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A Radiological Study of Renal Artery Pathologies by Renal Doppler, CT Renal Angiogram and Non-Contrast Resonance Renal Angiogram

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Abstract

Background: Renal artery pathologies are important causes of uncontrolled hypertension, accelerated hypertension, and the presence of hypertension in the younger age group. It has been found that carotid and coronary artery disease co-exists with renal pathologies. **Aim:** The present study aimed to evaluate the performance of Renal Doppler, Computed Tomographic Renal Angiography, and Non-enhanced Magnetic Resonance Renal Angiography for diagnosis of renal pathologies. **Methods:** This is a prospective comparative study was done at the Department of Radio-Diagnosis, Prathima Institute of Medical Sciences, Nagunur, Karimnagar, Telangana State. Initially, the Doppler examination was performed on suspected patients of reno-vascular hypertension and interpretations were made. Then after looking at the renal parameters the patient is subjected to CTA, NE MRA, or both. N=53 patients who are clinically suspected of renal artery pathologies were included in the study. **Results:** Out of the total n=53 patients, atherosclerosis was diagnosed among n=10 patients, of them the maximum number belongs to the male population (n=6). Vasculitis is diagnosed in n= 9 patients of them the maximum number belongs to the female population (n=8). Atherosclerotic disease (n=10) was more found in the above 60 years age group population, vasculitis is more seen in the 21-40 years age group. Variant or accessory renal arteries are more found in the 41-60 years age group. Among n=20 patients with renal artery stenosis, 60% (n=12) are having bilateral main renal artery stenosis, 40% (n=8) are having unilateral main renal artery stenosis. **Conclusion:** The results of present study concluded that ultrasound renal Doppler and non-contrast magnetic resonance renal angiography can be used as initial screening modalities to evaluate renal artery stenosis, with NC-MRA having slightly high sensitivity and specificity, US renal Doppler allowing for functional analysis and CTA is the best modality of choice to characterize the pathology and to visualize variant anatomy when compared with ultrasound renal Doppler and non-contrast MRA.