Complicated Intra-abdominal Infection (cIAI) and 30-day Hospital Readmission

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ABSTRACT

Background: Patients with cIAI may be at increased risk of poor health outcomes post-hospital discharge. Our objective was to quantify the association between cIAI and 30-day hospital readmission. METHODS: This was a retrospective cohort study of adult patients (age >18 years) with cIAI admitted to Oregon Health & Science University (OHSU) between 1/01/10 and 6/30/13. Included patients must have had a diagnosis code consistent with cIAI, a procedure code for surgical intervention, and been discharged alive. Excluded patients with non-cIAI infectious diagnoses codes during the index admission, chronic liver disease, or those receiving peritoneal dialysis. We defined 30-day hospital readmission as readmission to OHSU within 30 days of discharge. Potential risk factors of readmission included demographics (e.g. age, sex, body mass index, comorbid illnesses (e.g. peptic ulcer disease, diabetes, cancer), and length of stay. Antibiotic exposures of interest included receipt of anaerobic coverage ≥72 hours, vancomycin for ≥72 hours, and monotherapy versus combination therapy. We calculated the incidence of 30-day readmission among patients with cIAI and used bivariable analysis to identify potential predictors of 30-day readmission among these patients. We used multivariable logistic regression to identify independent risk factors for readmission within 30 days.

RESULTS

Among 259 patients with cIAI who were discharged alive, 171 patients (66%) met our inclusion criteria. Incidence of 30-day readmission was 45.2%, and median (interquartile range) time to readmission was 10 (4-17) days. Total hospital length of stay >7 days was significantly associated with 30-day hospital readmission; odds ratio: 2.35, 95% confidence interval: 1.11 to 4.96. No other variables were identified as risk factors or had protective effects.

Conclusions: Patients with cIAI were frequently readmitted to the hospital within 30 days of discharge and often following extended hospital stays. Given the lack of significant predictors to identify patients at increased risk of readmission, improvements to care for extended admissions should be considered, along with an additional emphasis on prevention of cIAI to reduce these poor outcomes.

BACKGROUND

• cIAIs are an important cause of morbidity, mortality, and healthcare costs among infected patients
• Reducing incidence of 30-day hospital readmissions is an important quality goal for hospitals
• Inappropriate empiric antibiotic therapy may lead to poor clinical outcomes in patients with cIAI

OBJECTIVE

To quantify the association between cIAI and 30-day hospital readmission among adult patients admitted to Oregon Health & Science University (OHSU) between January 1, 2010 and June 30, 2013

METHODS

Study Design and population:

• Retrospective cohort study of adult (≥18 years) inpatients at OHSU between January 1, 2010 and June 30, 2013 who met the following criteria:
  • Diagnosis code consistent with cIAI
  • Procedure code for a cIAI-related surgical intervention
  • Discharged alive on the index admission

• Patients were excluded for the following reasons:
  • Non-cIAI infectious diagnoses codes
  • Primary peritonitis due to peritoneal dialysis
  • Recurrent peritonitis or chronic liver disease

OUTCOME DEFINITION

Readmission to the index acute care facility (OHSU) within 30 days of discharge

EXPOSURES OF INTEREST

• Demographics
• Comorbid illnesses (defined using ICD-9 codes)
• Antibiotic exposures of interest
  • Anaerobic coverage ≥72 hours
  • Vancomycin for ≥72 hours
  • Combination therapy vs. monotherapy
• Total hospital length of stay

RESULTS (CONTINUED)

Among 259 patients with a diagnosis of cIAI, 171 (66%) patients met our inclusion criteria. Incidence of 30-day readmission was 45.2%, and median (interquartile range) time to readmission was 10 (4-17) days. Total hospital length of stay >7 days was significantly associated with 30-day hospital readmission; odds ratio: 2.35, 95% confidence interval: 1.11 to 4.96. No other variables were identified as risk factors or had protective effects.

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