

Characteristics of the Atrial Septum in Foetuses with d-Transposition of the Great Arteries

*Tuo G.(1), Buffi D.(1), Volpe P.(2), De Robertis V.(2), Puncuh F.(1), Zannini L.(1), Marasini M.(1)
G.Gaslini Institute Genoa Italy (1), Di Venere and Sarcone Hospital Bari Italy (2)*

Objectives: to review the prenatal features of foramen ovale in foetuses with Transposition of the Great Arteries (TGA), focusing on those who needed an urgent balloon atrial septostomy (BAS) for a restrictive interatrial communication at birth.

Background: also neonates with prenatally diagnosed TGA may die immediately after birth because of the inadequate mixing at the level of the atrial septum.

Methods: we included patients with a prenatal diagnosis of TGA between January 2000 and December 2013. Foetuses with ventricular septal defect were excluded. Clinical data comprised gestational age (GA) at last echocardiogram and at birth, delivery conditions, weight and oxygen saturation at birth. Assessed prenatal echocardiographic data were foramen ovale and septum primum (SP) appearance, ductal and pulmonary veins flow pattern. SP was considered hypermobile if oscillated between both atria, redundant if it herniated more than 50% toward the left atrium, restrictive if was hypo-mobile and thick with a small orifice. For those foetuses with a restrictive foramen ovale, delivery was scheduled in the cardiac unit. Neonates with a restrictive foramen ovale associated to a severe hypoxemia (oxygen saturation $\leq 60\%$) underwent an urgent BAS (within 30 minutes after delivery).

Results: 41 foetuses had a diagnosis of TGA. Last fetal echocardiogram was performed at a median gestational age of 37 weeks. 37/41 patients were delivered via caesarean section. Median GA and weight at birth were respectively 39 weeks and 3 Kg. Thirteen patients (32%) required an urgent BAS. Prenatally 6/13 had a restrictive SP appearance and were delivered in the cardiac unit. Among the other 7 fetuses, 6 presented a redundant SP and one a hypermobile SP at last fetal echocardiogram. In these 13 foetuses we did not find any significant abnormal flow pattern in the pulmonary veins or in the ductus arteriosus compared to the rest of the study population.

Conclusions: the antenatal evaluation of the atrial septum for restriction is still challenging. Based on our experience, not only foetuses with a restrictive atrial septum before birth but also those who showed a redundant SP bulging towards the left atrium, are to be considered at risk of an urgent BAS.