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Improving Local Anesthetic Systemic Toxicity (LAST) Recognition and Treatment Through Education of Advanced Practice Providers on a Code Stroke Team

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BACKGROUND

- Strokes affect 800,000 people in the United States annually. Stroke-related care cost the healthcare system 46 billion in 2014 and 2015 (Centers for Disease Control and Prevention, 2021).
- LAST symptoms are very similar to stroke symptoms, and identification between the two may be unrecognizable for a provider unknowledgeable of LAST.
- LAST most commonly affects the central nervous system, with seizures often occurring (El-Boghdadly et al., 2018). However, a diverse presentation may occur, including cardiovascular collapse progressing into cardiac arrest.

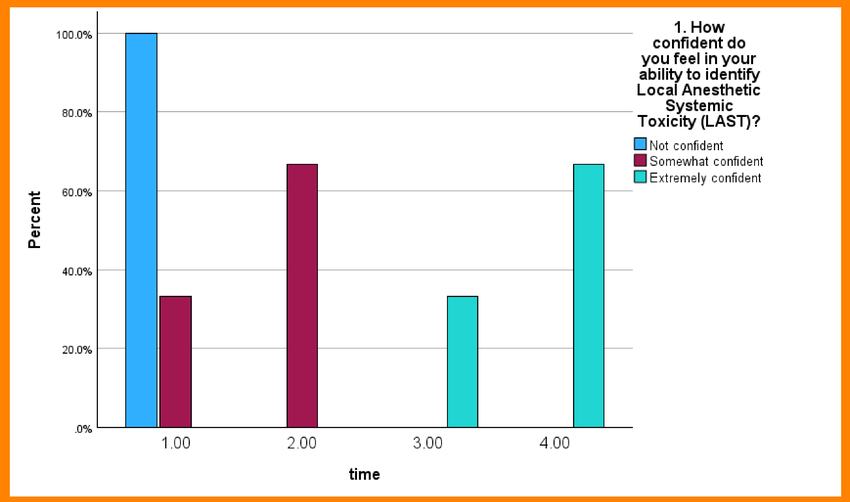
LOCAL PROBLEM

- Project site: Level I Academic Medical Center in the southeast United States.
- Participants: Advanced Practice Providers (APPs) on the code stroke team.
- The project site has an estimated occurrence of LAST once a month.
- The proposed project aims to educate code stroke team APPs to understand the difference between LAST and strokes and include LAST as a differential diagnosis when assessing code stroke patients.

METHODS

- Framework: The model of improvement
- Research and critical appraisal of the literature showed evidence of improving LAST recognition and treatment through education.
- The project team collected a pre-educational questionnaire to establish baseline provider knowledge and comfort with LAST. PDSA cycles were conducted to assess for changes and establish recommendations for the code stroke team.

LAST education successfully increased providers comfortability and confidence in recognition and treatment.



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INTERVENTIONS

- Advanced Practice Providers of the code stroke team were given a pre-intervention questionnaire to establish baseline knowledge and comfort with LAST.
- PDSA cycle 1 – A live educational session was conducted online. A post-intervention questionnaire was deployed the following day.
- PDSA cycle 2 – A LAST flyer was posted in the code stroke team office. A second post-intervention questionnaire was deployed the following day.
- PDSA cycle 3 – A recommendation was made to revise the code stroke checklist to include a prompt for providers to assess for LAST.

Provider Questionnaire

Do you feel confident in your ability to identify local anesthesia systemic toxicity (LAST)?
What is an early onset symptom of LAST?
What is a late onset symptom of LAST?
What is necessary to stop the progression of LAST?
Do you feel comfortable differentiating between LAST and a stroke?

RESULTS

- Providers' comfort and confidence in identifying a LAST event increased after the educational module and flyer.
- The code stroke checklist was revised to prompt providers to assess for LAST as a differential diagnosis in code stroke patients.

CONCLUSIONS

- Despite limited participation from the code stroke team, educational interventions increased advanced practice providers' confidence and comfort in identifying LAST.
- The revised code stroke checklist is intended to prompt providers to assess for LAST as a differential diagnosis in code stroke patients.
- Recommended next steps include further studies on compliance and effectiveness of the revised code stroke checklist.

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