

Failure to Redose of Antibiotic Prophylaxis in Long Surgery

Increases Risk of Surgical Site Infection

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ABSTRACT

Background: Antibiotic prophylaxis is a key component to prevent surgical site infection (SSI). Failure to manage antibiotic prophylaxis effectively may increase risk of SSI. This study aimed to examine the effects of antibiotic prophylaxis on SSI risk.

Methods: A retrospective cohort study was conducted among patients having general surgery between May 2012 and June 2015 at University of Washington Medical Center. Perioperative data extracted from hospital databases included patient and operation characteristics, intraoperative medication and fluid administration, and survival outcome. The effects of antibiotic prophylaxis and potential factors on SSI risk were estimated using multiple logistic regression and were expressed as risk ratio (RR).

Results: A total of 4,078 patients were eligible for analysis. Of these, 180 patients were diagnosed with an SSI. Mortality rates within and after 30 days were 0.8% and 0.3%, respectively. Improper antibiotic prophylaxis redosing increased risk of SSI (RR, 4.61; 95%

CI, 1.33-15.91). Other risk factors were in-patient status (RR, 4.05; 95% CI, 1.69-9.66), smoker (RR, 1.63; 95% CI, 1.03-2.55), emergency surgery (RR, 1.97; 95% CI, 1.26-3.08), colectomy (RR, 3.31; 95% CI, 1.19-9.23), pancreatectomy (RR, 4.52; 95% CI, 1.53-13.39), proctectomy (RR, 5.02; 95% CI, 1.72-14.67), small bowel surgery (RR, 6.16; 95% CI, 2.13-17.79), intraoperative blood transfusion > 500 ml (RR, 2.76; 95% CI, 1.45-5.26), and multiple procedures (RR, 1.40; 95% CI, 1.01-1.95).

Conclusions: These data highlight that failure to redose antibiotic prophylaxis in long operations increases risk of SSI. Strengthening a collaborative surgical quality improvement program may help to eradicate this pitfall.

Keywords: Antibiotic prophylaxis; Surgery; Surgical site infection

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