

Gradien tekanan ventrikel kanan dengan arteri pulmonalis dan perbandingan tekanan ventrikel kanan dengan ventrikel kiri sebagai faktor prediksi keberhasilan koreksi tetralogi fallot transatrial-transpulmonary tanpa transannular patch = Right ventricle and pulmonary artery pressure gradient and right ventricle and left ventricle pressure ratio as predictor factor for successful transatrial-transpulmonary without transannular patch correction of tetralogy of fallot

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Abstrak

Tujuan : Koreksi transatrial-transpulmonary tanpa transannular patch (TA-TP tanpa TAP) memiliki keuntungan berupa preservasi annulus katup pulmonal dan fungsi ventrikel kanan, Namun sering terjadi gradien RV-PA dan pRV/LV ratio yang masih tinggi sehingga terjadi low cardiac output syndrome (LCOS). Penelitian ini bertujuan untuk mencari batasan gradien RV-PA dan pRV/LV ratio yang merupakan nilai prediktif terbaik terhadap kejadian LCOS pascakoreksi tetralogi Fallot TA-TP tanpa TAP.

Metode : Pada bulan Oktober 2012 sampai Maret 2013, sebanyak 30 pasien TF menjalani koreksi TF TA-TP tanpa TAP (mean usia $8,37 \pm 7,90$ tahun). Dilakukan pengukuran gradien RV-PA dan pRV/LV ratio intraoperatif dan postoperatif di ICU. Evaluasi kejadian LCOS dilakukan selama perawatan di ICU.

Sebelum pasien pulang, dilakukan pemeriksaan ekokardiografi untuk menilai gradien RV-PA, fungsi ventrikel kanan, defek septum ventrikel residual, derajat regurgitasi katup pulmonal dan katup trikuspid.

Hasil : Sebanyak 30 (100%) subjek penelitian memiliki z-value -1, menjalani koreksi TF TA-TP tanpa TAP. Mean gradien RV-PA intraoperatif adalah $21,13 \pm 10,60$ mm Hg dan mean pRV/LV ratio intraoperatif adalah $0,53 \pm 0,14$. Mean gradien RV-PA di ICU adalah $20,83 \pm 7,10$ mmHg dan mean pRV/LV ratio di ICU adalah $0,49 \pm 0,10$. Tidak terjadi LCOS pada 30 (100%) subjek penelitian sehingga tidak dapat dilakukan analisis untuk mencari batasan nilai gradien RV-PA dan pRV/LV ratio sebagai nilai prediktif terbaik terhadap kejadian LCOS pascakoreksi TF TA-TP tanpa TAP. Mean gradien RV-PA sebelum subjek penelitian rawat jalan adalah $23,47 \pm 6,95$ mmHg. Regurgitasi katup pulmonal ringan pada 15 (50%) subjek penelitian dan regurgitasi katup trikuspid trivialmild pada 16 (53%) subjek penelitian. Disfungsi ventrikel kanan ringan 3 (10%), sedang 20 (67%) dan berat pada 7 (23%) subjek penelitian. Mean TAPSE postoperatif adalah $1,03 \pm 0,19$. DSV residual tidak dijumpai, aritmia tidak dijumpai, reoperasi dan mortalitas tidak ada.

Simpulan : Koreksi TF TA-TP tanpa TAP memberikan hasil operasi dini yang baik pada pasien TF dengan z-value katup pulmonal -1, pRV/LV ratio $< 0,5$ dan gradien RV-PA < 25 mmHg pascakoreksi.

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Objective : The benefits of the transatrial-transpulmonary (TA-TP) without transannular patch (TAP) correction of tetralogy of Fallot (TOF) are preservation of pulmonary valve annulus and right ventricular function. However, TA-TP without TAP correction of TOF had a higher incidence of low cardiac output syndrome (LCOS) because of the high right ventricle and pulmonary artery (RV-PA) pressure gradient and right ventricle and left ventricle pressure (pRV/LV) ratio. The purpose of this study were to analyze the cut

off value of RV-PA pressure gradient dan pRV/LV ratio as the best predictor value for postoperative LCOS in TA-TP without TAP correction of TOF.

Methods : Between Oktober 2012 and Maret 2013, 30 patients with TOF underwent TATP without TAP correction (mean age $8,37 \pm 7,90$ years, range 1-27 years). At the end of correction, all patients underwent intraoperative direct measurement of RV-PA pressure gradient and pRV/LV ratio. The patients were evaluated for postoperative LCOS at the Intensive Care Unit (ICU). All the patients underwent echocardiographic examination before hospital discharge. This included investigation of the presence RV-PA pressure gradien, RV function, residual VSD, pulmonary and tricuspid valve insufficiency.

Results : Thirty patients with pulmonary valve annulus z-value -1, underwent TA-TP without TAP correction of TOF. Mean intraoperative RV-PA pressure gradient was $21,13 \pm 10,60$ mmHg and mean intraoperative pRV/LV ratio was $0,53 \pm 0,14$. Mean RV-PA pressure gradient measured 24 hours after correction at the ICU was $20,83 \pm 7,10$ mmHg and mean pRV/LV ratio measured at 24 hours after correction at the ICU was $0,49 \pm 0,10$. No patient had LCOS, we could not analyze the cut off value of RV-PA pressure gradient and pRV/LV ratio as the best predictor value for postoperative LCOS in this study. No patient had residual VSD. Mean RV-PA pressure gradient before hospital discharge was $23,47 \pm 6,95$ mmHg. Fifteen (50%) patients had mild pulmonary valve insufficiency and 16 (53%) patients had trivial-mild tricuspid valve insufficiency. Three (10%) patients had mild RV dysfunction. Postoperative mean TAPSE was $1,03 \pm 0,19$. No patient had arrhythmia, reoperation and mortality in this study.

Conclusions : The TA-TP without TAP correction of TOF was applied successfully in 30 patients with pulmonary valve annulus z-value -1, post-correction RV-PA pressure gradient < 25 mmHg and pRV/LV ratio $< 0,5$.