Expanding the Treatment Window Raising the Bar for Patient Safety

Claranne Mathiesen RN, MSN, CNRN
Lehigh Valley Health Network, Claranne.Mathiesen@lvhn.org

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Expanding the Treatment Window Raising the Bar for Patient Safety

Claranne Mathiesen, MSN, RN, CNRN
Lehigh Valley Health Network, Allentown, Pennsylvania

Abstract:
As evidenced-based stroke care continues to evolve more alternatives are available to enable life-saving intervention for acute ischemic stroke patients. This presents new challenges in providing the best plan of care which now extends beyond FDA approved intravenous alteplase to include mechanical interventions that further extends the treatment time. Nurses play a pivotal role in all phases of care and therefore need to gain a deeper understanding in the decision making in the first twenty four hours. This poster will review the current use of imaging to guide and support clinical intervention and clarify differences between treatment time windows for acute ischemic stroke. As important as early treatment, careful oversight of performance criteria ensures safe delivery of care and facilitates achievement of best patient outcomes. Participants will analyze quality metrics to aide in the concurrent and retrospective evaluation of stroke patient care.

Objectives:
- Identify the inclusion/exclusion criteria for use of intravenous alteplase.
- Describe the decision making in extending the window for intravenous alteplase.
- Apply data available from multi modality imaging and advanced endovascular techniques to provide acute stroke rescue.

Summary of Differences from FDA Recommendations:
- Warnings: Age > 80
- NIH Stroke Scale > 25
- Previous history of stroke and diabetes
- Any anticoagulant use even if INR < 1.7
- CT findings consistent > 1/3 MCA territory

Use of Imaging to Guide Clinical Decisions:

Computed Tomography:
Non Contrast CT remains the "gold standard" in acute ischemic stroke. Multi modality CT with CT perfusion/CT angiography can provide info on cerebral blood volume, blood flow and mean transit time helping to identify ischemic core and penumbra.

Magnetic Resonence Imaging:
Earliest evidence of ischemic injury and evaluates extracranial and intracranial blood vessels. Use of diffusion weighted and perfusion weighted imaging provides further advantages of defining ischemic area and hemodynamic status of cerebral blood flow. Tissue mismatch can be utilized to identify salvageable brain.

Carotid duplex scanning:
used to screen for cervical internal carotid artery stenosis.

Cerebral arteriography:
the best tool to definitively evaluate the cerebral vasculature for stenosis and changes in blood flow dynamics.

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Strategies for Best Practice:
- Develop standard work processes
- Advocate use of checklists
- Annual Staff Training/In-service
- Mock stroke drills
- Time out before drug administration & procedures
- Adhere to guidelines
- Frequent monitoring before, during and after changes
- Focused performance improvement
- Collect and feed forward process and outcome data

Nursing Implications for Practice:
Stoke treatment is rapidly changing. Nurses need to understand cerebrovascular pathophysiology and available options for reperfusion interventions. Advances in neuro imaging will aide in better patient selection for emerging new therapies with goal to open blood vessels faster. Clear communication is essential and includes hand offs, medication reconciliation, nurse to nurse neuro exams and individualized plans of care.

References: