

**Aortic arch restenosis rate after the Norwood procedure with polytetrafluorethylene patch**

*Sames-Dolzer E., Kreuzer M., Mair Ro., Gierlinger G., Prandstetter C., Grohmann E., Tulzer G., Mair R.*

*Children's Heart Center, Linz, Austria*

**Objectives:** Children with hypoplastic left heart syndrome need a complex aortic arch reconstruction during the Norwood procedure using the native hypoplastic vessel, the pulmonary artery and an additional enlarging patch. Depending on the technique used, this area is prone to aortic arch restenosis which can lead to either catheter intervention or aortic arch reoperation.

**Methods:** Our retrospective single center study includes 104 patients who underwent a Norwood procedure using a curved polytetrafluorethylene patch cut out of a vascular prosthesis. The resulting patch is curved in two planes and enables an anatomically formed reconstruction. This patch was sewn into the inner curve of the neo-aortic arch using 6/0 prolene. This material was earliest used in 4/2007 and similarly implanted as a homograft patch. The median age at operation was 8 days, median patient weight was 3,4 kg. 29% of the patients had an aortic atresia. Patients were followed until 8/2018 and the restenosis rate during follow up was assessed. Postoperative anatomy was examined echocardiographically and invasively before the bidirectional Glenn operation and Fontan procedure.

**Results:** The median bypass time was 201 min, median aortic cross clamp time was 71 min. Rethoracotomy because of early postoperative bleeding was necessary in 4% of the patients. The 30 days mortality rate was 4,8% and the late mortality rate during the follow up period of up to 11 years was 13,5%. During the median observation period of 5,2 years only one patient (1%) showed an early aortic arch restenosis that was treated with a balloon dilatation at the age of 12 months and later with a stent implantation. At the age of now 10 years she has no residual gradient. One patient underwent a correction of a kinking stenosis at the level of the ascending neo-aorta at time of the Fontan procedure. Apart from this, there was no aortic reoperation in the patient population. Three patients are lost to follow up.

**Conclusions:** The curved polytetrafluorethylene patch in the neonatal aortic arch of a Norwood reconstruction shows an excellent longterm performance with a minimal reintervention rate during longterm follow up.