**A NOVEL CONCEPT IN REPAIR OF TETRALOGY OF FALLOT: PULMONARY ANNULUS Z-SCORE MAY NOT BE THE DETERMINANT FOR TANSANNULAR PATCH ENLARGEMENT**

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**Background:** In tetralogy of Fallot, we usually enter into endless argument over whether relieving right ventricular outflow tract (RVOT) obstruction requires transannular patch enlargement (TAPE). The z-score of pulmonary annulus is most commonly used as a predictor of the need for TAPE. If Z-score is too small, TAPE is inevitable. However, we believe that abnormal development of infundibulum restricts the pulmonary annulus growth. Therefore, we hypothesized that a total relief obstruction of RVOT, adequate annulus release and promoting forward blood flow can achieve pulmonary annulus growth regardless of some degree of pressure gradient residues at the level of pulmonary annulus in early primary repairs.

**Method:** From January 2014 through June 2017, 61 consecutive patients underwent repair of tetralogy of Fallot with aggressive pulmonary annulus preserving strategy by one surgeon and were divided into two groups according to z-scores (group I with z-score≥-2 vs group II with z-score<-2) by echo. A total of 230 patients(z-score<-2) underwent traditional TAPE by other surgeons in our institution over the same period and were matched 1:1 on the basis of z-score as group III.

**Results:** Among 61 consecutive patients, all patients achieved annulus sparing. Compared with group I, there is no significant difference in postoperative RVOT gradients (31.3±13.8mmHg vs 22.7±8.7mmHg,P=0.08) and the same downward slope in group II at follow-up, and postoperative RVOT gradients would significantly go down over time(p<0.01) as a whole. Compared with group III, there is no significant difference in RVOT gradients(28.2±10.3mmHg vs 20.6±22.9mmHg,p=0.115 ) and fewer moderate to severe PR in group II(3.6% vs 21.4%,p=0.043) at the latest follow-up.

**Conclusion:** In spite of non-transannular patch enlargement to RVOT in patients with z-score less than -2, gradients will go down over time . Preserving the pulmonary annulus can reduce serious PR in the mid term and ultimately obtain the long-term benefits. We may have a more aggressive strategy in protect pulmonary annulus irrespective of z-score in tetralogy of Fallot repair.