Is cardiac surgery getting more complicated?

Denosshan Sri

Received: 11 December 2012 / Accepted: 15 December 2012 / Published online: 3 February 2013
© Indian Association of Cardiovascular-Thoracic Surgeons 2013

Seeburger J et al. recently showed better outcomes in mitral valve surgery in the elderly as a stand alone operation compared to combined surgical procedures, and discuss the adverse role of co-morbidities on outcome [1]. We feel that cardiac surgery has been getting more complicated over the last decade, with important consequences on patient care.

We looked at 25,738 patients who underwent cardiac surgery between October 1998 and October 2010 at this tertiary centre. The patients were divided into 4 epochs, each 3 years long and the complexity of the surgery was analysed. Mean age increased significantly from 65.0 years to 66.8 years between epoch 1 and epoch 2 ($p=0.0001$) and between epoch 2 and epoch 3 ($p=0.0001$). Mean age increased between epoch 3 and epoch 4 to 68.1 years, although not to a significant extent ($p=0.1618$).

The number of operations performed rose consistently from 5065 in epoch 1 to 6095 in epoch 4. There was no significant difference in the mean length of stay (12 days) for these patients across the 4 epochs ($p<0.005$).

We explored whether cardiac surgery is being performed on increasing numbers of patients with higher pre-operative mortality estimates. The Euroscore is a method of calculating predicted operative mortality, and we used the logistic Euroscore in our study as it provides a more accurate mortality prediction for high-risk patients [2]. Mean logistic Euroscore increased significantly from 6.9 to 7.5 between epoch 1 and epoch 2 ($p=0.002$) and from 7.5 to 8.2 between epoch 2 and epoch 3 ($p=0.001$). Mean logistic Euroscore decreased between epoch 3 and epoch 4, although not to a significant extent ($p=0.168$).

Whilst looking at the changing trends in the type of cardiac surgery, we found that although major cardiac surgery remained stable, valve surgery rose from 16.2 % of all cardiac surgery in epoch 1 to 27.9 % in epoch 4 whilst combined valve and Coronary Artery Bypass Grafting (CABG) surgeries also rose from 9.4 % to 16.2 %. Combined and major cardiac procedures rose from 17.4 % in epoch 1 to 24.5 % in epoch 4.

Age alone has been shown to influence poor outcome after cardiac surgery, and has been shown in many studies to have more co-morbidities and higher mortality [1, 3, 4]. However, in selected cases excellent 5-year survival and acceptable mortality can be attained [3]. At our tertiary centre not only were patients getting older, but their predicted operative mortalities were also rising over the course of the study period. Moreover we were performing more operations over time and an increasing proportion was complex cardiac cases. We feel that as cardiac surgery increases in complexity improved pre-, peri- and post-operative care is vital in ensuring good outcome; a sentiment echoed by Seeburger J et al. [1].

Acknowledgments Dr T Bray, Dr M Ellul, Dr M Guled, Dr S Raut and Mr S Large, Cardiothoracic department, Papworth Hospital NHS Foundation Trust, Cambridge, UK

References

1. Seeburger J, Falk V, Garbade J, et al. Mitral valve surgical procedures in the elderly. *Ann Thorac Surg.* 2012;94:1999–2003.
2. Siregar S, Groenwold RH, de Heer F, Bots ML, van der Graaf Y, van Herwerden LA. Performance of the original EuroSCORE. *Eur J Cardiothorac Surg.* 2012;41:746–54.
3. Craver JM, Puskas JD, Weintraub WW, et al. 601 octogenarians undergoing cardiac surgery: outcome and comparison with younger age groups. *Ann Thorac Surg.* 1999;67:1104–10.
4. Sen B, Niemann B, Roth P, Aser R, Schönburg M, Böning A. Short- and long-term outcomes in octogenarians after coronary artery bypass surgery. *Eur J Cardiothorac Surg.* 2012;42:e102–7.

D. Sri
Papworth Hospital NHS Foundation Trust, Papworth Everard,
Cambridge CB23 3RE, UK

D. Sri (✉)
16 Therapia Lane,
Croydon, Surrey CR0 3DH, UK
e-mail: denosshansri@gmail.com