

Superficial and deep sternal wound complications: incidence, risk factors and mortality

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Abstract

Objectives: Sternal wound complications often have a late onset and are detected after patients are discharged from the hospital. In an effort to catch all sternal wound complications, different postdischarge surveillance methods have to be used. Together with this long-term follow-up an analysis of risk factors may help to identify patients at risk and can lead to more effective preventive and control measures. **Methods:** This retrospective study of 3008 adult patients who underwent consecutive cardiac surgery from January 1996 through September 1999 at Linköping University Hospital, Sweden, evaluated 42 potential risk factors by univariate analysis followed by backward stepwise multivariate logistic regression analysis. **Results:** Two-thirds of the 291 (9.7%) sternal wound complications that occurred were identified after discharge. Of the 291 patients, 47 (1.6%) had deep sternal infections, 50 (1.7%) had postoperative mediastinitis, and 194 (6.4%) had superficial sternal wound complications. Twenty-three variables were selected by univariate analysis ($P < 0.15$) and included in a multivariate analysis where eight variables emerged as significant ($P < 0.05$). Preoperative risk factors for deep sternal infections/mediastinitis were obesity, insulin-dependent diabetes, smoking, peripheral vascular disease, and high New York Heart Association score. An intraoperative risk factor was bilateral use of internal mammary arteries, and a postoperative risk factor was prolonged ventilator support. Risk factors for superficial sternal wound complications were obesity, and an age of < 75 years. The 30 day mortality was 2.7% for patients without sternal wound complications and 2/291 (0.7%) for all patients with sternal wound complications, 0.5% for superficial sternal wound complications, and 1.0% for deep sternal infections/mediastinitis. The 1 year mortality rate was 4.8% for patients without sternal wound complications and 11/291 (3.8%) for patients with sternal wound complications, 2.1% for superficial sternal wound complications, and 7.2% for deep sternal infections/mediastinitis. **Conclusions:** The risk factors found in this study have been detected and reported in previous studies. The predictive ability was stronger though for deep sternal infections/mediastinitis (those needing surgical revisions) than for superficial sternal wound complications. Earlier recognition of sternal wound complications and aggressive treatment have probably contributed to the relatively low mortality rate seen in this study. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Cardiac surgery; Surgical wound infection; Postoperative mediastinitis; Multivariate analysis; Risk factors