

Kidney disease dramatically affects whether patients should undergo vascular interventions

Kidney disease is a significant risk factor for poor outcomes following vascular surgery, and should be taken into consideration when evaluating patients for elective vascular interventions. Patients with kidney dysfunction who are recommended intervention by a vascular specialist should ask about the impact of kidney disease on their prognosis, and how their physician plans on addressing this aspect of their care.

Examples of vascular disease include abdominal aneurysms, carotid artery narrowing, and peripheral arterial disease; all of which can be treated with open as well as endovascular procedures. Regardless of approach, numerous research studies have shown that the worse a patient's kidney function is, the worse that patient does after vascular intervention. Patients whose kidneys have failed and require dialysis do especially poorly. There are times when the risks of surgery do not outweigh the potential benefits from a vascular procedure, especially when the procedure is being done to prevent a bad outcome from an asymptomatic condition, such as rupture from an aortic aneurysm or stroke from carotid narrowing.

For example, patients with poor kidney function have twice the risk of dying after an elective abdominal aortic aneurysm repair than patients with normal kidney function. Patients with pre-existing kidney disease also have a higher risk of developing even worse kidney function following vascular surgery. This is important as poor kidney function, in general, and especially poor kidney function after an operation, predicts a shorter life expectancy. The risk of rupture of a 5.5 cm abdominal aortic aneurysm is usually less than the risk of death from repair in patients with kidney disease, so repair should not be recommended at this size. As aneurysms enlarge, the risk of rupture increases, so patients with kidney disease and larger aneurysms (greater than 6.0 cm) should be reconsidered for repair, preferably via the less invasive endovascular approach if they are a candidate for this. This method of repair is preferable because of the decreased risks of death and complications associated with endovascular aneurysm repair compared to open surgical repair.

Similarly, the reduction in risk of stroke from carotid artery narrowing in asymptomatic patients with poor kidney function is much less than the risks of complications after carotid intervention. Therefore medical management should be the primary approach for asymptomatic patients with both carotid and

kidney disease. Patients with mildly symptomatic peripheral arterial disease and kidney disease who have intermittent claudication, or pain in the legs with walking, should also be treated with medical management rather than vascular intervention.

Although patients with kidney disease have poorer outcomes after interventions for carotid disease,

patients with acute stroke do even worse with medical therapy alone, suggesting that these symptomatic patients should still get carotid intervention after acute stroke or mini-stroke. Likewise, patients with kidney disease and advanced peripheral arterial disease leading to symptoms such as gangrene or non-healing ulcers have a higher rate of amputation with medical management than with vascular intervention. As these patients have a very limited overall life expectancy, endovascular approaches that are less invasive but have poor durability may be preferred over more invasive open surgical procedures.

The presence of kidney disease worsens outcomes for all vascular interventions. The worse the kidney disease, the worse the outcomes are for the patients. Therefore, poor kidney function is an important factor in determining whether to proceed with any form of vascular intervention.

Publication

[The impact of chronic renal insufficiency on vascular surgery patient outcomes.](#)

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