Prevention of Surgical Site Infections in Patients After General & Cardio-thoracic Surgery

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Abstract:

Introduction:
Surgical site infections (SSI) are the most common nosocomial infections in the general surgery departments and the second most common in hospitals. SSI are associated with morbidity, long hospitalization and antibiotic treatment, sometimes readmission, reoperation and mortality and associated with high economic costs. The Centers for Disease Control and Prevention (CDC) has developed criteria for defining SSIs, which have become the national standard and are widely used by surveillance and surgical personnel. These criteria define SSIs as infections related to the operative procedure that occur at or near the surgical incision (incisional or organ/space) within 30 days of an operative procedure or within one year if an implant is left in place.

There are controversies in the measures and methods to control and reduce SSI rates. Standard control measures to reduce SSI rates include antimicrobial prophylaxis (timing, selection, duration), hair removal (timing, method, performer), diabetes and insulin therapy, temperature while the operation. Incorrect timing has been proven to increase SSI rates. Antimicrobial therapy should be administered within 60 minutes prior to the surgery to ensure adequate drug tissue levels at the time of initial incision.

Most studies revealed an increased risk for SSIs in patients undergoing preoperative hair removal and a temperature less than 35 [Celsius]. Many other studies have suggested that a preoperative blood glucose level of 200 mg/dL or more (odds ratio...
[OR] 10.2) or postoperative hyperglycemia (OR, 2.0) is associated with an increased risk of SSIs.

Our study aimed to evaluate how much attention we make to prevent SSRI. In addition to show real-time data resources that available to document these actions.

**Methods:**
Surveyed 107 elective surgeries during the period between 2.2010 to 5.2010. There is 47 (44%) cardio-thoracic surgeries. 60 (56%) general surgeries. The study included 66 men (62%) and 41 women (38%)
During this period, data were collected on the type of surgery and date of surgery, age and gender, diabetes, pre-operative antibiotics, antibiotic prophylaxis was given around the operation, timing and duration of antibiotics, the removal of hair (When? By whom? How?) Glucose and insulin treatment (the morning after surgery and two days after surgery), the lowest temperature value and actions to save the body temperature of patients. And sources of information documenting the above variables.

After summarizing the data rates were calculated patients undergo elective surgery who benefit from actions to prevent surgical-site infection. The parameters found were then compared against data in literature.
In addition sources of information to prevent surgical site infection were documented. Also the rate of infections in patients who undergoing thoracic and general surgeries. We tried also to examine possible connection between action prevent infection to infections.

**Results:**
There were 107 patients with known infection status at release. Of the 107 patients, 26 (24%; 95% CI: 17-34%) developed an infection. Of the 60 general surgeries, 14 developed a site infection (23%; 95% CI: 13-36%). Of the 47 heart surgeries 12 developed a site infection (26%; 95% CI: 14-40%).
More women than men developed and infection. Patients who have diabetes tend to develop more infections. 93% of patients received prophylactic antibiotics according
to the protocol of Hadassah. 92% received the antibiotic at the appropriate time. From those who had a hair removal, 15% hair removed by the protocol. 89% of patients treated with insulin according to the accepted literature, 51% of patients maintained their temperature properly. Most Sources of information regarding the development on infections during hospitalization were nurses. Most of the sources of information about preventative antibiotic treatment were anesthetic report. About 25% of patients developed infection during hospitalization. 14% developed an infection after a month of discharge. Found that Diabetes and stopping a prophylactic antibiotics within 24 hours after surgery are risk factors for infection. In addition, hair removal and maintaining the temp. and the lowest temp. had no effect on the development of infection during the hospitalization, nor the development of infection after 30 days of discharge. Using the logistic regression model shows that diabetes associated with the development of infections, while hair removal is not related (both the nature and timing of hair removal).

**Conclusion:**
Recommendations for prevention of surgical-site infections partially implemented. Despite clear recommendations in the literature and many publications dealt with over the years, and although there is a relative improvement in the activities to prevent infections, it still lacks the attention to infection prevention activities. Although there is improvement in maintaining the activity to prevent infections, no formal protocols has made to applicate actions to prevent infection. Also need to give full responsibility for giving AB prophylaxis to anesthesiologist so we can give timely preventive antibiotic (up to one hour before surgery) and inhaled a higher percentage of patients who benefit from this action. Also we should give the decision for remove hair to doctors, while nurses should apply the hair removal not the patient himself. Also we should maintain full documentation of all steps to prevent infections, and build a decent place designated in patient file. In addition to build a computerized file system to prevent infections operations.
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