

O1-3

**Performance of a self-expanding stent specifically designed for percutaneous arterial duct stenting for the “Gießen hybrid” procedure for primary treatment of complex congenital heart defects**

*Kerst G., Mienert T., Khalil M., Yerebakan C., Akintürk H., Schranz D.  
Pediatric Heart Center Giessen, Justus-Liebig-University, Giessen, Germany*

**Objectives:**

To report on our 5-year single-center experience with a specifically designed self-expanding stent for the arterial duct for the “Gießen hybrid” procedure in complex congenital heart disease (CCHD).

**Methods:**

Retrospective and prospective evaluation (December 2010 to December 2015) of implantation and performance of the self-expanding, Sinus Superflex-DS (Opti-Med).

**Results:**

52 newborns underwent the “Gießen hybrid” procedure with uneventful percutaneous arterial duct stenting for primary treatment of CCHD (hypoplastic left heart syndrome/complex (HLHS/HLHC), n = 30/16; others, n = 6) at a median age of 6 days (range 1 – 50) with a median weight of 3.0 kg (range 1.9 – 4.4; n = 9 ≤2500g) and a median Aristotle score of 17.0 (range 14.5 – 21.5). Implantation of a second stent to completely cover the arterial duct was necessary in 8 patients. Duct restenosis treated by balloon dilation and/or implantation of a second stent occurred in 13 patients. 26 patients underwent comprehensive stage II palliation, 10 received biventricular repair, 13 are on inter-stage of which 3 are planned for biventricular repair. Heart transplantation was performed in two patients (pt #1 with severely hypoplastic ascending aorta and signs of cardiac ischemia, pt #2 with HLHC and non-compaction cardiomyopathy). Inter-stage mortality occurred in one patient with hypoplastic left heart syndrome and coarctation of the aorta due to cardiac ischemia.

**Conclusions:**

The Sinus-Superflex-DS received a CE-mark for percutaneous arterial duct stenting in newborns. The low profile and open cell design allows usage with low risk and is easily positioned by arterial access through a 4 Fr sheath. However, in some cases the low radial power of the self-expanding stent requires balloon re-dilation.