P-176

Obstruction of the extracardiac conduit in children following the Fontan operation: Feasibility and results of percutaneous transcatheter stenting

Udink ten Cate F.E.A. (1), Emmel M. (1), Bangen U. (1), Menzel C. (2), Trieschmann U. (2), Bennink G. (3), Sreeram N. (1)
Department of Pediatric Cardiology, Heart Center Cologne, University Hospital of Cologne (1), Department of Anesthesiology and Postoperative Intensive Care, University Hospital of Cologne (2), Department of Cardiac Surgery, Heart Center Cologne, University Hospital of Cologne, Cologne, Germany (3)

Objectives: An increasing number of Fontan patients have been reported with a significant obstruction of their extracardiac tunnel. No study has systematically examined the feasibility and the results of percutaneous transcatheter stenting of the extracardiac conduit in these patients.

Method: Our institutional database was searched to identify all Fontan patients with a significant obstruction of their extracardiac conduit who underwent percutaneous transcatheter stenting. Medical records, cardiac catheterization data, and echocardiographic investigations were reviewed.

Results: From 2011 to 2013, 10 transcatheter stenting procedures of the extracardiac conduit were performed. Patients presented with protein-losing enteropathy (n = 7), exercise intolerance (n = 2), and cyanosis (n = 1). An obstruction was suspected on echocardiography in only 4/10 patients. Median age at cardiac catheterization was 4.2 years (range 2.4 – 10.2 years). The median size of the stenosed area was 41 % (range 28 - 85 %). Collateral vessels were seen in 8/10 patients. We implanted 12 bare metal stents (Palmaz 4014 or 308) in 10 patients. The stents were balloon-dilated to the original size of the implanted extracardiac conduit (n = 16 mm in 7 patients, n = 18 mm in 3 patients). A unobstructed extracardiac conduit was established in all patients. No procedural complications occurred. A re-intervention was needed in 1 patient. The median follow-up after stenting was 8 months (range 1 – 12 months). Clinical improvement and reduction of edema was noted in all patients. However, relapses of protein-losing enteropathy occurred in all.

Conclusion: A significant obstruction of the extracardiac conduit can be encountered in a subset of patients early after Fontan completion. The feasibility and acute results of percutaneous transcatheter extracardiac conduit stenting are promising and should be recommended as the first line of treatment.