**Analysis of right ventricular function and geometry after tricuspid annuloplasty concomitant with complex left-sided heart surgery**

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**PURPOSE**

Tricuspid valve repair (TVP) has been advocated concomitantly with left-sided heart surgery in case of severe tricuspid regurgitation (TR) or tricuspid annular dilatation (TAD). The purpose of this study was to compare the differential effects of TVP performed because of TAD or significant functional TR on right ventricular size, geometry and function in patients scheduled for complex left-sided heart surgery.

**MATERIALS AND METHODS**

Pre- and postoperative (average FU: 3.5 months) echocardiographical data from 49 consecutive TVP procedures, usually as part of complex left-sided heart surgery, performed between 2007-2010 at the Hospital Oost Limburg were analyzed (Table 1, 2 and Figure 1). Thirty-five percent of the TVPs were performed because of more than moderate (>2) preoperative functional tricuspid insufficiency and 65% because of TA dilatation (>40 mm) in absence of significant (≤2) TR. Changes in RV function and RV geometry were assessed by measuring RV fractional area change (RVFAC=(RVEDA-RVESA)/RVEDA) and RV end-diastolic sphericity index (RVSI=RV long-axis length/RV short-axis width) at baseline and follow-up.

**RESULTS**

The effect of concomitant TVP on RV size and geometry in patients scheduled for left-sided surgery depends on the severity of preoperative TR.

In those undergoing TVP because of TAD rather than significant TR, RV sphericity decreases but RV size may increase at follow-up. We speculate that this last finding may be explained by the fact that all patients underwent TVP in addition to left-sided surgery, rather than isolated TVP. Once the left-sided lesion(s) has been addressed, an improvement in cardiac output may be expected, which in turn will lead to an increased RV preload and higher end-diastolic RV volumes, particularly in patients with lesser degrees of TR preoperatively.

In patients with more than moderate preoperative TR, RV size will decrease post-TVP, and RV sphericity will decrease even more compared to those with lesser degrees of TR.

Overall, TVP did not appear to have a significant adverse impact on RV systolic function.