Secondary Hypertension

Welsh Kidney Club 'Quick Guide'

Resistant HTN is persistent HTN despite adequate doses of **three** anti-hypertensive agents from different classes including a diuretic, used concurrently

Consider if HTN difficult to manage, or if there are suggestive clinical features:

- Severe or resistant HTN including evidence of end organ damage e.g. retinal haemorrhage, papilledema, heart failure, neurologic disturbance, kidney injury
- An acute rise in BP, or newly BP developing in a patient with previously stable values
- Age <30 with no FHx, in patients who are not obese and not black
- Presence of associated electrolyte disturbances e.g. hypokalaemia or metabolic alkalosis
- Proven age of onset prior to puberty

Secondary Cause:	Suspect When:	Onward Investigation:
Renovascular Disease	SCr rise ≥30% one week after commencing ACEi/ARB Diffuse atherosclerosis Renal asymmetry >1.5cm Unilateral small kidney Recurrent flash pulmonary oedema Onset of stage II hypertension at age >55 years	Gold standard test: renal arteriography However the following may be performed based upon patient factors and institutional experience: - Duplex ultrasonography - CTA - MRA
Primary Renal Disease	Abnormal urinalysis Abnormal SCr	Onward renal workup
Medication e.g. OCP, NSAIDs, CNIs Stimulants (e.g. cocaine)	New HTN related to use	Consider stopping agent Monitor BP
Pheochromocytoma	Classic triad of (pounding) headache, palpitations and sweating Paroxysmal elevations in BP	24 hour urine metanephrines and catecholamines Consider Plasma metanephrines
Primary Aldosteronism	Unexplained hypokalaemia and urinary potassium wasting (More than half of patients have normal potassium levels)	Plasma aldosterone: plasma renin ratio > 30-50 Ideally measure off β blockers, ACEi/ARBs, NSAIDs, Spiro, other diuretics
Cushing's Syndrome	History of glucocorticoid use Cushingoid appearance	Elevated urinary free cortisol or elevated late-night salivary cortisol O/N Dexamethasone suppression test
Sleep Apnoea Syndrome	Common in patients with resistant hypertension, especially if overweight/obese Loud snoring, witnessed apnoea Daytime somnolence, fatigue, morning confusion	Raised PCO_2 on early ABG is suggestive Overnight polysomnography Epworth sleepiness score
Coarctation of the Aorta	HTN in the arms with diminished or delayed femoral pulses and low or unobtainable BP in the legs	Echocardiography Cardiac MRI CTA
Hypothyroidism	Symptoms of hypothyroidism	Elevated TSH, low free T4
1° Hyperparathyroidism	Elevated serum calcium	Elevated PTH