



MICROBIOLOGY AND EPIDEMIOLOGY OF SURGICAL SITE INFECTIONS

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Introduction. Surgical site infection (SSI) is a major patient safety concern in hospitals, with implications on patient morbidity, mortality and increased health costs. The analyzed studies demonstrated that the patients with SSI are twice as likely to die, 60% more likely to be admitted to the intensive care unit, and more than five times more likely to be readmitted to the hospital after discharge. The pathogens causing SSI may be caused by endogenous or exogenous origin and are typically similar to other healthcare-associated infections. Consequently, most SSIs are caused by *S. aureus*, the coagulase negative staphylococci, enterococci and *E. coli*. Epidemiological findings demonstrated that the most SSIs can be attributed to a variety of factors which can be classified into patient-related, procedure-related and others.

Material and methods. This paper analyzes the major aspects of this topic published last 10 years and were based on 98 bibliographic sources of authors across the country and abroad using Academic Google, PubMed databases (USA, France, Italy, Germany Canada, Romania, etc.).

Results. The authors of recent studies have defined the surgical site infections as infections occurring up to 30 days after surgery (or up to one year after surgery in patients receiving implants) and affecting either the incision or deep tissue at the operation site.

Despite modern surgical techniques, use of prophylactic antibiotics pre- and postoperatively and other preventive measures, SSI remains a burden for the patient and health system. Most SSI may be caused by endogenous organisms within the patient's body that are exposed during surgery that depend on surgical site (ex. the risk of developing SSI from enteric Gram- bacteria increases with surgery on the gastrointestinal tract). SSI caused by exogenous bacteria are related with contaminated surgical instruments, operating room surfaces, air, personnel.

It was found that periodic surveillance and feedback for surgeons on SSIs rate and associated factors can decrease up to 50% of cases.

Most studies demonstrated that the SSIs can be attributed to risk factors inherent to the patient and procedure and other (ex. volume of surgeries performed in the department, the season, indications for surgery, the working environment in the operation room.

Antimicrobial stewardship programs (ASPs) are essential to reduce SSI rates and antimicrobial resistance. The microbiology department needs to establish the local resistance patterns and to identify the most common organisms likely to be encountered. It should be every practitioner's priority to use antibiotics judiciously and to de-escalate from empiric antibiotics as soon as the sensitivity results are available. Surveillance and control of SSI assume standardized definitions, rapid method of diagnoses, effective surveillance programs and stratification of the SSI rates according to risk factors associated with the development of SSI.

Conclusions. SSIs remain a burden to postoperative patients and that implementation of interventions aimed at promoting appropriate and evidence-based use of antimicrobials are needed. Effective management of SSI requires a team approach including the patient, ward staff, reception staff, nursing staff, surgeons, ICU clinicians, cleaners, maintenance team etc.