Title:
Evaluation of Current Patient-Care Processes of Adult Inpatient Stroke Alerts

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Session Title:
Rising Stars of Research and Scholarship Invited Student Posters

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References:


Abstract Summary:
There is an observed gap in adherence to processes of stroke care nationally. This project identified patterns of care and gaps in practice, leading to recommendations for future improvement of inpatient stroke alerts both institutionally and nationally.
## Learning Activity:

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<th>LEARNING OBJECTIVES</th>
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| Assess the proportion of in-hospital stroke alerts that did not meet each of the individual AHA/ASA guideline components, the overall national guidelines, and the stroke alert policy at a major tertiary-care academic medical center. | Individual guideline components assessed:  
- Door to stroke team \(\leq 15\) minutes  
- Door to CT initiation \(\leq 25\) minutes  
- Door to CT interpretation \(\leq 45\) minutes  
- Door to drug (\(\geq 80\%\) compliance) \(\leq 60\) minutes  
- Blood glucose  
- Platelet count  
- Blood pressure  
- Concurrent use of anticoagulant  
- NIHSS |
| Identify factors associated with non-compliance with: a) individual guideline components, b) overall current national guidelines, and c) the stroke alert policy at a major tertiary-care academic medical center. | Working hypothesis: non-compliance differs by - Time of day - Primary specialty service |
| Explore factors that affect stroke alert accuracy at a major tertiary-care academic medical center. | Working hypothesis: stroke alert accuracy differs by - Time of day - Primary specialty service |

### Abstract Text:

Sadly, one of the worst places for a patient to have a stroke is while admitted to a hospital. Approximately 4% to 17% of all strokes have onset of symptoms while hospitalized. Contributing factors to in-hospital stroke (IHS) includes prothrombotic states, interruption of antithrombotic therapy, hypotension or hypoperfusion, new cardiac thrombus, paradoxical embolus or plaque disruption from vascular manipulation. The efficacy of reperfusion therapy in acute ischemic stroke is time dependent and a small reduction of time delays to thrombolysis can result in significant benefits in the patients' outcome. Given the narrow therapeutic windows for treatment options of acute ischemic stroke, the ability to identify, evaluate, treat and provide access to stroke expertise is crucial. A "stroke alert" is a system commonly used for notification to an appropriate specialized team for organized and rapid evaluation and treatment of patients with suspected acute stroke. Theoretically, with reduced time delays, hospitalized patients would be an ideal population for treatment with acute medical and interventional therapies. Every minute counts when a patient is suffering a stroke. Previous studies suggest that IHS have greater severity, experienced higher rates of mortality and subsequent disability, have less comprehensive evaluations, and take more time with time goals rarely being met, than strokes that occur in the community. Historically the average time to get a hospitalized patient exhibiting stroke symptoms to a CT scanner for brain imaging is as much as three times longer than it is for patients who arrive in the emergency department for evaluation and treatment. Patients should have access to the same high quality stroke care despite suffering a stroke in the community or while admitted to a hospital unit. Providing high quality care to patients with acute stroke and minimizing time delays is critical in ensuring good outcomes. Current evidence-based guidelines by the American Heart Association (AHA) affirm the overarching concept of stroke systems of care from recognition, medical activation, and triage, through the initial hours in the acute care setting. Adherence to national guidelines and organizational protocols is associated with improved patient outcomes.

Effective and timely care of the adult patient experiencing stroke symptoms is essential to limit patient morbidity and mortality. Quality care requires collaboration from multidisciplinary team members and adherence to clinical practice guidelines and protocols. Nationally, there is an observed gap in adherence to stroke care standards, especially for stroke alerts that occur in the inpatient setting. Despite this
observed gap, sparse studies exist describing inpatient adherence to national guidelines and identification of factors associated with non-compliance. Evidence-based national guidelines and facility protocols exist, although the uses of these practice recommendations have not been investigated for the identified population. This study measured adherence to the current national guidelines provided by the AHA and achievement of performance and quality measures defined by Get With The Guidelines®-Stroke (GWTG®-Stroke) and the adherence to the organizational “stroke-alert” protocol. The purpose was to evaluate the current stroke alert patient-care process of already admitted adults and to identify patterns of care and gaps in practice, leading to recommendations for future improvement of inpatient stroke alerts both institutionally and nationally. A retrospective chart review (RCR) was conducted on 78 inpatients with a “stroke-alert” at a rural major academic tertiary-care center. Demographics, stroke symptoms, primary specialty service, unit location, time benchmarks, time of day and many other variables surrounding the stroke alert were collected. Descriptive, univariate and multivariate statistics were calculated. A hospital-wide analysis allowed for: 1) increased knowledge regarding the current clinical practices, 2) identification of practice gaps, and 3) opportunity for process improvement. While this project informs practice, it is even more significant in highlighting barriers to optimize clinical outcomes of admitted patients who suffer from an acute stroke, thereby decreasing morbidity and mortality.

Findings from this study suggest stroke alert accuracy is dependent on patient physical location, primary service and time of day. Time of day and physical location of patient also contributed to significant differences in meeting national guidelines and time benchmarks. No patients assessed in this ten month period met criteria to receive intravenous tissue plasminogen activator (IV-tPA) or interventional thrombectomy at this study location. This may be due to increased comorbidity and complexity of patients who are already admitted to the hospital or high false positive stroke alert rates. Further evaluation is required to assess the particular factors associated with stroke alert inaccuracies and barriers associated with not meeting time benchmarks and clinical practice guidelines.