PHASE III TARGET: STROKE℠

American Heart Association. Target: Stroke

Target: Stroke Phase III Door-to-Device Time Key Best Practice Strategies

Target: Stroke advocates the adoption of these 12 key best practice strategies for reducing door-to-device times for endovascular therapy in acute ischemic stroke.

1. **Rapid Administration of Alteplase**: Follow Target: Stroke Phase I and II Key Best Practice Strategies for rapid assessment, diagnostic imaging, and, if indicated, administration of alteplase: EMS prenotification, stroke toolkits, rapid triage and stroke team notification, single call activation system, transfer directly to CT scanner, rapid acquisition of brain imaging, rapid laboratory testing (when indicated), mix alteplase ahead of time, rapid access and administration of alteplase, administration of alteplase bolus and start infusion on the imaging table, team-based approach, prompt data feedback.[1-4]

2. **Rapid Acquisition and Interpretation of CT/MR Angiography**: In addition to non-contrast CT (NCCT) (or MR) brain scan, CT (or MR) angiography should be performed in all stroke patients who meet an institutional threshold for clinical stroke severity. The use of any advanced imaging beyond NCCT (or MR) should not delay the administration of intravenous alteplase in eligible patients. Vascular imaging should be performed at the same sitting as the NCCT (or MR) with alteplase decision and administration on the imaging table.[5,6]

3. **Rapid Acquisition and Interpretation of Additional Imaging**: Additional imaging techniques, particularly those intended to physiologically select patients for endovascular therapy (CT perfusion penumbral imaging, MR diffusion–perfusion penumbral imaging, dynamic CTA collateral imaging), are of likely benefit in patients 6-24 hours, but uncertain benefit in patients 0-6 hours, from last known well. If obtained, additional imaging should be performed and interpreted rapidly, and not delay administration of intravenous alteplase or endovascular therapy.[5,6]

4. **Pre-Notification and Rapid Activation of the Neurointerventional Team**: Acute triage protocols facilitate the timely recognition of acute ischemic stroke patients that may benefit from endovascular therapy and reduce time to treatment. The neurointerventional team should be activated by a single paging system as soon as a possible candidate for thrombectomy is identified based upon a pre-specified clinical severity threshold or imaging suggesting the potential for large vessel occlusion. If a patient is being transferred for potential endovascular therapy, the neurointerventional team should receive pre-notification.[5,6]

5. **Rapid Availability of the Neurointerventional Team**: The hospital should have a policy in place specifying the expected arrival times to the neuroangiography suite (preferably ≤30 minutes) that the neurointerventional team on call (neurointerventionalist, interventional technologist, nurses) need to fulfill.[7]

6. **Timer or Clock Attached to Chart, Clip Board, or Bed.** Acute ischemic stroke care including endovascular therapy requires an accurate, timely, coordinated and systematic evaluation of the patient. A universal clock visible to the stroke and neurointerventional team is an enabling tool for improving the timeliness and quality of care and should be considered for recording critical stages.[3]

7. **Transfer Directly to Neuroangiography Suite:** Guided by prespecified protocols eligible stroke patients who are being transferred can, if appropriate (based on recent brain and vascular imaging with no change to clinical status), be transported directly to the neuroangiography suite. Written protocols with explicit inclusion/exclusion criteria should be in place to ensure that patients requiring emergency medical assessment or stabilization are not directly triaged to the neuroangiography suite. Alternatively, rapid assessment by the Emergency Medicine Physician while the patient remains on the EMS transport gurney can be performed to ensure hemodynamic/ respiratory stability and to evaluate for other emergency diagnoses followed by transport to the neuroangiography suite.[5]

8. **Transfer Directly from Brain Imaging Suite to Neuroangiography Suite**: Stroke patients eligible for endovascular therapy should be directly transported from the CT/MR imaging suites to the neuroangiography suite, if ready to receive the patient, without returning to the Emergency Department.[5]

9. **Endovascular Therapy Ready Neuroangiography Suite:** Have policies and protocols in place to have the neuroangiography suite in an endovascular therapy ready state at all times. This includes standardized, pre-prepared equipment tray/cart for endovascular therapy cases that includes all necessary equipment for the case (e.g. BRISK: Brisk Recanalization Ischemic Stroke Kit, with drapes, tubing, syringes, catheters, and devices). Institutions should have a standardized endovascular technique as a first line approach to endovascular therapy (consensus between all operators) so that the nursing staff do not have to vary equipment/tools based on the person on call.[6-9]

10. **Team Based Approach:** Parallel workflows by Emergency Department Team, stroke team, and neurointerventional team, including the neurointenventionalists, interventional technologists, and nursing staff, should be utilized to facilitate rapid performance of invasive imaging and when indicated endovascular therapy.[5-8]

11. **Anesthesia Access and Protocols:** Rapid availability and access to anesthesiology, when clinically indicated. Conscious sedation may be used in non-agitated compliant patients. If general anesthesia is employed, induction should be swift and done without allowing a drop in blood pressure and in a way to minimize any delay to procedure start. These workflow recommendations should be tailored to meet the needs of individual institutions.[6,10,11]

12. **Prompt Data Feedback**: Accurately measuring and tracking your hospital's door-to-device times, other time intervals, and performance on other stroke performance/ quality measures for endovascular therapy allow the neurointerventional and stroke teams to identify areas for improvement and take appropriate action. A data monitoring and feedback system such as the Get With The Guidelines-Stroke Patient Management Tool creates a process for providing timely feedback and recommendations for improvement on a case-by-case basis and in hospital aggregate. This system helps identify specific preventable delays, devise strategies to overcome them, set targets, and monitor progress on a case-by-case basis.[2,3,12]

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