2nd World Congress on

Patient Safety & Quality Healthcare

June 21-22, 2018 | Dublin, Ireland

High risk *S. Aureus* transmission in the operating room; A call for widespread improvements in perioperative hand hygiene and patient decolonization practices

Randy Loftus University of Iowa, USA

Background: Awareness of the epidemiology and implications of intraoperative transmission of more pathogenic strain characteristics is needed to improve compliance with infection control measures. We examined the association of S. aureus multilocus sequence types (MLST) with clonal transmission, biofilm formation, antibiotic resistance, and postoperative infection development.

Methods: S. aureus isolates (N=178) collected from 3 academic medical centers in the United States underwent phenotypic and genomic analysis to identify clonally-related transmission events. The association of S. aureus MLST with transmission, biofilm absorbance, antibiotic resistance, and infection development was then assessed.

Results: S. aureus MLST 5 (IRR adj 6.67, 95% CI 1.82-24.41, P=0.0008), 8 (IRR adj 8.33, 95% CI 2.31-30.12, P=0.0001), and 15 (IRR adj 5.73, 95% CI 1.35-24.33, P=0.009) were associated with increased risk of transmission. MLST 5 was associated with greater biofilm absorbance [(MLST 5 median absorbance 3.08, SD 0.642) vs. (other MLST median absorbance 2.38, SD 1.01), corrected P=0.021], multidrug resistance (OR 7.82, 95% CI 2.19-27.95, P=0.002), and increased risk of infection (6/38 MLST 5 vs. 6/140, RR 3.68, 95% CI 1.26-10.78, P=0.022). Provider hands and patients were confirmed as sources of MLST5 infection.

Conclusions: S. aureus MLST 5 isolates are associated with increased transmission, biofilm formation, antibiotic resistance, and infection development. Improved compliance with hand hygiene and patient decolonization measures is indicated.