Guidelines Enhance Anesthetic Management of Heart Failure Patients During ICD Implant

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Background & Purpose

- Implantable cardioverter defibrillators (ICDs) are indicated in heart failure with reduced ejection fraction (HFrEF) to limit cardiac arrest
- The severity of disease complicates patient stability and warrants meticulous anesthesia care during ICD implant surgery[1, 2, 3]
- No published clinical practice guidelines (CPGs) describe anesthetic management techniques for HFrEF patients during ICD implant

The purpose of this evidence-based, quality improvement project was to develop, implement, and evaluate the effects of CPGs on anesthesia provider knowledge and self-efficacy when anesthetizing HFrEF patients for ICD implant.

Aims

1. Increase anesthesia provider knowledge of contemporary best practices for anesthetizing HFrEF patients receiving ICDs

2. Increase anesthesia provider self-efficacy when providing anesthesia for HFrEF patients receiving ICDs

Intervention

Increased consistency of health care delivery is most likely when[4]:

- the support tool is part of the routine workflow
- information is clinically actionable
- data is provided at the point of decision-making
- decision support tools are computer-based

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Methods

Design: A dependent pre- and post-test QI project

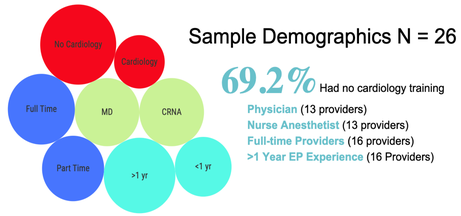
Setting: Electrophysiology labs of an urban tertiary care facility in the Pacific Northwest known for its heart failure clinic

Sample: Convenience sample of MD and CRNA anesthesia providers working between Sept. 2022 to Dec. 2022.

Procedure: Application of web-based CPGs to anesthesia care

Measures: Knowledge Questionnaire, Generalized Self-Efficacy Scale

Results

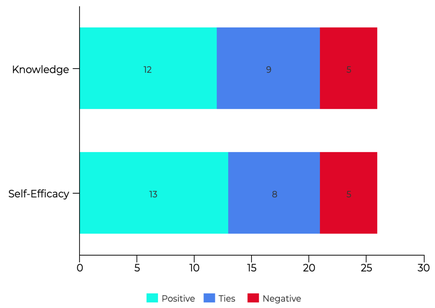


Sample Demographics N = 26

69.2% Had no cardiology training

Physician (13 providers)
Nurse Anesthetist (13 providers)
Full-time Providers (16 providers)
>1 Year EP Experience (16 Providers)

Wilcoxon Ranks by Outcome Measure



Significance

pre:12.85/13, IRQ: 2, M=12.85
post:13.27/13, IRQ: 3, M=13.27
sig: **NO (*Z*=-1.459, *p*=0.145, *r*=0.20)**
Knowledge

pre: 33.5/40, IRQ: 2, M=33
post: 34/40, IRQ: 0, M=34.23
sig: **YES (*Z*=-2.08, *p*=0.038, *r*=0.29)**
Self-Efficacy

Discussion

- Increased anesthesia provider knowledge through CPG use furthers aims to utilize CPGs to establish a threshold of safety and fast-track the translation of research to practice[3]
- Significantly improved anesthesia provider self-efficacy advances the goal of using CPGs to manage precursors before they develop into problems[5, 6, 7]

Limitations:

- Small sample size
- All learning wall self-directed, no in-person instruction
- Sampling bias due to recruitment of familiar providers

Adding CPGs to the pool of resources available to anesthesia providers is feasible and effective in the clinical setting.

Conclusions

- Institutional expertise was combined with nationally-recognized recommendations to create a set of custom guidelines that evoked meaningful improvements in the knowledge and operational confidence of anesthesia providers while caring for the growing HFrEF population

Recommendations:

- Anesthesia providers should be included in creating customized CPGs for various areas of clinical practice
- This project supports the provision of customized CPGs to augment anesthesia provider knowledge and self-efficacy in remote and under-supported settings

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