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Initial experience of percutaneous PDA closure in preterm and low birth weight infants.

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Background
Percutaneous PDA closure is a routine procedure with low complications rate. It is the gold standard treatment for children over 6 kg. There are increasing reports of PDA closure in low weight babies. We report our initial experience in this specific population.

Material and methods
From March 2014 until October 2016, all preterm or low birth weight infants with percutaneous PDA closure were included. Demographic and procedural data and complications were reviewed.

Results
23 patients were included. Mean gestational age was 30 weeks (+/- 4). Mean birth weight was 1.38 kg (+/-0.7). Mean age at the PDA closure was 50 +/-29 days. Mean weight was 1.9 kg (+/-0.75, min 0.8-max 2.9). 13 patients were below 2000 g. PDA was tubular in 18 patients. 7 patients with weight above 2,5 kg had arterial and venous accesses. 14 patients had venous access only and 2 patients had arterial sheathless access only. Devices used were ADO II AS in 20 patients, coil in 1 and Microvascular Plug Q5 in 2. Procedure was conducted with fluoroscopy and echocardiography. Mean procedural and fluoroscopy time were respectively 24+/-7 and 4,3 +/-2 minutes (3.6 minutes in patients <2000 g). Mean radiation exposure was 8.9 +/- 11.5 mG and 21.4 µGm2 (+/-26). Mean dye injection was 6.7 ml (+/- 5) (3 ml in patients <2000g). There was one perprocedural coil embolisation with successful retrieval and further closure with ADOII AS 4*2. There were no access complications, no post procedural blood transfusion, no renal failure and no death. One transient myocardial incompetence required dobutamine infusion for 48 hours. Follow up echocardiography confirmed absent LPA or aortic arch obstruction. We gradually modified our technique to adapt to very small babies below 1000G. We used shorter device over time. Radiation exposure was decreased by using low frame rate fluoroscopy and avoiding cine angiography. We had no complication.

Conclusion
Percutaneous PDA closure is a very good alternative to surgery in small infants. With an adapted technique, it can be performed with good early and mid term results. Transcatheter technique might become first line treatment of PDA closure in low weight patients.