Medical News

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Surgical-Site Infections: Reanalysis of Risk Factors

Surgical-site infections (SSIs) are the most common nosocomial infection in surgical patients, accounting for 38% of all such infections, and are a significant source of postoperative morbidity resulting in increased hospital length of stay and increased cost. From 1986 to 1996, the National Nosocomial Infections Surveillance system of the Centers for Disease Control and Prevention reported 15,523 SSIs following 593,344 operations (2.6%). Previous studies have documented patient characteristics associated with an increased risk of SSI, including diabetes, tobacco or steroid use, obesity, malnutrition, and perioperative blood transfusion.

Malone and colleagues from the Department of Surgery, Veterans Administration Maryland Health Care System, Baltimore, conducted a study to reevaluate risk factors for SSI in a large cohort of noncardiac surgical patients. Prospective data (NSQIP) were collected on 5,031 noncardiac surgical patients at the Veterans Administration Maryland Healthcare System from 1995 to 2000. All preoperative risk factors were evaluated as independent predictors of SSI.

The mean age of the study cohort was 61 (± 13) years. SSIs occurred in 162 patients, comprising 3.2% of the study cohort. Gram-positive organisms were the most common bacterial etiology. Multiple logistic regression analysis documented that diabetes (insulin-dependent and non–insulin-dependent), low postoperative hematocrit, weight loss (within 6 months), and ascites were significantly associated with increased risk of SSI. Tobacco use, steroid use, and chronic obstructive pulmonary disease (COPD) were not predictors for SSI.

This study confirms that diabetes and malnutrition (defined as significant weight loss 6 months prior to surgery) are significant preoperative risk factors for SSI. Postoperative anemia is a significant risk factor for SSI. In contrast to prior analyses, this study showed that tobacco use, steroid use, and COPD were not independent predictors of SSI.

FROM: Malone DL, Genuit T, Tracy JK, Gannon C, Napolitano LM Surgical site infections: reanalysis of risk factors. *J Surg Res* 2002;103:89-95.

Risk Factors Associated With Pediatric Parapneumonic Empyema

Byington and colleagues from the Department of Pediatrics, University of Utah, Salt Lake City, investigated the increasing incidence of pediatric empyema during the 1990s at Primary Children's Medical Center in Salt Lake City. Of 540 children hospitalized with community-acquired bacterial pneumonia (CAP) who were discharged from July 1, 1993, through July 1, 1999, 153 (28.3%) had empyema. The annual population incidence of empyema increased during the study period from 1 to 5 cases per 100,000 population 19 years or younger. *Streptococcus pneumoniae* was identified as the most common cause of CAP with or without empyema; serotype 1 accounted for 50% of the cases of pneumococcal empyema.

Patients with empyema were more likely to be older than 3 years, to have 7 or more days of fever, to have varicella, and to have received antibiotics and ibuprofen before admission to the hospital, compared with patients without empyema ($P < .0001$ for each factor). The increasing incidence of empyema was associated with infection due to *S. pneumoniae* serotype 1, outpatient treatment with certain antibiotics, use of ibuprofen, and varicella.

FROM: Byington CL, Spencer LY, Johnson TA, et al. An epidemiological investigation of a sustained high rate of pediatric parapneumonic empyema: risk factors and microbiological associations. *Clin Infect Dis* 2002;34:434-440.

Antibiotic Resistance of Fecal Enterococci in Poultry, Poultry Farmers, and Poultry Slaughterers

van Den Bogaard and colleagues from the University of Maastricht and the National Institute of Public Health and the Environment, Bilthoven, The Netherlands, conducted a study to determine the prevalence of resistance in enterococci to antibiotics, commonly used for therapy in poultry or as antimicrobial growth promoters (AMGPs). Fecal samples were collected from two chicken populations: broilers, for which antibiotic and AMGP use is common; and laying-hens, for which antibiotic use is low. In addition, fecal samples were obtained from three human populations: broiler farmers, laying-hen farmers, and poultry slaughterers. Minimum inhibitory concentrations of an extended panel of antibiotics for a randomly chosen gentamicin- or vancomycin-resistant enterococcal isolate from each fecal specimen were determined.

The prevalence of resistance for all antibiotics tested was higher in broilers than in laying-hens. Resistance was higher for nearly all antibiotics in the fecal enterococci of broiler farmers than it was in that of laying-hen farmers and poultry slaughterers. The overall resistance in broilers was correlated with the resistance in broiler farmers and in