

Function of right ventricle in a recipient twin in twin to twin transfusion syndrome

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Introduction: Twin to twin transfusion syndrome (TTTS) is a condition affecting around 10% of monochorionic diamniotic twin pregnancies. Various echocardiographic changes have been described in the recipient twin. The disease affects function of recipient's twin right ventricle due to volume overload, increased afterload and myocardium remodeling.

Methods: We reviewed our computer database on fetal echocardiographic exams of twins between 2002 and 2010. 43 pairs of twins with TTTS were identified. They were divided into groups according to Quintero staging system. For each recipient twin cardiac size, myocardial thickness, contractility, flow through tricuspid and pulmonary valves and right ventricle myocardium performance index (MPI) were evaluated.

Results: There were 19% (8pts) in Quintero stage 1 (Q1), 21% (9pts) in Q2, 42% (18pts) in Q3, 16% (7pts) in Q4, 2% (1pts) in Q5. Fetal heart was enlarged in 56% (24pts). Myocardial thickness was increased in 58% (25pts). Shortening fraction was decreased in 60% (26pts). Tricuspid regurgitation was present in 81% (35pts) and in 16% (7pts) fusion on right ventricle inflow was observed.

Pulmonary stenosis was described in 14% (6pts). Mean MPI for this group was 0,662 +/- 0,25, while in the group of healthy monochorionic twins 0,407 +/- 0,08. In the table distribution of echocardiographic changes according to Quintero stages is shown.

	Q1	Q2	Q3	Q4
<i>Heart enlarged (%)</i>	50%	33%	50%	100%
<i>Myocardium thickened (%)</i>	63%	67%	39%	86%
<i>Shortening fraction decreased (%)</i>	63%	56%	56%	86%
<i>Tricuspid regurgitation (%)</i>	88%	89%	78%	100%
<i>Monophasic RV filling (%)</i>	0%	11%	17%	43%
<i>Functional Pulmonary atresia (%)</i>	13%	0%	6%	57%

Conclusions: Function of right ventricle is affected by TTTS in most recipient twins. Serious cardiac function alterations are presents regardless of Quintero stage, so cardiac changes are more important to evaluate twin condition in TTTS. Echocardiographic examination should be performed in all cases of suspected TTTS.