Prevalence and risk factors of renal artery stenosis in South Asian patients with type 2 diabetes using renal angiography

Sir,

Renal artery stenosis (RAS) is associated with increased risk of refractory hypertension and progression of kidney disease, but may be difficult to distinguish from diabetic nephropathy in patients with type 2 diabetes (T2DM) due to nearly similar clinical and biochemical features.

The prevalence of RAS was evaluated in a cohort of South Asian patients with T2DM undergoing angiography for investigation of coronary artery disease and to identify clinical characteristics. Patients with known vasculitis, RAS, serum creatinine level >3.3 mg/dl or on renal replacement therapy were excluded. Coronary artery lesions of ≥50% narrowing of the luminal diameter were classified as significant. RAS was defined as ≥50% narrowing of the luminal diameter.

There were 249 South Asian patients with T2DM (mean age 58 ± 9 years, 167 [67.1%] males). The mean duration of T2DM was 10 ± 7 years; 79 (32%) patients were on

insulin therapy; 15 (6%) were on ≥3 anti-hypertensive agents; 61 (24.5%) were smokers; 186 (74.7%) had a serum creatinine of 1.5-3.3 mg/dl and the rest had a serum creatinine of <1.5 mg/dl; 210 (83.3%) patients had at least one coronary vessel involved.

A total of 60 patients (24.1%) had a significant RAS, of which six had bilateral involvement. Patients with RAS were older (62 ± 7 vs. 57 ± 9 years, $P < 0.001$), had a longer duration of T2DM (14 ± 6 vs. 8 ± 6 years, $P < 0.001$), were more frequently on insulin (68.3% vs. 20.3%, $P < 0.001$), more likely to be on ≥3 antihypertensive agents (23.3% vs. 0.5%, $P < 0.001$), smoked (41.7% vs. 19.1%, $P < 0.001$), had a significant coronary disease (98.3% vs. 79.4%, $P < 0.001$) and had a serum creatinine of >1.5 mg/dl (55% vs. 16%, $P < 0.001$). There was no significant difference in gender. Age, duration of T2DM, use of insulin, use of ≥3 anti-hypertensive agents and serum creatinine >1.5 mg/dl were independent and significant predictors of RAS on multivariate analysis. Every additional year of T2DM conferred an 11% increased risk of RAS. The use of insulin conferred an odds ratio of 8 of having RAS. Results are summarized in Table 1.

The presence of T2DM as an independent predictive factor of RAS has been controversial, but many of these studies evaluated the risk of RAS in patients with T2DM as a subgroup analysis rather than a study population.[1-4] The possible pathophysiology between an independent correlation between use of insulin and RAS is unknown.

Our study evaluates the prevalence of RAS specifically in adults with T2DM using the definitive gold standard. Captopril nuclear scans to determine the functional significance of these angiographically detected lesions would have been useful.[5] Findings may not be extrapolated to the entire population with T2DM as our study population were of South Asian descent with high suspicion of coronary artery disease. The workup for the cause of nephropathy was not collected.

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