Reply to the Letter to the Editor

Reply to Yie and Yang

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Keywords: Tricuspid valve replacement; Right ventricular function; Ultrafiltration

We appreciate the letter by Drs Yie and Yang with regard to our article. They raised great concern about early indication of tricuspid valve replacement (TVR) [1,2]. We completely agree with the opinion that the threshold for TVR criteria might be lower than at other institutes. We considered TVR if the degree of residual TR is more than mild to moderate in the operation room. Drs Yie and Yang cited the article by Shinn et al. [3] advocating TVR stating that its procedure is neither risky nor complicated. In this article, there were only 12 cases of TVR and 150 cases of TV repair. The numbers are too small to draw early conclusions.

We had only one hospital mortality due to uncontrolled sepsis in a patient with endocarditis and multiple interventricular abscesses. However, the postoperative hospital course of our TVR patients was not smooth. Some early complications included extracorporeal membrane oxygenation (ECMO) (1%), intra-aortic balloon pump (IABP) (6%), delayed sternal closure (4%) and acute renal failure (ARF) (4%). These incidences of early complications are unacceptably high compared with other valve surgeries. ECMO support was required in a patient with Ebsteins’ anomaly after prolonged attempted TV repair.

Regarding the incidence of TVR after left-side valve surgery (LSVS), the proportion of TVR after LSVS in our series is slightly lower than other reports. We did not provide more detailed information regarding combined procedures during TVR in Table 2; that might have caused our results to be misunderstood.

Among 40 patients with redo surgery, 36 patients (90%) had a history of LSVS. In this group, only nine patients (25%) had isolated TVR and 27 patients (75%) had associated procedure of 1st or 2nd AVR and/or MVR. The high incidence of concomitant redo LSVS would be related with early intervention of left-sided prosthetic valve. For example, we considered concomitant redo AVR if the mean gradient of prosthetic valve was more than 30 mmHg. Our experience of TV surgery after LSVS has been published in another journal [4].

In terms of concomitant Maze operation, 18 patients underwent the Maze procedure and sinus rhythm was restored in 13 patients (72%). But it is difficult to say that early sinus conversion after Maze operation may decrease early mortality.

With regard to the surgical technique, we implanted a prosthetic valve on the arrested heart and preserved the subvalvular structures except the stenotic valve. A small triangular-shaped bovine pericardial patch was applied on conducted area in case of a friable leaflet tissue or a bulging of aortic prosthetic valve.

We still strongly believe that aggressive ultrafiltration may play important roles in reducing pulmonary resistance, RV afterload, myocardial oedema and early mortality. To elucidate the effect of aggressive ultrafiltration in patients with RV dysfunction, a prospective randomised study or multicentre study is needed.

References


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Letter to the Editor

A simplified surgical approach for aortic valve replacement after previous coronary artery bypass grafting using upper mini-sternotomy approach

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Keywords: Valve disease; Myocardial protection

We read with great interest the article ‘A simplified surgical approach for aortic valve replacement after previous coronary artery bypass grafting’ by Vistarini and colleagues [1]. Aortic valve replacement (AVR) following a coronary artery bypass grafting (CABG) is becoming more frequent and
is a challenging operation. The crucial issue remains the surgical approach and cardiac protection, attempting to simplify a problematic procedure.

From their experience, the operating quickness and a simplified approach (open IMA technique, anterograde cardioplegia, mild-to-moderate hypothermia and minimal dissection of the mediastinal structures) represent fundamental choices to perform this type of surgery easily, safely and with optimal results.

In our department, from February 1997 to December 2007, we used the upper mini-sternotomy (UMS) approach in 1126 patients undergoing a variety of surgical procedures [2]. Out of 125 re-do procedures performed, 24 patients (19%) had a previous CABG. Once the sternum was re-entered, dissection from adhesions was limited to the structure directly involved in the procedure or necessary for venous cannulation. Cardio-pulmonary bypass (CPB) was normally instituted between the right atrium and the ascending aorta. In selected cases (for presumed high risk of re-entry problems), a peripheral venous and arterial cannulation of the femoral vessels was preferred and CPB was started before approaching re-do sternotomy, in order to decompress the heart. The patent left internal mammary artery graft was not dissected (with the exception of three cases of strong adhesion to the ascending aorta) and was never clamped. We also tried to avoid as much as possible dissection and manipulation of the saphenous graft. Using the UMS approach the distal part of the grafts and the ventricles are not involved in the procedure, because they are located under the inferior part of the sternum, thus reducing the dissection of the heart, the operating time and blood loss. All patients underwent CPB with a mild-to-moderate systemic hypothermia (mean temperature: 30.3 ± 2.3 °C). The left ventricle venting through the right superior pulmonary vein was not used routinely and blood was removed directly from the aorta. Myocardial protection was obtained using cold crystalloid cardioplegia, delivered through the aortic root and with selective cannulation of the coronary ostia.

At the beginning of our experience, we had three cases of re-entry problems: two accidental damages from a previous coronary graft and one right internal mammary artery (RIMA) injury, requiring conversion to full sternotomy.

In our series we registered one case of perioperative myocardial infarction and two cases of postoperative low cardiac output, which is comparable with the results of other groups [3,4].

We report an early mortality of 12.5% and a 5-year survival of 76%. These results also are in line with those reported by other authors using other techniques [3—5].

In conclusion, this type of surgical approach may be helpful for patients receiving AVR after previous CABG, and a simplified surgical strategy can be associated with a minimally invasive approach without compromising a satisfactory outcome.

References

The authors of the original paper [1] were invited to reply to this Letter to the Editor but they did not respond.

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