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Abstract (poster session)

Delayed sternal closure and use of vacuum-assisted closure device increase the risk of secondary infection in postoperative sternal wound infection

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Objective: Sternal wound infection (SWI) is a serious complication after cardiac surgery, associated with high mortality and morbidity. Treatment with surgical debridement and antibiotics is widely accepted but optimal interval until sternal closure is controversial. We investigated potential factors influencing the outcome of SWI, such as incidence of secondary wound infection, length of hospital stay and in-hospital mortality. Methods: We retrospectively identified cases diagnosed with SWI between January 2009 and September 2012 from a computerised database in a tertiary hospital. The diagnosis was confirmed using modified CDC definition for surgical site infection. Secondary wound infection was defined as the presence of local signs compatible with infection and culture of new organism(s) from deep tissue not present at initial debridement. Demographic, clinical, surgical, microbiological data, treatment and outcomes were analysed. A two-sided chi-square test was used for comparison of categorical variables. Results: Of 55 cases, 36 (66%) were male, mean age was 68 years (range, 26-86 years). About half (49%) had coronary artery bypass graft (CABG), 20% had CABG with valvular replacement, 16% had valvular replacement alone. Common clinical symptoms were dehiscence (71%), discharge (64%), sternal instability (47%) and fever (29%), occurring at a median of 15 days (2-749 days) after the index sternotomy. Sternal debridement was performed in 86%, after a median of 3 days (0-14 days) of first clinical symptom. Pathogens were identified at initial debridement in 73%, including coagulase-negative staphylococci (29%), S. aureus (13%), gram-negative rods (6%) and gram-positive anaerobes (6%). Blood cultures were positive in 28% (mostly S. aureus). Secondary wound infection occurred in 27% and was associated with delayed sternal closure (27 days vs 14 days, p=0.03) and use of vacuum-assisted closure (VAC) device (100% vs 58%, p=0.01). Secondary infections were polymicrobial in 38%, including gram-negative rods (45%) and Candida spp. (6%), and were associated with longer mean length of hospital stay (69 days vs 48 days, p=0.05). One patient died during hospital stay, unrelated to SWI. Conclusion: Secondary wound infection occured during treatment of SWI in about one-third of cases, was significantly associated with delayed sternal closure and use of VAC, and prolonged the length of hospital stay by 21 days. Current recommendations for treatment of SWI needs to be better defined.