BLOOD PRODUCT TRANSFUSION IS ASSOCIATED WITH SURGICAL SITE INFECTION IN PATIENTS UNDERGOING SURGERY IN MARYLAND, 1999-2000

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Background: The risk factors for surgical site infection in patients undergoing surgery are poorly defined. We sought to identify preoperative patient characteristics and surgical procedures associated with surgical site infection and to determine the clinical and economic impact of surgical site infection in adult surgical patients.

Method: We obtained discharge data for 318,880 adult surgical patients in 52 Maryland hospitals from 1999 through 2000. The primary outcome variable was a diagnosis of a surgical site infection during the hospital stay. Unadjusted and adjusted analyses were performed to identify patient characteristics associated with an increased risk of developing a surgical site infection while hospitalized and to determine to the impact on ICU admission, in-hospital mortality, length of stay, and total hospital charges. The analyses were repeated and stratified by ICD-9-CM surgical procedure groups. Results are reported as odds ratios (OR) and 95% confidence intervals (CI).

Results: The overall incidence of surgical site infection was 1.0% and varied between 2.7% in patients undergoing surgeries of the digestive system and 1.1% in surgeries of the hemic and lymphatic system. Patient characteristics independently associated with an increased risk for surgical site infection include: blood product transfusion (OR 3.1; 95% CI 2.7-3.5), chronic renal disease (OR 1.8; 95% CI 1.5-2.2), diabetes with chronic complications (OR 1.3; 95% CI 1.1-1.6), male gender (OR 1.2; 95% CI 1.1-1.4), and chronic obstructive pulmonary disease (OR 1.2; 95% CI 1.1-1.4. Transfusion was associated with an increased risk (range OR 2.7-4.4) for surgical site infection in patients undergoing any of 8 surgical procedure groups. Surgical site infection was consistently associated with an increased risk of admission to an ICU (OR 3.6; 95% CI 2.1-3.2), increased in-hospital mortality (OR 2.8; 95% CI 2.4-3.4), longer hospital length of stay (estimated mean increase of 9 days; 95% CI 8-11), and increased total hospital charges (estimated mean increase $18,000; 95% CI $15,000-$21,000).

Conclusions: Blood product transfusion is consistently associated with an increased risk of surgical site infection in patients undergoing a variety of surgical procedures in Maryland. Surgical site infection occurs in 1% of surgical patients and is associated with significant morbidity, mortality, and costs of care.

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