin Boggs, RN, RN. Charlene Zerr, MD, MS; Nancy Nowcommer, RN, MN, NP; Kady Long, MS; Darren Klein, PT; Eric S. Smith, MD, MPH

(Circ Cardiovasc Qual Outcomes. 2017;10:e003242. DOI: 10.1161/CIRCOUTCOMES.116.003242.)

Improving DTN

- Treatment near CT scan: 19
- Stretcher to CT offload: 18
- Patient registered as unknown: 7
- Single stroke activation: 11

Within CT Suite
Door to Needle - target <20 mins

- Multi-phase CTA protocol
- Stroke team informs ER RN if IVPA candidate
- RN or neuro mixes IPA + prepares bolus
- Neuro monitors patient while ER RN prepares IPA infusion
- Pump may be programmed to receive bolus followed by infusion OR neuro administers IPA Bolus
- RN begins infusion in CT suite – no delay
- RN documents time of bolus/infusion
- If not IPA candidate, IPA returned to Omniscell by ED RN

Work in Parallel
Key to the success of the trials: Speedy interventional teams!

Onset of Symptoms/Last Seen Well
ABC
2 IVs
Prenotification
Referral Site ED Door

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Where is EVT Performed?

- In Ontario, there are currently ten hospitals providing EVT.
- Eight provide EVT 24/7 and two provide EVT with an alternate model.

**EVT Hospitals 24/7:**
- Hamilton Health Sciences
- London Health Sciences Centre
- St. Michael’s Hospital
- Sunnybrook Health Sciences Centre
- The Ottawa Hospital – Civic Campus
- Trillium Health Partners
- University Health Network – Toronto Western
- Kingston Health Sciences Centre

**EVT Hospitals Non 24/7:**
- Thunder Bay Regional Health Centre
- Windsor Regional Hospital

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TPA Referring Site

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Determine Treatment Option(s)

- Eligibility for tPA and/or EVT will be determined.
- Telestroke sites will contact CritiCall and request a Telestroke Consultation.

Transfer

- CritiCall will facilitate transportation - all EVT transfers are by land.
- If tPA is being administered, the HCP from the referring site will be required to accompany the patient during the transfer.

Determine Treatment Options

- EVT Eligible
  - If patient is eligible for EVT the referring site will call CritiCall and request a consultation for EVT with the Stroke EVT Team.
  - Do not wait until imaging complete to initiate call.

Door to CTA 15 minutes
Door in Door Out < 45 minutes
Door to tPA 30 minutes
Canadian Best Practice Targets

Referring Centre and/or tPA Site:
- Door to CTA: 15 minutes
- Door to Needle: 30 minutes
- Door In Door Out: 45 minutes

EVT Site:
- Door (EVT Site) to arterial puncture: 60 minutes
- ED Arrival (EVT Site) to first reperfusion: 90 minutes

DTN <30 min/ DIDO <45 min

Keep on the CT table for immediate CTA!
- NCCT prep/scanning time <5 min
- CTA prep/scanning time <5 min
- CTA reformating time <5 min
- All images to decision <10 min

Keep on EMS stretcher!
- Decision to door out <10 min
- Door in time <5 min
- Door to needle <30 minutes
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QUESTIONS?