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

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Objectives: To evaluate the outcome of the Amplatzer Vascular Plug II (AVP-II) for closure of the patent ductus arteriosus (PDA) in children.
Methods: All patients undergoing transcatheter closure of PDA with AVP II from June 2013 to November 2015 were retrospectively evaluated. Clinical, angiographic, and echocardiographic data were analyzed.
Results: Twenty procedures were performed in 19 patients. Median age was 18 months (6–202 months) with median weight 9.9 kg (5.1–63). The morphological PDA classification was Type A in 4/19 (21%), Type C in 14/19 (74%), and Type E in 1/21 (5%). The median minimum PDA diameter, maximum and length was 3.24 mm (1.7-4.7 mm), 8.47 mm (3.3-17 mm), and 12.79 mm (11-21 mm) respectively. The implanted device sizes were: 6 mm in 3/20 (15%), 8 mm in 9/20 (45%),and 10 mm in 8/20 procedures (45%),The implanted device was mean of 2.97±0.87 times the ductus narrowest diameter and mean of 1.03±0.36 times the ductus largest diameter in successful procedures. The mean procedure and fluoroscopy time was 35 minutes (15-60 minutes) and 8.4 minutes (3.1-12.8 minutes). In four patients closure was performed from the arterial side. All procedures except one were successful; among succesfull procedures 100% ‘‘in-lab’’ and 100% closure on post-procedural echocardiogram was achived. No left pulmonary artery stenosis and aortic obstruction observed with a median follow-up duration of 9 months (0-29 months).
Complications: In one patient device had to remove due to pulmonary hypertensive crisis. And in the last patient 8 mm device was embolized in to the pulmonary artery due to ductal spasm which caused underestimation of the duct. And on the next day 8mm device was retrieved and a 10 mm device was implanted.
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.