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Post-sternotomy mediastinitis after cardiac surgery

Pascal M. Dohmen

Department of Cardiac Surgery, Heart Center Leipzig, University of Leipzig, Leipzig, Germany

Corresponding Author: Pascal M. Dohmen, e-mail: pascal.dohmen@yahoo.de
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I read the article by Colombier and colleagues [1] entitled “Influence of deep sternal wound infection on long-term survival after cardiac surgery” with great interest.

Post-sternotomy mediastinitis (PSM) is a rare but devastating complication, which may occur after cardiac surgery, and which increases mortality and morbidity tremendously. This study showed a statistically significant increased in-hospital mortality of patients with deep sternal wound infection (DSWI) compared with patients without DSWI (8.1% versus 2.7%, respectively) ($p=0.03$). For long-term mortality, however, there was no statistically significant difference reported between the DSWI group and the control group (without DSWI) (27.0% versus 21.6%, respectively) ($p=0.57$). However, lack of a statistically significant difference does not automatically mean that there was no difference, because the values in both groups are not identical.

The main message of this study is essential for patients with PSM because life expectancy will not be statistically different from that of cardiac patients without PSM after discharge. This is an important issue for these patients, since mediastinitis treatment means intensive and repetitive surgical procedures. In case of multiple sternal fractures with tissue necrosis, extensive tissue debridement with partial or even complete sternal resection will be needed. A serious disadvantage of this “open sternum” therapy strategy with muscle flap reconstruction will imply the changes in chest integrity and stability, which have an enormous influence on morbidity after PSM therapy. Therefore, it is even more important to provide long-term survival data from patients with PSM, to compensate for lost quality of life.

This raises the question “Do patients with or without PSM always have similar long-term survival?” Because information in the relevant literature is limited, confusing, or controversial, there is no final answer to this question. Mekontso-Dessap et al. [2] presented an important study with a limited number of patients suffering from this devastating complication, in which a particular factor was found, such as antibiotic-resistant microbes. The study showed a statistically significant decrease in long-term survival depending on microbial antibiotic resistance. At 3-year follow-up, there was increased mortality in patients with Methicillin-resistant *Staphylococcus aureus* PSM versus Methicillin-susceptible *Staphylococcus aureus* PSM ($88.1\pm 6.4\%$ and $60.0\pm 12.6\%$, respectively) ($p=0.03$).

The PSM patient population of the present study was heterogeneous, which is partially due to the primary cardiac disease. It is important to identify risk factors that influence long-term survival of patients with PSM.

Another interesting issue in this study is the time at which DSWI was diagnosed. The median time was 13 days (range, 3–36 days). However, patients with heart valve disease accounted for 32.4% of the cohort of this study, including 12.1% who received either a valve repair or replacement and 12.2% who received coronary bypass surgery combined with valve treatment. Since the guidelines of the US Centers for Disease Control and Prevention were used, one should wait for a year until SSI can occur in patients with implants. This study indicated that all deep surgical site infections occurred within the first 36 postoperative days, as this was the maximum range. It would be interesting to know if any surgical site infections occurred at a later time or if the authors found a difference between patients who received valvular treatment and those with only coronary bypass surgery.

The information in the Colombier et al study needs to be interpreted carefully. Although the patient number is limited, subgroups should be identified to provide sufficient information to decrease risk for PSM or to develop a patient risk stratification program to offer these patient alternative treatment strategies if risk factors cannot be optimized preoperatively.

References:

1. Colombier S, Kessler U, Ferrari E et al: Influence of deep sternal wound infection on long-term survival after cardiac surgery. *Med Sci Monit*, 2013; 19: 668–73
2. Mekontso-Dessap A, Kirsch M, Brun-Buisson C, Loisançe D: Poststernotomy mediastinitis due to *Staphylococcus aureus*: comparison of methicillin-resistant and methicillin susceptible cases. *Clin Infect Dis*, 2001; 32: 877–83

Conflict of interest

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