

RENAL ARTERY STENOSIS – ANGIOPLASTY AND STENTING

Information for patients

Introduction

- Renal artery (artery to the native or graft kidney) can become narrowed as a result of various causes, the commonest being atherosclerotic disease and fibromuscular dysplasia in native kidney. In graft kidney, the narrowing usually occurs at the surgical anastomosis. This could lead to long term problems such as high blood pressure and progressive deterioration in kidney function.
- The objective of renal angioplasty and/or renal stenting is to re-open this narrowed segment of the artery and thereby re-establish normal blood flow with intention to normalize the blood pressure and/or to improve the renal function. The artery to be treated could be that of a native or graft kidney.
- Technical success rate is usually high (>80%).
- In over 70% of the patients who undergo such procedures for high blood pressure, their blood pressure would be successfully lowered.
- In over 40% of patients who undergo such procedures for worsening kidney function, the kidney function would be improved or stop deteriorating.
- Renal artery angioplasty and stenting would be performed in Department of Radiology, by radiologist(s) with special training in Interventional Radiology, under imaging guidance.

Procedure

- You would be required to withhold antihypertensive drugs on the day of the procedure.
- The procedure would be performed under local anaesthesia using aseptic techniques.
- A needle is usually inserted over the anaesthetized area in the groin, gaining access into common femoral artery. Followed by insertion of a plastic sheath, through which all subsequent procedures would be performed, hence further pain would be minimized at the skin entry site. The radial artery in the wrist is an alternative access for intervention.
- Assessment of the renal arteries would be made using standard angiographic techniques. Carbon dioxide or iodinated contrast medium could be used to show the arteries of interest.
- The size of a balloon catheter or the stent is measured.
- Heparin (a blood-thinning drug) would be given.
- A guidewire is inserted through the narrow lumen. Alternatively, a guidewire with a protective device in the distal tip may be used in suitable patients for protection of the kidney against cholesterol or clot embolization. The balloon catheter is introduced over the guidewire and the balloon is inflated, the stricture is thus dilated.
- If stenting is considered necessary, a metallic stent will be inserted through a guiding catheter, with periodic angiogram through the guiding catheter to check the correct position before final deployment of stent.

- Thereafter, repeat angiogram would be performed to assess the result of the treatment.
- The procedure usually takes 1 – 2 hours.
- After the procedure, pressure would be applied to the puncture site wound to stop bleeding. Alternatively, a puncture-site closure device would be used. You would then be transferred back to the ward where your vital signs would be monitored regularly.
- You will have to take aspirin to prevent early occlusion of the artery or stent. Additional anti-platelet drugs like Plavix may be given to you.
- Your antihypertensive drugs will be adjusted.

Potential Complications

Complications occur in approximately 10% and most are minor.

- Haematoma at puncture site.
- Minor complications
 - arterial spasm
 - Transient renal insufficiency (< 6%)
 - Recurrence of the narrowing of the artery.
- Major complications (3 – 11%)
 - Subintimal dissection of the renal artery
 - Thrombosis of renal artery (1%)
 - Distal embolization (either small blood clot or cholesterol emboli) to lower limb or small renal branches (3.3%)
 - Rupture of renal artery (1 – 2%)
 - Complications requiring nephrectomy (1%)
 - Deterioration of renal function requiring dialysis (1%)
 - Systemic bleeding due to heparin, aspirin or other anti-platelet agent (rare)
 - Procedure related death (<1%)
 - The overall adverse reactions related to iodine-base contrast medium is below 0.7%. The mortality due to reaction to non-ionic contrast medium is below 1 in 250000.

Disclaimer

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