Pediatric renal artery stenosis: a 19-year experience in management and outcomes at a tertiary pediatric hospital

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Purpose: Renal artery stenosis (RAS) is an uncommon cause of pediatric hypertension. Guidelines for the work up and management of pediatric RAS have not been established. The most widely reported etiology of pediatric renovascular disease has been fibromuscular dysplasia (FMD); however, other etiologies, including middle aortic syndrome and vasculitides have been described. We reviewed cases of pediatric RAS at our institution in order to identify etiologies, management, and long-term clinical outcomes of pediatric renal artery stenosis in our population.

Materials and Methods: Imaging reports for 984 children were identified as part of evaluation for RAS (female: 25 [60%]; male: 17 [40%]; mean age: 9.7 years [range 0.04-17]). Forty-two patients were found to have evidence of RAS based on screening imaging (Duplex 93%; MRA/CTA 7%) though 4 had normal findings on repeat exam. Of the 38 patients found to be positive on imaging, 34.8% (n = 13) required intervention for their disease. Unexpectedly, only 16% (n = 2) of patients had FMD. Interestingly, 58% (n = 7) of patients had concomitant RAS and aortic pathology (4 middle aortic syndrome; 2 thoracoabdominal vasculitis; 1 aortic thrombus). Long-term follow up (33.8 months) of the conservative management cohort reported the following outcomes: 20.6% had spontaneous resolution of HTN, 20.6% were managed with lifestyle modifications, 44.8% were managed with medical therapy, 13.7% were lost to follow-up or died.

Conclusions: Pediatric renal artery stenosis is a low frequency disease and long-term outcomes have been underreported. The incidence of associated aortic pathology in our intervention cohort appears higher than previously reported in the literature. Long-term follow up of the conservative management cohort demonstrated that up to 40% of patients could be managed successfully without any therapy.

Pediatric interventional radiology workforce in North America: a descriptive analysis of demographics, educational backgrounds, and scholarly activities

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Purpose: To analyze the demographics, academic background, and scholarly activity of pediatric interventional radiologists (PIRs) across the United States (US) and Canada

Materials and Methods: A list of all members of the Society for Pediatric Interventional Radiology was obtained, and PIRs at academic and private practice institutions in the US and Canada were included. Publicly available online sources were used to gather demographic and educational information, including online curriculum vitae, HealthGrades.com and Doximity.com websites, and Elsevier’s Scopus database. Demographic and educational data such as age, gender, education, academic rank, prior leadership positions, and metrics of scholarly activity were recorded. Fellowships in diagnostic pediatric radiology, adult interventional radiology, and/or pediatric interventional radiology were recorded. Mann-Whitney U and Kruskal-Wallis tests were used to compare the differences between groups.

Results: A total of 125 pediatric interventionalists were included, of which 24 (19.2%) were female. The mean age was 48.59 years (SD 10.58, median 45, range 36-82). There was no statistical difference between median age for male versus female PIRs (44.5 vs 45, P = 0.89). A majority of PIRs were American medical school graduates (AMG) (96, 76.8%), while 29 (23.2%) were international medical graduates (IMGs). Eighty-three percent (104) of PIRs completed diagnostic radiology residency in the US, most commonly at the University of Cincinnati (6.4%) and University of Washington at St. Louis (5.6%). Amongst fellowship training, pediatric interventionalists had completed a pediatric radiology fellowship (61.6%), adult interventional radiology fellowship (40%) and/or a dedicated PIR fellowship (57.6%). The mean (and median) publication, citations and h-index for pediatric interventionalists was 31.63 ± 44.84 (12), 668.2 ± 1316.57 (120) and 9.18 ± 10.07 (5), respectively. There was a statistically higher number of publications, citations and h-index with increasing academic rank at assistant, associate and professor levels (P< 0.001 for all groups). IMG PIRs had a higher, but not statistically significant median publication count (26 vs 11, P = 0.25), citation count (236 vs 93, P = 0.35) and h-index (9.0 vs 4.5, P = 0.24), compared to AMG PIRs.

Conclusions: Pediatric interventionalists in North America are predominantly male, with about a quarter having graduated from international medical schools. Pediatric radiology fellowship followed by PIR fellowship was the most frequently pursued training pathway.