

Use of Amplatzer vascular plug II device to occlude different types of patent ductus arteriosus in pediatric patients

Tanidir I.C., Atik S.U., Sahin M., Topkarcı M.A., Guzeltas A.
Saglik Bilimleri University, Mehmet Akif Ersoy Thoracic and Cardiovascular Surgery Center,
Department of Pediatric Cardiology, Istanbul, Turkey

Objectives To evaluate the outcome of the Amplatzer Vascular Plug II (AVP II) for closure of patent ductus arteriosus (PDA) in children.

Methods All patients undergoing transcatheter closure of PDA with AVP-II from June 2014 to November 2018 were retrospectively evaluated. Clinical, angiographic, and echocardiographic data were analyzed.

Results Eighty-four procedures were performed. Amplatzer Vascular Plug II was used in 81 patients. Median age was 24 months (3 months–16.8 years) with median weight 13 kg (4.2–72). The morphological PDA classification was Type A in 37(45.6%), Type B in 1(1.3%), Type C in 17(21%), Type D in 1(1.3%) and Type E in 25(30.8%). The median minimum, maximum PDA diameter and length were 3.1 mm, 8.4 mm and 12 mm, respectively. The implanted AVP II device sizes were: 6 mm in 5/81(6%), 8 mm in 43/81(53%), 10 mm in 25/81 (31%), 12 mm in 1/81(1%), 14 mm in 5/81(6%) and 16 mm in 2/81(3 %) procedures. The implanted device was mean of 2.8(1.7-6.8) times the ductus narrowest diameter and mean of 1(0.4-3.2) times the ductus largest diameter in successful procedures. The median procedure and fluoroscopy time was 25 minutes and 4.6 minutes. In 12(15%) patients closure was performed from the arterial side and in 69(85%) venous access was used. All procedures except one were successful; among successful procedures 100% 'in-lab' and 100% closure on post-procedural echocardiogram was achieved. In two (2.5%) patients, the device was embolised; one patient underwent surgery and in the other patient, 8mm device was retrieved and a 10 mm device was implanted on the next day. Left pulmonary artery stenosis was observed in three (3.5%) patients; one patient underwent surgery and the degree of pulmonary stenosis was mild in two. Aortic obstruction observed in only one patient with 15 mmHg gradient.

Conclusions The AVP II seems to be an effective and safe device for PDA closure in children. It is particularly useful in type C and E ductus and in small infants where it eliminated the risk of device related aortic obstruction.

