



Renal Artery Stenosis: A Chronic Kidney Disease

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Description

Renal artery stenosis means the narrowing of the one or both of renal arteries. Renal artery stenosis is the major cause of hypertension according to some reports. Atherosclerosis most often causes hypertension. Other associated complications of renal artery stenosis are Chronic Kidney Disease (CKD) and end-stage renal failure. In more than 90% of the cases, renal artery stenosis is caused by atherosclerosis, a process in which plaque composed of fats, cholesterol, and other materials builds up on the walls of the blood vessels, including those leading to the kidneys. Rarely, renal artery stenosis can be caused by fibromuscular dysplasia, in which the cells in the walls of the arteries undergo abnormal growth, result in the narrowing of the arterial wall leading to the renal hypertension. Commonly seen in women and younger people, fibromuscular dysplasia is curable. Other risk factors include age, gender hypertension, vascular disease, chronic kidney disease, diabetes, using tobacco and having an abnormal cholesterol profile levels. Symptoms of renal artery stenosis usually do not cause any specific symptoms. The first sign of renal artery stenosis is high blood pressure that is extremely impossible to control, and elevated blood pressure even damage the other organs. Dyslipidemia, cigarette smoking, viral infection, immune injury, or increased homocysteine levels are the initiators of the endothelial injury which leads to the subsequent proliferation of endothelial cells and smooth muscle cells which results in formation of atherosclerotic plaque. Renal blood pressure is significantly greater than the perfusion to other organs, along with glomerular capillary hydrostatic pressure is an important determinant of the Glomerular Filtration Rate (GFR). Renin enzyme

has an important role in maintaining homeostasis which converts angiotensinogen to angiotensin I. Angiotensin I in turn converts to angiotensin II with the help of an Angiotensin-Converting Enzyme (ACE) in the lungs which is responsible for vasoconstriction of the arterial walls and release of aldosterone which causes sodium and water retention, thus results in secondary hypertension. Therefore loss of renal function in renovascular disease and consequence of antihypertensive therapy can reflect a subsequent narrowing of the renal arteries. Eventually, parenchymal injury becomes an irreversible process. At this point, recovery of renal function is clinical impossible. Differential diagnosis includes acute kidney injury, azotemia, chronic glomerulonephritis, hypersensitivity nephropathy, hypertension, malignant hypertension, nephrosclerosis, uremia and renovascular hypertension. Diagnosis of Renal Artery Stenosis includes Blood tests and urine tests to evaluate function of the kidney, Kidney ultrasound, through sound waves size and structure of the kidney can be evaluated. Doppler ultrasound method, used to measure the blood-flow speed in arteries to the kidney. Computed Tomography angiogram (CT angiogram) provides detailed images of the heart and the blood vessels that go to the lung, heart, brain, head, neck, kidneys, legs, and arms. Procedures to treat renal artery stenosis may include renal angioplasty and stenting and renal artery bypass surgery. Renal angioplasty, widen the narrowed renal artery and place a stent inside the blood vessel that holds the walls of the vessel open and allows the blood flow. During a bypass procedure, graft a substitute blood vessel to the renal artery makes a new route for blood to the kidneys. Maintain a healthy weight, restricting salt, stress reduction, quit smoking and alcohol, being physically active may reduce the chances of renal artery stenosis.

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