Tip of the month:

Tip 7 (October 2010)

Treating hypertension patients with stage 3 chronic kidney disease (CKD-3)

There is a large pool of patients with hypertension and CKD 3 (GFR 30-59 ml/min). Most of these individuals do not have an underlying primary renal disease and are labelled "hypertensive nephrosclerosis". Many of them are elderly, and the majority do not get to renal clinics.

There are several important principles which influence management:

(1) Providing blood pressure is controlled to target (<130/80) the risk of progression to end stage renal failure is low.
(2) Achieving target blood pressure is difficult, both because of the 10/10 lower target, and because of the complex interacting causes of hypertension in CKD.
(3) Sodium handling abnormalities are virtually universal in this group and blood pressure target is seldom reached without appropriate diuretic therapy.
(4) They are at substantially increased risk of ischaemic heart disease and stroke, over and above a simple summation of their individual, measurable, cardiovascular risk factors. The reasons for this are yet to be fully elucidated, but it does appear that CKD 3 on its own is a substantial cardiovascular risk factor. Individuals with CKD 3 are at much greater risk of death form myocardial infarction or stroke than they are of requiring dialysis.
(5) In CKD patients with significant proteinuria (> 1g daily) there is good clinical trial evidence that (for the same level of BP-lowering) use of drugs which block the renin-angiotensin system (ACE-inhibitors and angiotensin receptor blockers) slows progression of renal disease better than regimens which do not include these agents. Such evidence is lacking in patients with non-proteinuric renal disease.

So in practice what does this mean when I have the patient sitting in front of me?

- Smoking cessation is vital
- All should be on low dose aspirin
- All should be on as much statin as they will tolerate aiming for an LDL cholesterol < 2.0mmol/l
- Target blood pressure is < 130/80;- this usually requires a minimum of 3 drugs, often more, one of which should (almost always) be a diuretic
- Higher doses of diuretic are required at lower GFR's;- in general thiazides don't work well when the GFR falls below 40ml/minute and at that level need to be replaced by frusemide (BD dose starting at 20mg BD), or chlorthalidone which is a more potent thiazide-like diuretic and retains some efficacy down to GFR 30ml/min. If required the chlorthalidone dose can be increased to 50mg daily (from 25mg the usual maximum).
- The antihypertensive regimen if individuals with proteinuria > 1g/day should include a full dose of ACE-inhibitor, or ARB. However, because of the difficulty achieving blood pressure target in CKD patients, the majority will require an ACE-inhibitor or ARB as part of their regimen (whether proteinuric or not).

Further Reading

"Treatment of hypertension with chronic renal insufficiency or albuminuria". Chugh AR and Bakris GL. Hypertension Primer. 4th Ed 2008 Lippincott Williams and Wilkins (eds)pp522-525

"Renal Parenchymal Hypertension"Kaplan NM.Kaplan's Clinical Hypertension.9th Ed. 2006 Ed 2008 Lippincott Williams and Wilkins (eds)pp325-346