

**Two Stage Arterial Switch in the Transposition of the Great Arteries with an Intact Ventricular Septum beyond Neonatal Period: Which is the best option?
Pulmonary Banding and Arterial BT Shunt or
Pulmonary Banding and Bidirectional Cava-Pulmonary Shunt**

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Objective: Left ventricle retraining is necessary for the patients who have left ventricle dysfunction and transposition of great vessels with intact ventricular septum (TGA-IVS) before anatomical repair beyond the neonatal period.

Material and methods: Between July 2013 and August 2016, forty-seven patients who had left ventricle dysfunction and had applied two-stage arterial switch operation with the diagnosis of TGA-IVS were assessed retrospectively. The criteria for the left ventricle (LV) retraining were defined as a combination of these conditions including being older than 2 months old, having LV mass index in echocardiography less than 35 gr/m² and having an interventricular septum with “banana-shape” appearance. The patients were divided into two groups: one with patients receiving pulmonary artery banding and arterial BT shunt (n:19) and the other with patients receiving pulmonary artery banding and venous bidirectional cava-pulmonary shunt (n:28) in preparation to the arterial switch operation.

Results: The average age was found to be 122.3±45,6 days in arterial shunt group and 145.9±37.2 days in venous shunt group. No statistically significant difference (p=0,232; p=0,373) was found between the LV mass index averages of the two groups which had been evaluated before the first stage and second stage (before the first stage 26,6±4,8 gr/m²; 25,0±4,9 gr/m²; before the second stage 70,5±12 gr/m², 6; 73,8±12,0 gr/m²). However, the average of time interval for the LV to retrain was 97,7±42,9 days for the arterial shunt group and 117,3±40,3 days for the venous shunt group and the interval period was significantly low in the arterial shunt group (p=0,027). Time spent in intensive care unit, length of the period during which inotropic support was required and duration of hospital stay were significantly higher in arterial shunt group than the venous shunt group (p<0,001 p<0,001 p<0,001).

Conclusion: Bidirectional cava-pulmonary shunt can be performed as an alternative to arterial BT shunt for the cases of TGA-IVS in which two-stage arterial switch and LV retraining are indications beyond the neonatal period since venous bidirectional cava-pulmonary shunt requires a shorter duration of hospital stay and has less complications. However, LV retraining period can be longer in venous shunt probably due to LV afterload.