New enhanced left ventricular training in corrected transposition of the great arteries by increasing after- and preload

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Purpose: Patients with corrected transposition of the great arteries (ccTGA) beyond the newborn age need a left ventricular (LV) training to undergo a double switch operation (DS) (atrial plus arterial switch operation). A new approach with pulmonary arterial banding (PAB) and atrioseptectomy to increase pre- and afterload is evaluated in regards of effectivity, numbers of re-operations necessary and the outcome of DS.

Method: We report on six consecutive patients with ccTGA to be trained for DS using this enhanced LV training (eLVT). Five patients had conventional PAB before, but did not reach a sufficient gradient across the banding.

Results: Five of six patients reached systemic pressure in the LV and underwent successful DS at in mean 1.2 years after eLVT was established. The postoperative period was short and uneventful in all patients with a total ventilation time of 24 hours, stopover on ICU for 3 days and dismissal from the clinic after 11 days (median). Over the follow up period of 1.5 years (7.2 patient' years) an unrestricted cardiac function, reduction of medication and marked regression of tricuspid valve regurgitations was observed in all patients. The six patient is on eLVT for 2 years and has not reached systemic LV preassure for DS.

Conclusion: With the eLVT the number of re-PAB operations can be reduced and DS performed effectively. The course of the eLVT and the results of this patient group may justify the additional atrioseptectomy. If it has advantages in regards of LV remodelling in patients older than 12 years is not yet proven, but a reconfiguration with reduction of tricuspid valve regurgitation was seen. Long term follow-up is still needed and results from other centres are essential to underline the benefit of this procedure.