We appreciate the discussion raised by Eggebrecht et al. [1] concerning our study on severe complications during transcatheter aortic valve implantation (TAVI) and a heart team approach [2].

The authors allude to the rate of conversion to surgical therapy in patients undergoing TAVI, which was higher in our series (2.8%) than what they had found in a meta-analysis (1.1 ± 1.1%) [3]—possibly an effect of the limited patient numbers. A relationship to the high rate of transapical procedures seems unlikely since we did not find an increased conversion rate in patients undergoing transapical vs transfemoral TAVI [2]. A part of these conflicting numbers may also be related to different strategies of patient selection, execution of procedures and framework conditions. Active participation of cardiac surgeons and cardiologists mutually performing TAVI in a hybrid operating room may lower the threshold for surgical conversion due to the opportunity for surgical bailout manoeuvres. This notion is supported by our findings that after a hybrid operating room became available in our institution in Quartile 2, the surgical conversion rate increased at first (Quartile 1: 1.7 vs Quartile 2 and 3: 5.2 and 3.5%, respectively), before decreasing with growing operator experience and technical refinements (Quartile 4: 0.9%) [2].

We would like to challenge the assumption that the decision to convert patients to surgical therapy was based on baseline demographics, yielding a lower risk profile and improved survival in these patients. A trend towards lower logistic EuroSCOREs was observed in the overall cohort of patients suffering from intraprocedural complications (18.2 ± 11.2 vs 22.5 ± 13.7% in uncomplicated TAVI, P = 0.07), and patients requiring conversion were a subset of this group [2]. Even more, indication for surgical therapy was based on the complication encountered: for instance, while a valve migration towards the aorta can be treated sufficiently by valve-in-valve implantation, embolization into the left ventricle usually requires surgical therapy. One major limitation of our study is the small number of patients, and the mentioned effect may well be attributed to this shortcoming.

We agree with Eggebrecht et al. that our hypothesis attributing a comparatively low 30-day mortality rate (38.5 [2] vs 67.1 ± 37.9% [3]) to a multidisciplinary heart team with equal contribution of cardiologists and cardiac surgeons can be challenged due to the lack of a control group. However, we feel confident that, with the results achieved, a dedicated heart team approach with mutual involvement of both disciplines constitutes an ideal approach to TAVI. Even more, current guidelines acknowledge on-site cardiac surgery as an essential prerequisite for TAVI [4]. At this early stage of the TAVI evolution, we would interpret data implying comparable results using different setups (hospitals with on-site cardiac surgery vs hospitals without on-site cardiac surgery) [5] with caution. As Eggebrecht et al. [1] state, larger datasets are required to draw definite conclusions in this regard and we would like to urge all centres performing TAVI to convey their outcomes to registries, e.g. the German Aortic Valve Registry (GARY) [6], to allow for sufficient data analysis and improvement in patient outcomes after TAVI.

REFERENCES

Anaemia is a predictor of mortality in patients undergoing aortic valve surgery

Sevket Baltaa,*, Sait Demirkolb, Mustafa Cakarc and Hakan Sarlakb

a Department of Cardiology, Gulhane Medical Academy, Ankara, Turkey
b Department of Internal Medicine, Gulhane Medical Academy, Ankara, Turkey

* Corresponding author. Department of Cardiology, Gulhane Medical Academy, Gulhane School of Medicine, Tevfik Saglam St., 06018 Etilk, Ankara, Turkey. Tel: +90-312-3044281; fax: +90-312-3044250; e-mail: drsevketb@gmail.com (S. Balta).

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We read the article ‘Preoperative anaemia is a risk factor for mortality and morbidity following aortic valve surgery (AVS)’ by Elmistekawy et al. [1] with interest. They aimed to investigate the incidence of preoperative anaemia in patients undergoing non-emergency AVS and its association with postoperative outcomes. They concluded that preoperative anaemia is a common finding in patients undergoing AVS and is an important and potentially modifiable risk factor for postoperative morbidity and mortality. We believe that these findings will pave the way for further studies about the relationships between preoperative anaemia and AVS. Thanks to the authors for their contribution.

It is actually believed that patients undergoing heart surgery have a lower margin of safety for tolerance of low haemoglobin (Hg) levels. A significant association between anaemia with adverse outcomes (death, stroke and renal impairment) in patients undergoing cardiac and non-cardiac surgery has been demonstrated in previous studies [2]. Blood transfusion is dangerous with regard to in-hospital mortality, morbidity and long-term survival. Blood transfusion is frequently used as a volume expander while simultaneously increasing the haematocrit. Transfusions have been independently associated with increased mortality after cardiac surgery. Transfusion is also dose-dependent risk factor for early mortality after revascularization. Blood transfusions have been linked to postoperative renal dysfunction, pneumonia, wound infections, severe sepsis and hospital mortality [3]. Based on this point of view, because anaemia and need for blood transfusions lead to very significant adverse effects after cardiopulmonary bypass surgery, it is necessary to research the effective methods of anaemia correction to reduce the need for blood transfusions.

Nowadays, although anaemia is a predictor of postoperative complications and is a risk factor for mortality in patients after cardiac surgery treatment, red distribution width (RDW) is known as an independent early marker of Hg evolution and independently identified risk of new onset anaemia, providing predictive information for haematological abnormalities beyond Hg concentrations and other known risk factors. RDW has recently been identified as an independent predictor of all-cause long-term mortality in patients with coronary artery disease [4]. So, if the authors had mentioned RDW, the results of the study might be different.

Reduced glomerular filtration rate (GFR) may also be associated with adverse outcomes in patients with cardiovascular disease. In previous study, preoperative GFR was predictive of all-cause mortality, cardiovascular mortality and combined cardiovascular mortality and morbidity. GFR may be useful to identify those patients undergoing cardiovascular surgery with subclinical chronic kidney disease [5]. For this reason, it would be better, if the authors mentioned any of these possible conditions.

Finally, it would be better if the authors might define how much time they specified on measuring Hg levels, because it can be associated with haemodilutional anaemia [6]. Following cardiac surgery, some factors including longer hospital stays, increased risk of infection, higher rate of pulmonary complications, prolonged ventilation, stroke, renal failure, atrial fibrillation, myocardial infarction, pneumonia, prolonged ventilation and operation time are associated with increased morbidity and mortality rates in patients undergoing AVS [3]. Further studies should evaluate these factors in patients with AVS.