

Local Anesthetic Systemic Toxicity: Perioperative Nurse Education Program for LAST

Primary Investigator: Carolyn C. Harding DNP RN PMGT-BC

Co-Investigators: James Papesca DNP APRN CRNA,
Valerie Seney PhD MA LMHC PMHNP-BC, Mary Minn MD
Brown University Health: Newport Hospital, Newport, RI

Introduction: Local anesthetic systemic toxicity (LAST) is a rare but potentially fatal perioperative emergency requiring prompt recognition and intervention. Despite the severity of this complication, perioperative nurses often receive little formal education on LAST identification and management. Addressing this education gap is critical for improving patient safety and outcomes.

Identification of the Problem: A lack of standardized LAST education among perioperative nurses contributes to inconsistent knowledge and reduced confidence in managing these events. This project sought to evaluate whether a focused education intervention could increase nurses' knowledge and confidence regarding LAST recognition and treatment.

QI Question/Purpose of the Study: This project sought to examine whether an evidence-based educational intervention could improve perioperative nurses' knowledge and confidence in recognizing and managing LAST events and to evaluate if those gains would be retained 4-weeks following the intervention.

Methods: A pre- and post-test design was used with registered nurses working in the perioperative setting (n= 22). Participants completed a survey before and immediately following the viewing of an evidence-based narrated video module outlining the pathophysiology, risk factors, symptoms, and treatment of LAST. The same survey was taken by participants 4-weeks later, assessing knowledge and confidence retention. Statistical analysis included paired sample t-tests, Wilcoxon signed-rank tests, and repeated measures ANOVA.

Outcomes/Results: Statistically significant improvement was observed between pre- and post-test knowledge scores (M= 9.09 vs. M= 14.09, $t(21) = -5.88$, $p < .001$, $d = 1.25$). Confidence scores also increased significantly across time ($F(2, 32) = 37.04$, $p < .001$, $\eta^2_p = .70$). Four week follow-up results showed no significant decline, demonstrating retention of knowledge and confidence. The most significant improvements were seen in early symptom recognition and correct lipid rescue implementation.

Discussion: A concise, evidence-based education intervention proved highly effective in improving perioperative nurses' knowledge and self-efficacy in managing LAST. The results validate the feasibility of brief, targeted education to strengthen clinical preparedness for rare, high-acuity events.

Conclusion: Integrating standardized LAST education into perianesthesia orientation and annual competencies promotes patient safety and ensures nurses are prepared to act decisively during a LAST event.

Implications for perianesthesia nurses and future research: Future research should include larger, multisite samples, and explore simulation-based and multidisciplinary training to further enhance team readiness and outcomes in the perianesthesia environment.