

Nasal carriage of *S. aureus* increases the risk of surgical site infection after major heart surgery.

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Staphylococcus aureus is the main cause of surgical site infection (SSI) after major heart surgery (MHS), with the patient's endogenous flora as the principal source. However, the influence of nasal carriage of *S. aureus* on the development of SSI after MHS has not been established and Centers for Disease Control and Prevention guidelines do not make a recommendation for or against decolonisation. We performed a one-year observational study in which patients undergoing MHS were screened for nasal carriage of *S. aureus* before surgery. Cases of SSI were recorded and the risk factors of patients with and without SSI were analysed. During the study period, 357 patients were included in the protocol. Ninety-six patients (27%) were found to be nasal carriers of *S. aureus* and nine (9.4%) of these had methicillin-resistant (MRSA) strains. The overall incidence of SSI was 6.4%, with 4.2% for mediastinitis and 2.2% for superficial SSI. Nasal carriers of *S. aureus* had a significantly higher incidence of SSI than non-carriers (12.5% vs 5%, $P=0.01$). Among MRSA carriers, the incidence of SSI reached 33% ($P<0.001$). *S. aureus* was responsible for 64% of SSIs. Multivariate analysis showed that the independent factors for SSI were *S. aureus* nasal carriage [relative risk (RR): 3.1; 95% confidence interval (CI): 1.4-7.3; $P=0.009$], reoperation (RR: 3.1; 95% CI: 1.8-19.2; $P=0.04$) and diabetes mellitus (RR: 5.9; 95% CI: 1.8-19.2; $P=0.003$). Nasal carriage of *S. aureus* significantly increases the rate of nosocomial SSI after MHS and decolonisation strategies should be implemented in this population.

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