We discussed the implications of our findings in the light of current practice and concluded that current recommendations for transannular patch insertion (for pulmonary annular stenosis) may leave a significant number of patients with an undesirable gradient across their pulmonary valve annulus postoperatively.

During repair of tetralogy of Fallot, it is our practice to divide muscular bands that we feel are causing RVOT (this includes division of the parietal extension of the septomarginal trabecula). As our patients are usually about 6 months of age, we do not routinely resect muscle from the right ventricular outflow tract (RVOT) as is often required in older children (however, we will resect muscle if it is deemed necessary).

We only inserted a transannular patch if we felt that the pulmonary annulus was too small [2]. In the event that a patient had an unacceptable post-repair gradient across the RVOT (as revealed by intraoperative echocardiography), but had an adequate pulmonary valve annulus, we went back on cardiopulmonary bypass and either resected more muscle from the RVOT or inserted a small RVOT patch.

It has been reported that ‘dextroposition’ of the aorta is present in all patients with tetralogy of Fallot [3]. We do not use the presence of ‘dextroposition’ to aid in ‘decision making’ relating to transannular patch insertion. We thank Dr Yurekli et al. once again for their questions and comments.

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LETTER TO THE EDITOR

Blood transfusion in coronary artery surgery: focus on modifiable risk factors

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We read with great interest the recently published study by De Santo et al. [1]. The study was conceived to identify preoperative and intraoperative patient characteristics predicting a higher risk of red blood cell (RBC) transfusion in isolated coronary artery bypass grafting (CABG), in order to reveal factors or practices that might be modified [1]. Eight predictors emerged through regression logistic analysis: age, body surface area, preoperative glomerular filtration rate, preoperative haemoglobin, surgical priority, length of cardiopulmonary bypass (CPB), intraoperative haemodilution and early postoperative blood loss [1]. The transfused group had higher values of chest tube output (CTO), P < 0.0001 [1]. CTO presents typical modifiable factors, but the question ‘How to predict or prevent excessive CTO?’ remains challenging.

In our opinion, when seeking for modifiable risk factors for blood transfusion, both pre- and intraoperative objective quantification of platelet activity as well as assessment of viscoelastic blood clot properties using rotational thromboelastometry should inextricably be taken into consideration [2, 3].

The efficacy of platelet inhibition with aspirin (ASA) and clopidogrel (CLO) varies widely among patients, from intensive platelet inhibition to poor platelet response [4], and those facts could, to a certain degree, explain no impact of CLO and ASA administration on transfusion outcome [1]. Notably, it remains unclear how many patients were exposed to dual antiplatelet therapy (DAT) with ASA + CLO preoperatively. Was proportion of patients preoperatively exposed to DAT similar between the transfused and non-transfused groups? In addition, transfused patients more frequently underwent emergent or urgent surgery. Were patients in emergent and/or urgent subgroup more frequently exposed to DAT? The possible role of DAT in assessment of transfusion outcome should not be underestimated since further incremental platelet inhibition may be observed in the group of patients receiving DAT [5].

In our experience, prediction of excessive CTO is possible both pre- and intraoperatively [2, 3]. Recently, we found ASA- (P = 0.014) and CLO- (P = 0.003) sensitive platelet function tests to be predictive of excessive CTO in patients following CABG [2]. One hundred and sixty-one (76.3%) patients received RBC with no significant differences in RBC administration among the groups with regard to preoperative antiplatelet drug administration regime (P = 0.636) [2], which is in line with results in the present study [1]. However, comparison of the ASA-sensitive platelet function test
values between patients with respect to packed red blood cells administration revealed significantly lower test values in the group of patients exposed to RBC (P = 0.002) [2]. The role of ASA and CLO administration management should be separately assessed by drug-specific platelet function tests, thus facilitating an individual therapeutic approach for each antiplatelet agent preoperatively. In addition, intraoperative assessment of platelet function and viscoelastic blood clot properties during CPB can reveal a further degree of haemostatic disorder and its relation to bleeding extent as well as transfusion requirements [3]. Pre- and intraoperative assessment of platelet function and viscoelastic blood clot properties can distinguish the influence of pre-existing, antiplatelet drugs-related and CPB-acquired haemostatic disorders, allowing detection of risk factors and enabling preoperative (procedure timing, risk stratification, antiplatelet therapy discontinuation management) and intraoperative targeted (administration of desmopressin, tranexamic acid and procoagulant blood components) practice modifications, which may further lead to improvement in transfusion as well as bleeding, and thus clinical outcome.

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LETTER TO THE EDITOR RESPONSE

Reply to Petricevic et al.

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We are grateful to Petricevic and co-workers for the interest they showed in reading our paper [1, 2]. Table 1 of the manuscript discloses the preoperative exposure of transfused and non-transfused subgroups to both aspirin (ASA) and clopidogrel (CLO). ASA and CLO did not prove to be independent predictors of blood transfusion requirement in this study. Anyhow, we fully agree with Petricevic that evaluating platelet function is a crucial tool in enhancing perioperative patient blood management, and we have added these measures to our transfusion algorithm in the most recent practice. More, as authoritatively stated by Ranucci et al. [3], tests of platelet function, measured intraoperatively and postoperatively (not preoperatively), correlate best with the occurrence and time course of post-CPB bleeding... The measure of platelet function during the intraoperative or postoperative period is thus critical to devising accurate and appropriate transfusion strategies so that bleeding patients can be treated with only those allogeneic blood products that they actually need. Open questions include which platelet function tests to use and which other measures should be included in a transfusion algorithm. In this respect, the most recent research of Petricevic et al. [4] certainly adds to the current knowledge.

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