

## **MRI EVALUATION OF THE SYSTEMIC-PULMONARY ARTERIAL SHUNTS IN PATIENTS WITH PULMONARY ARTERY STENOSIS OR COMPLEX PULMONARY ARTERY ATRESIA**

R.L. Dumitru, R. Capsa, I. Lupescu

Department of Radiology and Medical Imaging, Fundeni Clinical Institute  
"Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

### **Abstract**

**Introduction and Purpose.** To evaluate the role of MRI in the study of the pulmonary artery (PA) and the system of aorto-pulmonary collateral vessels, in patients with tetralogy of Fallot or different forms of variants.

**Methods.** Retrospective study covering the period 1 January 2001 - June 1, 2013. We have studied the clinical and imaging data of 32 consecutive patients (diagnosed with tetralogy of Fallot or different forms of variant pulmonary stenosis), sent for MRI examination. The goal of the MRI examination was to depict the anatomy of the pulmonary vascular system and to image the aortopulmonary collaterals. Patients followed a protocol that included transthoracic echocardiography (TTE) or transoesophageal echocardiography (TEE) and angiocardiology/ selective pulmonary artery catheterization imaging data was compared with intraoperative results in all cases that required surgery.

**Results:** After the MRI findings, we classified patients in several groups according to the diagnosis: tetralogy of Fallot with pulmonary atresia (n = 14), tetralogy of Fallot with pulmonary stenosis (n = 10), trilogly of Fallot (n = 4), pentalogy of Fallot (n = 3) and single ventricle involving pulmonary artery stenosis. (n = 1). Morphology and size of central pulmonary arteries, sources of the major aortopulmonary collateral vessels, Blalock Taussig shunt patency and the postoperative appearance of the pulmonary circulation were assessed.

**Conclusion:** MRI can provide accurate information in assessing systemic-pulmonary shunts in patients with complex pulmonary artery stenosis or atresia and it is a useful tool in the preoperative management and subsequent follow-up.

**Key words:** Cardiac, Cardiovascular system, Pulmonary vessels, MR, MR-Angiography, Hemodynamics / Flow dynamics

Address for correspondence: R.L. Dumitru, MD  
Department of Radiology and Medical Imaging  
Fundeni Clinical Institute, Bucharest, Romania  
E-mail: radu.dumitru@gmail.com