

## Renal artery stenting of chronic kidney disease patient with resistant hypertension

To the Editor,

Resistant hypertension is a clinical entity presenting with uncontrolled blood pressure (BP) despite use of 3 or more antihypertensive drugs, including diuretic. Reno vascular hypertension related to renal artery stenosis (RAS) occurs in etiology of hypertension and affects up to 5% of all hypertensive patients (1). Fifty-five-year-old male patient was admitted to our clinic with uncontrolled BP. He was using several antihypertensive drugs, including diuretic. He had history of chronic kidney disease and untreated renal artery stenosis. He had residual amount of 500 mL daily urine output. We wanted to evaluate his residual renal function with diuretic administration. We increased daily urine output up to 1500 mL with furosemide and this encouraged us to pursue renal artery intervention. Renal angiography revealed moderate stenosis of right renal artery and severe stenosis of left renal artery. We implanted a 4.0x15 mm bare metal stent in left renal artery. BP responded immediately after intervention and we were able to discontinue antihypertensive drugs. Daily urine output increased up to 1000 mL without diuretic. Hemodialysis sessions were decreased to 2 days per week.

RAS primarily causes significant reduction in renal blood flow and is notable factor in development of progressive kidney failure. Atherosclerotic RAS patients present with persistent and progressive reduction in glomerular filtration rate, treatment resistant severe hypertension, and recurrent episodes of flash pulmonary edema. Pathogenesis of chronic kidney disease progression due to RAS is assumed to be more complex than just arterial narrowing. Different cytokines and chemokines related to stimulation of

renin-angiotensin-aldosterone system (RAAS) may play a role in further development of renal ischemia (2). Recent studies have indicated that medical treatment should be mainstream choice for management of RAS patients. No difference was found in renal or cardiovascular adverse events between “medical therapy and renal artery stenting” and “medical therapy alone” groups in Cardiovascular Outcomes in Renal Atherosclerotic Lesions study; however, this study investigated medically under control, normotensive renal artery stenosis patients (3). Indications for renal artery stenosis intervention in chronic kidney failure in cases of uncontrolled resistant hypertension are debatable. Resistant hypertension is a commonly seen problem in chronic kidney disease patients and cardiovascular outcomes of these patients are poor. Residual kidney mass may be source of RAAS stimulation and chemokine release. Bilateral nephrectomy is best known way to control resistant hypertension and to decrease adverse cardiovascular event rates (4). Nephrectomy is well-known choice of treatment for resistant hypertension in chronic kidney disease; however, this is surgical procedure with its own risks related to operation. We thought that if potential of residual kidney tissue could be evaluated it would clear out the benefit of renal artery revascularization (5).

Resistant hypertension is a problematic clinical entity closely related to poor cardiovascular outcomes in chronic kidney disease patients. Renal artery stenting can be a good choice instead of bilateral nephrectomy in selected patients.

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