

## **Transcatheter Interventions After Glenn Anastomosis and Fontan Operation in Patients with Univentricular Heart**

*Celebi A., Yucel I.K., Bulut M.O., Balli S., Oner T., Basar E.Z., Kucuk M.  
Dr. Siyami Ersek Hospital for Cardiology and Cardiovascular Surgery, Department of Pediatric Cardiology, Istanbul, Turkey*

**Introduction:** We aimed to present transcatheter treatment of patients with a single ventricle physiology, experiencing low cardiac output (LCOS) or severe systemic desaturation (SSD).

**Method:** We retrospectively evaluated 33 patients between 2007 and 2016.

**Results:** The mean age was 7.6 years (6 months-21 years) and the weight was 25.2 kg (6-54). The procedures were performed after a Kawashima, Glenn and Fontan surgery in 3, 12 and 18 patients, respectively. SSD was encountered in 17. Amongst these patients, closure of a Fontan fenestration was performed in 9. We occluded a decompressing vein in 5 and a pulmonary arteriovenous fistula closure in one. Closure of a residual right SVC-atrium connection was performed in one and stent implantation to reroute the hepatic blood flow to the right lung in one, after a Kawashima operation. The oxygen saturation of  $79.3 \pm 8.1$  % increased to  $92.2 \pm 5.6$  and the PA pressure increased from  $11.9 \pm 2.2$  mmHg (8-16) to  $13.5 \pm 2.1$  mmHg (10-17). LCOS and / or increased PA pressure was detected in the remaining 16. One was on an ECMO support. Amongst these 16 patients, antegrade pulmonary flow (APF) was occluded using a number of devices in 7, APF was closed with the use of a covered stent, resolving an associated left PA stenosis at the same time in one. Among 5 patients suffering from branch PA stenosis, 4 received stent implantation while the remaining was treated via cutting balloon angioplasty. Two separate stents were needed to treat branch PA and extracardiac conduit stenosis in one. In the patient on ECMO, Fontan fenestration was dilated with a balloon to ensure cardiac output at the expense of systemic desaturation. Fenestration was created in one. In patients with LCOS, the PA pressure decreased from 20.6 mmHg (15-27) to  $14.9 \pm 1.8$  mmHg (11-18). There was no procedural mortality. Circulatory failure regressed in all except one.

**Conclusion:** To avoid reopening of the APF surgeons should not only ligate but divide the PAs from the ventricle. In the presence of LCOS or SSD, urgent catheterization should be considered. Significant PA stenosis should be treated even if there exists no pressure gradient throughout the circulation