

Heart, Lung and Circulation (2016) xx, 1–6
 1443-9506/04/\$36.00
<http://dx.doi.org/10.1016/j.hlc.2016.05.118>

Tricuspid Valve Replacement Through Right Thoracotomy has Better Outcomes in Redo Cases

Q1 **Muhammet Onur Hanedan, MD***, Ferit Çiçekçiöğlü, Ayşen Aksöyek,
 Q2 **Adem İlkay Diken, MD**, Ertekin Utku Ünal, Ali İhsan Parlar, MD,
 Q3 **Salih Fehmi Katircioğlu**
 Q4
 Q5

Türkiye Yüksek İhtisas Education and Research Hospital, Cardiovascular Surgery, Ankara, Turkey

Received 29 November 2015; received in revised form 13 May 2016; accepted 24 May 2016; online published-ahead-of-print xxx

Background

The tricuspid valve is usually ignored and tricuspid interventions are mostly done in the context of other planned cardiac surgery. Isolated tricuspid reoperative procedure, especially tricuspid valve replacement (TVR) is very rare and carries a very high mortality rate. In this prospective study, clinical results of isolated TVR either through a median re-sternotomy or an antero-lateral thoracotomy with conventional cardiopulmonary bypass (CPB) have been evaluated.

Methods

Thirty patients with previous open heart surgery through median sternotomy had isolated TVR between 2004 and 2011. Operative approaches were through a median re-sternotomy in 13 patients and a right antero-lateral thoracotomy in 17 patients.

Results

Follow-up period is complete with a mean duration of 19.77 ± 17.08 months. The hospital mortality rates were 46.2% (six patients) in the Median Re-sternotomy Group and 5.9% (one patient) in the Thoracotomy Group ($p = 0.025$). The surgical procedures lasted shorter and the postoperative drainage amounts were lower in the Thoracotomy Group (298.08 ± 76.64 min vs 246.76 ± 47.40 min, $p = 0.032$ and 1787.50 ± 1399.53 mL vs 903.33 ± 692.43 mL, $p = 0.03$ respectively). Presence of ascites in the preoperative period ($p = 0.007$), operative technique (median re-sternotomy) ($p = 0.025$), use of cross-clamp ($p = 0.048$), and need for inotropic support during the operation ($p = 0.002$) were statistically significant factors affecting the hospital mortality. The mean estimated life period was better for the Thoracotomy Group (16.7 ± 5.03 versus 35.9 ± 5.01 months, $p = 0.044$). Presence of ascites in the preoperative period was a significant risk factor for overall mortality according to Cox regression analysis.

Conclusion

Thoracotomy for TVR in patients with previous median sternotomy is a practical and safe technique with lower mortality rates.

Keywords

Tricuspid valve • Tricuspid valve replacement • Thoracotomy

Introduction

Q6 The tricuspid valve (TV) is usually known as the forgotten valve because it has not received as much attention as the aortic valve (AV) or mitral valve (MV) [1]. In addition,

there has been far less discussion regarding surgical and percutaneous methods for tricuspid valve repair or replacement [2]. Although potential advantages of repair over replacement in the tricuspid position have been suggested by several previous researchers, it is

*Corresponding author at: Türkiye Yüksek İhtisas Hast. Kızılay Sok. 06100 Ankara/Türkiye. Tel.: +90 505 799 51 55, Email: ohanedan@hotmail.com

© 2016 Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) and the Cardiac Society of Australia and New Zealand (CSANZ). Published by Elsevier B.V. All rights reserved.

difficult to develop firm conclusions as to the optimal procedure [3].

Patients are rarely referred for isolated surgical tricuspid valve repair, and most repairs are done in the context of other planned cardiac surgery, because significant tricuspid regurgitation (TR) occurs usually with late-phase myocardial and valvular heart disease except for congenital anomalies such as Ebstein's anomaly [4]. Patients undergoing reoperation for tricuspid valve dysfunction have been rarely observed, and data of these cases are mostly included in the series of reoperations for valvular surgery [5]. Reoperations for recurrent TR are especially high-risk surgical procedures (up to 37% in-hospital mortality) and are therefore not routinely offered to many patients. [4].

Isolated tricuspid valve replacement (TVR) with the right antero-lateral thoracotomy approach, on a beating heart without a cross-clamp has become popular in recent years. In this prospective study the clinical results of isolated TVR either through a median re-sternotomy or through an antero-lateral thoracotomy with conventional cardiopulmonary bypass (CPB) were evaluated.

Patients and Methods

Study Group

Thirty patients who had undergone previous valvular heart surgery through median sternotomy received isolated TVR between 2004 and 2011 in the authors' clinic. All patients were operated on by the same surgeon. Patients with a previous congenital heart operation were not included. Patients were randomised into two groups. Thirteen patients underwent TVR through a median re-sternotomy (Median Re-sternotomy Group) and 17 patients through a right antero-lateral thoracotomy (Thoracotomy Group) approach. All patients gave written consent for the study and approval of the study was obtained from the hospital's ethics committee.

Patient Follow-up

The patients' preoperative clinical and echocardiographic findings with perioperative data were recorded. Follow-up was completed during outpatient clinic visits on the 10th postoperative day, the 2nd month, 6th month, and 1st year after the operation. Hospital mortality is the mortality occurring within 30 days after the operation.

Surgical Techniques

Conventional Median Re-sternotomy

Following median re-sternotomy aorto-bicaval cannulation was performed. All patients were operated on with CPB either on a beating heart without cross-clamping the aorta or under cardioplegic arrest. Hypothermia was avoided and a nasopharyngeal temperature was kept at 35-37°C for the beating heart method, otherwise systemic moderate hypothermia was used (30°C).

Right antero-lateral thoracotomy approach

All of the patients were intubated with a double-lumen endotracheal tube and put in a right lateral decubitus position. Cushions were used to protect the brachial plexus and bone prominences. Right femoral artery cannulation was done for arterial inflow. A right antero-lateral thoracotomy 10 cm in length through the fifth intercostal space was carried out and the right lung was deflated. After minimal pericardial dissection, bicaval venous cannulas were inserted through the right atrium for venous drainage. Then SVC and IVC were encircled with tapes. The left ventricle was decompressed through a vent placed from the right upper pulmonary vein. After going on CPB with normothermia (nasopharyngeal temperature, 35 – 37 °C), (flow rate: 2.5 L/min/m²), mean systemic pressure was maintained at 60 mmHg. The heart was perfused through the aortic root and allowed to beat. When total CPB was begun by snaring the SVC and IVC with tapes, a right atriotomy was made. The patient was kept in Trendelenburg (head down tilt) position with continuous aortic root venting for air emboli prevention. De-airing procedures were continued until CPB was terminated. Transoesophageal echocardiography (TEE) was used to detect air bubbles before weaning from the CPB. Tricuspid valve replacement was performed by standard fashion on a beating heart technique. Tricuspid valve leaflets and papillary muscles were not removed in order to protect right ventricular function. Pledged sutures were placed through the tricuspid leaflet tissue in order to protect both the tricuspid annulus and the conduction system.

Inotropic agents

Inotropic support was started in marginal cardiac performance while terminating CPB (mean arterial blood pressure below 70 mmHg, pulmonary capillary wedge pressure higher than 30 mmHg). In ICU inotropic support was started to achieve a satisfactory cardiac index (2.1 L/min/m²) and blood pressure (mean arterial blood pressure 70 mmHg). We used epinephrine as first-line drug for a borderline cardiac output in the absence of tachycardia, dopamine as first-line drug for low cardiac output, especially when systemic vascular resistance was low and dobutamine when cardiac output is marginal and SVR was high.

Statistical Analysis

Statistical evaluation was done with SPSS v16.0 (SPSS Inc., Chicago, IL, USA) packaged software. The results were reported as mean ± standard (SD) for quantitative variables and percentages for categorical variables, and the groups were compared using Student's t-test or Mann Whitney U test for continuous variables and the chi-square test (or Fisher's exact test, if required) for categorical variables. Univariate logistic binary was used for 30-day mortality prediction. Survival rates were calculated utilising the Kaplan-Meier method, and comparisons were made using the log-rank test. Risk estimations of the factors' effect on survival

Download English Version:

<https://daneshyari.com/en/article/5602754>

Download Persian Version:

<https://daneshyari.com/article/5602754>

[Daneshyari.com](https://daneshyari.com)