

Long-term monitoring by MRI of coronary arteries after arterial Switch operation in D transposition of the great arteries

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INTRODUCTION: Transfer of the coronary arteries during arterial switch operation (ASO) is the principal step; the long term morbidity and mortality of this operation depend on the status of the coronary perfusion, and coronary obstruction is an important cause of death with an incidence around 3-8%. However, severe coronary artery injuries may occur in asymptomatic patients and its diagnosis is still a challenge. This study aims to assess the incidence and sensitivity of magnetic resonance imaging (MRI) in the diagnosis of the coronary obstruction after ASO.

METHOD: Retrospective study of the patients with ASO since 1997 in our hospital. The coronary study was performed using MRI. Patients with suspected coronary lesion were performing a 64 multislice computed tomography (MSCT). The presence of symptoms, the time of diagnosis and other diagnostic tests was recorded.

RESULTS: 157 patients were operated with ASO. Follow up MRI was performed in 88 patients (mean age of 8 years). Five patients have an image of coronary stenosis in MRI, three of them were confirmed with MSCT (incidence of 4,3%). The first was a girl of 16 years old, asymptomatic, with normal EKG and TTE. Severe stenosis of left trunk coronary was shown in both noninvasive image techniques (MRI and MSCT). A stent was implanted to treat the obstruction. The second patient was a 15 years old boy with normal stress test, EKG and echocardiography. Although he was asymptomatic, MRI and MSCT dropped out a severe obstruction of DA. This severe obstruction was treated with a stent implantation too. The third one, a twelve years old boy with a previous image of stenosis in right coronary artery in MRI, was confirmed by to MSCT present a mild stenosis. He is asymptomatic without treatment. The other 2 patients have images suggestive of coronary stenosis in MRI but MSCT did not confirm them.

CONCLUSION: After arterial Switch operation coronary events are not rare. Asymptomatic patients with an uneventful course after ASO may have coronary obstruction. While other noninvasive diagnostic tests are inconclusive, MRI and MSCT are a good diagnosis method. Protocol of diagnosis needs to be established.