CLINICAL SUMMARY

The relationship between a single-patient-use electrocardiograph cable and lead system and coronary artery bypass graft surgical site infection within a Medicare population

Citation

Lankiewicz J[a], Wong T[b], Moucharite M[b]. The relationship between a single-patient-use electrocardiograph cable and lead system and coronary artery bypass graft surgical site infection within a Medicare population. *American Journal of Infection Control* (AJIC) Available online 7 March 2018 https://www.ajicjournal.org/article/S0196-6553(18)30068-3/fulltext

Introduction and Purpose

- Surgical site infections (SSI) complicating coronary artery bypass graft (CABG) procedures are significant in terms of morbidity, mortality, and economic impact[1]
- Over the past decade, an upward trend in complex sternal infection rates has been observed as CABG patients present with increasingly complex comorbidities[2]
- The potential for critical monitoring devices serving as vectors for SSI-causing pathogens remains unclear
- Reusable electrocardiography (ECG) lead wires and cables, which are placed on a CABG patient's chest in close proximity to sternal incision sites for the duration of an inpatient stay:
  - Are often cleaned inadequately[3,4]
  - Have been traced to vancomycin resistant enterococci (VRE) outbreaks[5]
  - May pose as a potential source of cross-contamination and SSI-causing pathogen transmission[6,7]

Methods

A retrospective case-control Medicare claims analysis was performed to identify facility-level SSI incidence following CABG procedures performed during a 12-month period between 9/09/2014 and 9/28/2015.

A total of 42 Kendall DL™ single-patient-use ECG cable and lead wire system facilities were propensity score matched to 274 reusable ECG lead wire facilities (1:6 matching) based on specific characteristics chosen to reduce confounders between groups.

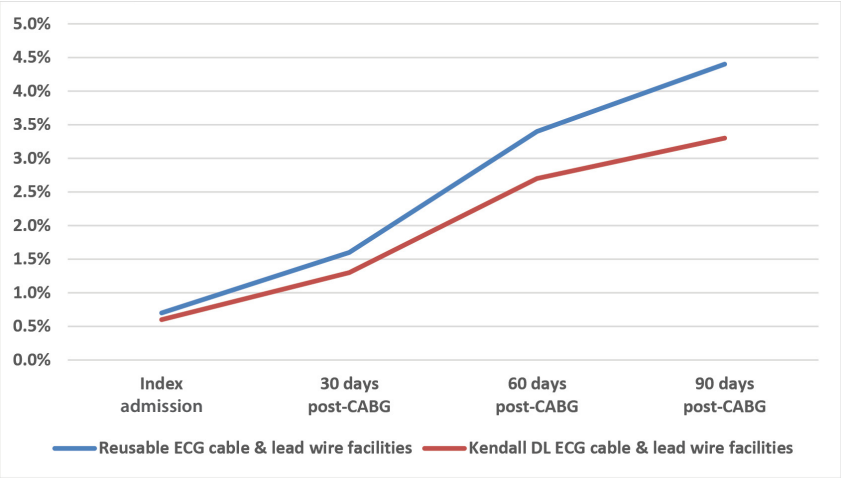
Analysis

A total of 27,296 CABG procedures were observed during the study period. Kendall DL™ single-patient use facilities performed 4,450 CABG procedures and reusable ECG lead wire facilities performed 22,846 procedures. Cumulative SSI incidence observed during the index admission until 90 days post-CABG were then compared between the two groups.

Results

Compared with reusable ECG lead-wire system facilities, Kendall DL™ single-patient-use ECG cable and lead wire facilities demonstrated an average 14.3% reduction in estimated SSI during the index admission (P=0.55), an 18.8% reduction at 30 days (P =0.48), a 21% reduction at 60 days (P=0.14), and a statistically significant 25% reduction at 90 days post-CABG (P=0.04).

Figure 1. Cumulative SSI incidence following CABG surgery between Kendall DL™ and non-Kendall DL™ facilities



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Discussion and Conclusion

Increased participation across a variety of Advanced Alternative Payment Models (AAPM), such as the CABG Bundled Payment for Care Improvement (BPCI), will require clinicians to take on a higher level of financial risk based on longer-term patient outcomes. This evolving policy and reimbursement landscape highlights the importance of investigating the impact of reusable items that come in direct contact with vulnerable patient populations.

Transitioning to the Kendall DL™ single-patient-use ECG cable and lead wire system as part of a multi-modal infection prevention strategy may serve to significantly reduce SSI incidence.

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