

AP Target Symposium

AP Target Symposium 1 (I-APT1)

Dealing with the borderline Left Ventricle - What are the requirements for biventricular circulation, and how to get there?

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[I-APT1-02] Clinical decision-making process for biventricular circulation

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If the patient has a hypoplastic right ventricle and its associated lesions, you can wait and see whether the right heart components grow and gain better function during the initial palliative stage. On the other hand, in the cases with a marginally left ventricle, such challenge in monitoring can lead to persistent low cardiac output and respiratory failure. Even though he or she survived the life-threatening condition, the obstructive components beyond the left atrium possibly promote retrograde pulmonary hypertension and subsequent high pulmonary vascular resistance which prevent transformation to Fontan circulation. In this context, decision making process for the cases with a marginally left ventricle is completely different from that of the opposite side.

Since 1991 until recently, a number of scoring systems for the marginally hypoplastic left ventricle to discriminate the decision have been reported. These are calculated by combination of structural indices measured on echocardiography such as mitral valve annulus diameter or area, long axis length of the ventricle, aortic root diameter, grade of tricuspid regurgitation, and so on. Some of which involve the degree of endocardial fibroelastosis (EFE) as well. Coexistence of EFE does compromise the diastolic function even though the ventricle has adequate size and shortening. However, it is difficult to qualify the actual impact. All the scoring systems are designed to predict the temporary accomplishment of biventricular repair, but they have limitations in estimating the long-term outcome.

Hypoplastic left ventricles are frequently associated with obstructive lesions in its inflow and outflow tracts. Therefore, to predict the outcome, you need to extrapolate the effect of surgical and/or interventional recruitment including EFE resection. The current management and thought process differ among countries and institutions. In this presentation, realistic data will be reviewed on neonates with a marginally left ventricle over our past 15 years' experience, and we will discuss about this evolving subject.