LOWER EXTREMITY ARTERIAL FUNCTION IN CHILDREN AT RISK FOR ARTERIAL INJURY AFTER CARDIAC CATHETERIZATION

Poster Contributions
Hall C
Saturday, March 29, 2014, 3:45 p.m.–4:30 p.m.

Session Title: Pediatric Interventional Cardiology
Abstract Category: 10. Congenital Heart Disease: Pediatric
Presentation Number: 1153-264

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Background: Arterial injury is a known complication after pediatric cardiac catheterization, particularly for infants <6 months. Longer-term sequelae of arterial cath in these patients have not been studied. We sought to characterize lower extremity arterial function in children at-risk for arterial injury after cath.

Methods: A cross-sectional assessment of lower extremity arterial function was performed in a cohort of children >1 year after arterial cath (performed at age <6 mos), including parental claudication questionnaire, exam, anthropometry, and vascular Doppler ultrasound (US).

Results: 119 children were studied at median follow-up of 4 (range: 1.2 - 6.8) years after first arterial cath, at 4.3 ± 1.7 years of age and 16.2 ± 4.2 kg. Symptoms suggestive of claudication were reported in 27%. For the overall cohort, the cathed leg more frequently had a weaker pulse (≥2 grades of pulse amplitude asymmetry, 7.6% v. 1.7%, p=0.03). There were no differences in blood pressure indices or anthropometric measures between legs. The cathed leg had significantly lower peak systolic velocity (PSV) in the superficial femoral artery (SFA) (p=0.002), lower pulsatility (p=0.007) and resistive (p=0.02) indices in the common femoral artery (CFA) and higher prevalence of pulse waveform abnormality (34% v. 20%, p=0.006). For the 33 subjects with known post-cath thrombus, the cathed leg had a weaker pulse (9.1% v. 0%, p=0.0006), smaller thigh and calf circumferences (p=0.05), lower PSV (p=0.002), lower pulsatility and resistive indices in the SFA (p=0.04), and more prevalent CFA pulse waveform abnormalities (p=0.008). 9 patients (7.6% of cohort) had ≥2 cm limb length discrepancy. In 8/9, the shorter leg was previously cathed.

Conclusion: In children at-risk for post-cath arterial injury, clinical abnormalities in the cathed leg were infrequent, although femoral artery flow disturbances were seen by US. In a subset with known post-cath thrombus, however, there were significant clinical differences in the cathed leg, including limb length discrepancy. This suggests that, while sub-clinical injury may not occur, patients with post-cath thrombus may be at increased risk for longer-term sequelae.