The Relationship Between Payer and Risk of Surgical Site Infection Following Cesarean Delivery

Sarah H. Yi, Centers for Disease Control and Prevention
Kiran Mayi Perkins, Centers for Disease Control and Prevention
Sophia Kazakova, Centers for Disease Control and Prevention
Kelly Hatfield, Emory University
David Kleinbaum, Emory University
James Baggs, Emory University
Rachel B. Slayton, Emory University
John A. Jernigan, Emory University

Journal Title: Open Forum Infectious Diseases
Volume: Volume 4, Number suppl_1
Publisher: Oxford University Press (OUP) | 2017-10-04, Pages S650-S650
Type of Work: Article | Final Publisher PDF
Publisher DOI: 10.1093/ofid/ofx163.1731
Permanent URL: https://pid.emory.edu/ark:/25593/s6gc5

Final published version: http://dx.doi.org/10.1093/ofid/ofx163.1731

Copyright information:
© The Author 2017. Published by Oxford University Press on behalf of Infectious Diseases Society of America. This is an Open Access work distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Accessed December 11, 2018 8:44 AM EST
2203. Serratia and Surgical Site Infections: Risk factors and Epidemiology

John O’Horo, MD, MPH1;2; Sarah Bellows Mahler, RN3; Barbara Gardner, RN1 and Elle F. Berbari, MD, FIDSA4; 1Pulmonary and Critical Care Medicine, Mayo Clinic, Rochester, Minnesota, 2Infectious Diseases, Mayo Clinic, Rochester, Minnesota, 3Mayo Clinic, Rochester, Minnesota, 4Division of Infectious Diseases, Mayo Clinic, Rochester, Minnesota

Session: 243. HAI: Surgical Site Infections
Saturday, October 7, 2017: 12:30 PM

Background. Serratia spp. have been associated with surgical site infection (SSI) outbreaks associated with specific providers, topical creams and contaminated saline products. Patient risk factors for developing infection with this organism have not been extensively studied. We sought to evaluate risk factors for Serratia SSI.

Methods. Cases of Serratia SSI occurring between 2012 and 2016 were identified via an infection control surveillance program. SSI was defined by National Healthcare Safety Network (NHSN) criteria. Controls were randomly selected individuals undergoing surgical procedures during the same time frame without identified Serratia SSI. Data was analyzed using partitioning, student T test and chi-square analysis to identify risk factors for Serratia SSI.

Results. During the study period, 17 cases and 34 controls were identified, all of whom were cardiac or vascular surgery patients. Males were afflicted far more often than females (Relative risk 4.9, 95% CI 0.72–33.37, P = 0.04). Case ages were older (mean age [standard error] 55.1 [3.40] vs. 66.3 [4.92] years, P = 0.04). The patient time was 0.03 ± 0.05 (96% CI 0.21–0.37, P = 0.04). The study authors identified several predictors of Serratia SSI. Gender, operative time and age are associated with an increase in risk factors for Serratia SSI.

Conclusion. Gender, operative time and age are associated with an increase in Serratia SSI risk. Serratia SSI is associated with a high mortality rate. Providers should be vigilant for this organism, particularly in older male patients undergoing complex cardiac or surgical procedures.

Disclosures. All authors: No reported disclosures.

2204. The Relationship Between Payer and Risk of Surgical Site Infection Following Cesarean Delivery

Sarah H. Yi, PhD1; Kiran Mayi Perkins, MD, MPH2; Sophia Kazakova, MD, MPH3; Kelly Hatfield, MSPH1; David Kleinbaum, PhD2,4; James Bags, PhD5; Rachel B. Slayton, PhD, MPH1 and John A. Jernigan, MD, MS1; 1Division of Healthcare

Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, 2Rollins School of Public Health, Department of Epidemiology, Emory University, Atlanta, Georgia

Session: 243. HAI: Surgical Site Infections
Saturday, October 7, 2017: 12:30 PM

Background. Both Medicaid and private health insurance support important access to care for many pregnant women in the United States. The role of health insurance on many outcomes, such as surgical site infection (SSI) following Cesarean delivery (CD), has not been adequately evaluated.

Methods. This retrospective cohort study investigated SSI risk following CD performed in California hospitals in 2011 among women covered by Medicaid or private health insurance. All CD were obtained from identifiable state inpatient data and linked with National Healthcare Safety Network (NHSN) data to ascertain post-delivery SSI. Characteristics including age, race/ethnicity, BMI, prior CD planned admission, emergency CD, active labor and labor duration, ASA physical status, general anesthesia, wound class, hospital ownership, hospital annual CD count, inter/intrastudent-to-bed ratio, case mix index, disposition at share adjustment, urbanization, and area wage index were obtained from CMS facility, NHSN, and SID data. Potential effect modification of the payer-SSI relationship was assessed using a multivariable logistic regression model.

Results. 90% of eligible NHSN records linked with a SID record. The analytic dataset consisted of 387 SSIs following 57,143 CDs performed in 196 hospitals. Payer distribution across CDs was 49% Medicaid, 51% private insurer. SSIs were reported following 0.74% of CDs among Medicaid recipients and 0.62% among those privately insured (unadjusted risk ratio: 1.2, 95% confidence interval: 1.0–1.5, P = 0.09). In the private insured female patients had a 2.6-fold (95% CI 2.2–5.4, P = 0.01) increase in adjusted SSI risk compared with women with private insurance. There were no differences in adjusted SSI risk by payer in government (RR: 1.1, 95% CI 0.7–1.8, P = 0.92) or not-for-profit hospitals (RR: 0.9, 95% CI 0.7–1.2, P = 0.52).

Conclusion. Despite accounting for various patient and facility-level factors, Medicaid-insured women experienced higher SSI risk than privately-insured women in for-profit hospitals, but not in government owned or not-for-profit hospitals. Additional studies to understand underlying causes may help target efforts to prevent SSIs following CDs among vulnerable patients.

Disclosures. All authors: No reported disclosures.

2205. Should Cefazolin Be the First-line Antimicrobial Prophylaxis Choice in Patients Undergoing Hysterectomy? A Systematic Review and Meta-analysis

Aurora Pop-Vicas, MD, MPH1; Stephen Johnson, MLS2; and Nasia Saldar, MD, PhD, FSHOT1; Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin, 1Section of Infectious Diseases, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin

Session: 243. HAI: Surgical Site Infections
Saturday, October 7, 2017: 12:30 PM

Background. Current practice guidelines non-preferentially recommend cefazolin, cefoxitin, cefotetan, or amoxicillin-clavulanic acid as first line choices for antibiotic prophylaxis in hysterectomy. We undertook a systematic review to determine whether cefazolin, with no anti-anaerobic activity, is as effective as β-lactam antibiotics with anti-anaerobic activity at preventing surgical site-infection (SSI) after abdominal or vaginal hysterectomy.

Methods. We searched PubMed, Scopus, Web of Science, Cochrane Central, and conference proceedings for randomized controlled trials (RCT) in any language up to May 16, 2016. Main search terms included cefazolin, antibiotic prophylaxis, hysterectomy, surgical wound infection, clinical trials, and random allocation. We included only RCT that measured SSI – our primary outcome – defined as superficial, deep, or organ space. We excluded trials of β-lactams no longer in clinical use. We used predefined data extraction templates, including bias assessment indicators, and performed meta-analyses with random-effects models.

Results. Fourteen RCTs met inclusion criteria. There were 98 (5%) SSI among 1,963 patients in the cefazolin group, and 78 (4%) SSI among 1,772 patients in the comparator β-lactam (cefoxitin, cefotetan, cefotaxime, ceftriaxone, amoxicillin, amoxicillin/clavulinate, or penicillin) group. The summary estimate showed no significant benefit for cefazolin vs. other β-lactam in reducing SSI (Risk Ratio 1.19; 95% CI 0.88 – 1.62, P = 0.23). Cefazolin had a higher SSI risk when compared with cefoxitin or cefotetan (Risk Ratio 1.67; 95% CI 1.03–2.72, P = 0.04), and a trend for higher SSI risk when compared with cefotaxim, cefotetan, or amoxicillin/clavulanate (Risk Ratio 1.56; 95% CI 0.99–2.49, P = 0.06). Most studies were limited to hysterectomies for benign indications, which had variability in prophylaxis duration (single vs. multiple doses) and had unclear or high risk of bias.

Conclusion. β-lactam antibiotics with good anti-anaerobic spectrum may be preferable to cefazolin for SSI prevention post-abdominal or vaginal hysterectomy. Antimicrobial prophylaxis for hysterectomy in the setting of advanced malignancy deserves further study.

Disclosures. All authors: No reported disclosures.

2206. Surgical Site Infections after Colon Surgery: What the SIR Doesn't Tell You

John O’Horo, MD, MPH1,2; Vickie Miller, RN3; Meagan Devalapalli, BA4; Elie B. Slayton, PhD1; Kiran Mayi Perkins, MD, MPH1; Sophia Kazakova, MD, MPH, PhD1; Kelly Hatfield, MSPH1; David Kleinbaum, PhD2,4; James Bags, PhD5; Rachel B. Slayton, PhD, MPH1 and John A. Jernigan, MD, MS1; 1Division of Healthcare

Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, 2Rollins School of Public Health, Department of Epidemiology, Emory University, Atlanta, Georgia

Session: 243. HAI: Surgical Site Infections
Saturday, October 7, 2017: 12:30 PM

Background. Both Medicaid and private health insurance support important access to care for many pregnant women in the United States. The role of health insurance on many outcomes, such as surgical site infection (SSI) following Cesarean delivery (CD), has not been adequately evaluated.

Methods. This retrospective cohort study investigated SSI risk following CD performed in California hospitals in 2011 among women covered by Medicaid or private health insurance. All CD were obtained from identifiable state inpatient data and linked with National Healthcare Safety Network (NHSN) data to ascertain post-delivery SSI. Characteristics including age, race/ethnicity, BMI, prior CD planned admission, emergency CD, active labor and labor duration, ASA physical status, general anesthesia, wound class, hospital ownership, hospital annual CD count, inter/intrastudent-to-bed ratio, case mix index, disposition at share adjustment, urbanization, and area wage index were obtained from CMS facility, NHSN, and SID data. Potential effect modification of the payer-SSI relationship was assessed using a multivariable logistic regression model.

Results. 90% of eligible NHSN records linked with a SID record. The analytic dataset consisted of 387 SSIs following 57,143 CDs performed in 196 hospitals. Payer distribution across CDs was 49% Medicaid, 51% private insurer. SSIs were reported following 0.74% of CDs among Medicaid recipients and 0.62% among those privately insured (unadjusted risk ratio: 1.2, 95% confidence interval: 1.0–1.5, P = 0.09). In the private insured female patients had a 2.6-fold (95% CI 2.2–5.4, P = 0.01) increase in adjusted SSI risk compared with women with private insurance. There were no differences in adjusted SSI risk by payer in government (RR: 1.1, 95% CI 0.7–1.8, P = 0.92) or not-for-profit hospitals (RR: 0.9, 95% CI 0.7–1.2, P = 0.52).

Conclusion. Despite accounting for various patient and facility-level factors, Medicaid-insured women experienced higher SSI risk than privately-insured women in for-profit hospitals, but not in government owned or not-for-profit hospitals. Additional studies to understand underlying causes may help target efforts to prevent SSIs following CDs among vulnerable patients.

Disclosures. All authors: No reported disclosures.