Can the female gender influence risk factor identification for aortic valve surgery?

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We have read the interesting article by Elmistekawy et al. [1], which showed that preoperative haemoglobin (Hb) was an independent predictor of mortality after aortic valve replacement (AVR) [1]. Although the authors defined that anaemia depends on gender and showed no difference in the incidence of preoperative anaemia between both males and females [1], we believe that gender should be considered a confounder in assessing preoperative Hb as a risk factor for AVR. Several studies showed that female AVR patients have a worse preoperative risk profile than males [2]. Whether gender is an independent risk factor of mortality after AVR is controversial. Several studies showed that female gender was an independent predictor in the AVR population for risk-adjusted 30-day mortality [2], but others failed to show the association between gender and mortality after AVR [3]. In these aspects, gender could be a confounder, while the association between preoperative Hb and mortality after AVR is evaluated.

The authors showed that mortality was significantly higher with lower levels of preoperative Hb, with threshold effect at Hb of 120 g/l [1]. We would like to know whether the threshold effect was the same in both genders. Although baseline and nadir haematocrit were lower in females than males, females had a lower relative risk of mortality than males at lower nadir haematocrit [4]. In other words, females have better tolerance to haemodilution than males during cardiopulmonary bypass [4]. In this aspect, we believe that the threshold effect of preoperative Hb on mortality after AVR may differ between males and females.

van Straten et al. [5] showed that preoperative low Hb level is an independent risk factor for late mortality, but not for early mortality in patients undergoing isolated AVR. The authors described that the association between preoperative low Hb level and early mortality after heart surgery is more remarkable in coronary artery bypass surgery (CABG) than AVR, because the pathophysiological adverse effects of anaemia are more marked in the presence of coronary artery disease [5, 6]. Elmistekawy et al. [1] reported that the concomitant procedures were equally distributed between the two groups, so the conclusion that mortality of AVR is affected by preoperative Hb is still valid in the appendix section. We think the number of concomitant CABG case might affect the result of study, because it can be a confounder.

REFERENCES