2126. Comparative Effectiveness of Infection Prevention Interventions for Reducing Procedure-Related Cardiac Device Infections: Insights from the VA CART Program

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Background. Cardiovascular implantable electronic device (CIED) infections are highly morbid, thus peri-procedural prevention interventions are employed to reduce them. However, little data exists evaluating the comparative effectiveness of these prevention interventions. Thus, the objective of this study was to measure the association between infection prevention and antimicrobial prophylaxis strategies and procedure-related CIED infections among a national, multi-center cohort using a nested case-control design.

Methods. A selection of procedures entered into the VA Clinical Assessment Reporting and Tracking-Electrophysiology cohort from FY 2008-2016 underwent manual review for presence of infection and for type of prevention strategy used. The primary outcome was 6-month incidence of CIED infection. Measures of association were calculated using multivariable logistic regression.

Results. One hundred and fourteen CIED infections among 2,131 procedures were identified; 18 were superficial and 96 were deep. In a multivariable analysis, procedural factors associated with increased odds of procedure-related CIED infections included procedure complications (e.g., hemoptoma) and revisions (Table 1). Prevention factors associated with reduced risk included chlorhexidine (CHG) skin cleaning, pre-procedure prophylaxis with a β-lactam, and intra-procedure antibiotic washes. Infection prevention strategies that were not associated with risk reduction included: intraprocedure pigtail washout/prophylaxis regimen (e.g., β-lactam plus vancomycin), and prolonged antimicrobial prophylaxis lasting >24 hours post-procedure.

Conclusion. Although the major driver of procedure-related CIED infections are procedural factors and complications, some infection prevention strategies are beneficial. These results should be used to inform infection prevention and antimicrobial stewardship practices in the electrophysiology laboratory.

Table 1: Factors Associated with Risk of CIED Infection

| Intervention | Odds Ratio (95% CI) | P-value |
|--------------|-------------------|---------|
| Procedure complication | 4.3 (2.6-72) | <0.001 |
| Revision | 2.0 (1.3-3.1) | 0.002 |
| Pre-procedure CHG | 0.40 (0.3-1.3) | 0.002 |
| Pre-procedure β-lactam | 0.59 (0.38-0.72) | 0.024 |
| Antibiotic washes | 0.91 (0.27-0.59) | 0.045 |

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2127. The Role of Prophylactic Antibiotics for Reducing Infections Following Knee Arthroscopy

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Background. Surgical site infections (SSI) following arthroscopy are associated with considerable morbidity. Whether antibiotic prophylaxis can reduce the risk of SSI following knee arthroscopy is unclear.

Methods. We undertook a meta-analysis of studies comparing incidence of SSI in patients receiving antibiotic prophylaxis vs. no antibiotics before undergoing knee arthroscopy. We searched multiple computerized databases; data were pooled using a random effects model. We excluded knee arthroscopy studies for which the distribution of patients receiving antibiotics vs. no antibiotics was unavailable. CDC definitions for SSI were used to determine incidence of infection.

Results. Five retrospective studies including 47,548 patients met inclusion criteria; none were randomized trials. The risk of SSI in the prophylactic antibiotic group was 0.38% and in the no antibiotic group was 0.57% (pooled OR 0.69, 95% CI 0.69–1.42). There was no statistical heterogeneity.

Conclusion. The evidence to date, which is limited to retrospective studies, suggests no difference in SSI incidence with and without antibiotic prophylaxis for knee arthroscopies. Prospective studies are required to further evaluate this finding. Future research should evaluate whether antibiotic prophylaxis prevents SSI in other joint arthroscopy procedures, such as shoulder arthroscopy.

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2128. Predictors of Post-Discharge Prophylactic Antibiotics Following Spinal Fusion

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Background. Discontinuation of prophylactic antibiotics <24 hours after surgery is recommended in multiple guidelines, but prophylactic antibiotics are still prescribed at discharge for some procedures. The objective of this study was to determine the prevalence and predictors of post-discharge prophylactic antibiotic use after spinal fusion.

Methods. We established a retrospective cohort of patients aged ≥18 years undergoing spinal fusion between July 2010 and June 2015 at three teaching hospitals. We excluded patients with infections during the spinal fusion admission. Prophylactic antibiotics were identified at discharge.

Results. A total of 6,909 spinal fusion admissions were identified. The median age of patients was 57 years; 4,425 (45.7%) were male; 1,070 (11.0%) were trauma patients; and 352 (3.6%) had underlying malignancy. Antibiotic(s) were prescribed at discharge in 381 (3.9%) admissions. The most commonly prescribed antibiotics were trimethoprim/sulfamethoxazole (23.6%), ciprofloxacin (16.4%) and cephalosporin (16.1%). Independent predictors of post-discharge prophylactic discharge antibiotics are shown in the table.

Conclusion. Post-discharge prophylactic antibiotics were uncommon after spinal fusion. Factors associated with use included hospital, trauma, prolonged surgery time, intra-operative antibiotics, plus patient factors, including obesity, malignancy, fluid and electrolyte disorders, valvular heart disease and high American Society of Anesthesiologists (ASA) score.

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 excluded. Univariate logistic regression and chi-square tests were used to compare antibiotic utilization for operative factors, demographics and comorbidities.

Results. The analysis included 174,202 fusione procedures, with 51.5% of surgeries involving the cervical spine, 81.3% involving 1–2 vertebral levels, and 53.05% using an anterior approach. The median patient age was 52 years and 53.3% were female. Post-operative prophylactic antibiotics were used in 1–3,611 (7.8%) of surgeries, with cephalaxin (39.2%) and levofloxacin (10.5%) the most commonly prescribed. Post-discharge antibiotic use decreased significantly from 2010 to 2015 (8.3% of procedures in 2010 vs. 7.7% in 2015; P = 0.001; Cochran-Armitage test), was higher in rural areas (8.8% of rural vs. 7.6% of urban/suburban patients; P < 0.001), and differed by U.S. region (8.5% South, 8.1% West, 6.9% North Central, 6.6% Northeast; P < 0.001).

Patients prescribed prophylactic post-discharge antibiotics had more comorbidities including obesity, diabetes, pulmonary disease, hypertension, and psychoses (all P < 0.001). Post-discharge antibiotic use varied by surgical approach (9.6% anterior/posterior, 9.2% posterior only, 6.8% anterior only; P < 0.001) and spine region (9.4% lumbar, 6.7% cervical, 6.7% multiple regions, 6.1% thoracic; P < 0.001), and was more common when >2 vertebral levels were involved (P < 0.001).

Conclusion. Post-discharge antibiotic prophylaxis following spinal fusion surgery was associated with geographic, operative and patient factors.

Disclosures. All authors: No reported disclosures.

2130. Impact of Sarcopenic Obesity on Surgical Site Infection After Gastric Cancer Surgery: A Retrospective Study of 1,038 Patients

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Session: 225. Healthcare Epidemiology: Surgical Site Infections Saturday, October 6, 2018: 12:30 PM

Background. Surgical site infections (SSIs) are the most common and expensive healthcare-acquired infection. Implementation of processes to prevent SSI can be difficult due to coordination of patients, providers, pharmacists, and nurses in ensuring all steps are completed before surgery. Thus, the objective of this nurse-driven process improvement project at a veterans affairs (VA) hospital, which averages 6,000 simple to complex surgeries per year, was to implement a cost-effective and practical decontamination protocol to decrease methicillin resistant Staphylococcus aureus (MRSA) SSIs across all surgical case types.

Methods. Starting May 15, 2017 a new MRSA decolonization protocol was initiated for surgery cases except eye. Pre-operative clinic nurses complete MRSA nasal screening and provide detailed pre-operative showering instructions which include a focus on preventing recontamination of the skin after showers. Before surgery, nurses provide intranasal Povidone-Iodine treatment. The surgery pharmacist completes the protocol by administering the nasal screening and provide detailed pre-operative showering instructions which include a focus on preventing recontamination of the skin after showers. Before surgery, nurses provide intranasal Povidone-Iodine treatment. The surgery pharmacist completes the protocol by administering the nasal screening and provide detailed pre-operative showering instructions which include a focus on preventing recontamination of the skin after showers.

Results. For fiscal years (FY) 2012–2016 prior to protocol implementation, annual MRSA SSI rates ranged from 0.24–0.11 SSIs per 100 surgery cases; the average SSI rate for this time period 0.17. After protocol implementation there were zero MRSA SSIs in FY17 quarter 3 lowering the FY17 SSI rate to 0.09 SSIs per 100 surgery cases (see Figure 1.) Since implementation only 1 MRSA SSI has been identified making the last 4 quarter SSI rate 0.04 per 100 surgery cases (see Figure 2). This represents a 76% improvement in the 1 year MRSA SSI rate (0.04) compared with the previous 5 years MRSA SSI rate average.

Conclusion. Initial protocol results suggest that practical nursing interventions should be considered for implementation to decrease MRSA surgical site infections.

Figure 1

Figure 2

Disclosures. All authors: No reported disclosures.

2131. A Pre-operative Nursing Implemented Methicillin-resistant Staphylococcus aureus Decolonization Protocol to Decrease Surgical Site Infections

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Figure 1

Figure 2

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2132. Infections After Pediatric Ambulatory Surgery: Incidence and Risk Factors

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Figure 1

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