



Hypertension

Sept 2014

Epidemiology

Prevalence 25% population; >90% in those >80yrs; 1% patients with HTN suffer hypertensive crisis

Classification

Mild: 140-159/90-99
Mod: 160-179/100-109
Severe: >180/>110

Complications

Incr risk CVD

Management

Rapid reduction in BP - incr morbidity (eg. CVA)

Conservative measures: decr BMI (1mmHg decr/1kg loss); exercise; salt restriction; incr K in diet

Condition	1 st choice	2 nd choice
CCF	ACEi + diuretic	Beta-blocker
MI	ACEi or beta-blocker	Ca antagonist, diuretic
DM	ACEi	Diuretic
CRF	ACEi	

Indications for urgent management

Malignant HTN, pre-eclampsia, stimulant toxicity, aortic dissection

> 200/120 or evidence acute end organ dysfunction -start trt (lisinopril 10mg OD + thiazide diuretic)
discharge with FU within 1/52

>140/90 - advise FU; >160/100 - advise FU within 1/12; >180/100 - advise FU within 1/52

Drugs

Loop diuretic = frusemide: best if renal impairment

SE = hypoK/Na, hyperUr, rashes, tinnitus, vertigo, deafness

Thiazide diuretic

SE = hypoK/Na, hyperG/Ur, allergy

K sparing diuretic = spironolactone, amiloride

Used in mineralocorticoid XS (Conn's, CCF, hepatic cirrhosis, nephrotic syndrome)

SE = gynaecomastia, hyperK, hyperCl metabolic alkalosis

ACEi

Used in HTN, CCF, DM nephropathy; can worsen renal function if RAS; assoc with angioedema

SE = hyperK

Angiotensin II antagonists

As effective as ACEi, but less SE; caution in CCF and arrhythmias

Beta-blockers

Alpha and beta blockers - carvedilol

Ca antagonists

Hypertensive urgency

Markedly incr BP but no severe symptoms/progressive end organ damage

Management: control BP within 24-48hrs; decr MAP by 20%; use ACEi



Hypertensive emergency

Severe incr BP **>180/120** assoc with **acute and** progressive end organ damage

Pathophysiology

More common if HTN secondary to renal disease; rare if DBP <130; ET inj and mechanical wall stress - incr perm, activation of coagulation, deposition of fibrin - fibrinoid necrosis of arterioles

Causes

Usually acute exac of chronic; withdrawal of antihypertensives; worsened renal function; vasculitis; CT disorder; sympathomimetics; pheochromocytoma

Investigations

CT head, CXR, ECG, U+E, urinalysis. Cotton wool spots, retinal haemorrhages, papilloedema

Management (see Hypertensive Emergencies)

Decr BP aiming DBP 110, or 25% reduction in 12-24hrs; no more than 20-25% reduction in 1st hour; sit up; treat cause
Ischaemia / LVF

GTN 5-20mcg/min - titrate up every 5-10mins to max 200mcg/min

(venous>arteriolar vasoD, bronchoD)

SE = headache, syncope, metHb, **tolerance**; CI if on viagra

CVA/encephalopathy

Ischaemic CVA only trt if **>220/120**, ICH if **>180/110**. Aim <160/90

Labetalol 10-20mg IV over 1-2mins - 40mg IV at 10mins - 80mg IV at 10mins until target BP (to max 300mg) - INF at **1-8mg/hr** (1-3mg/kg/hr in children)

Pros: **alpha+beta blockade** (so less hypotension/tachy); onset 2-5mins; peak 5-15mins; duration 2-4hrs

Cons: CI if CCF, asthma, stimulant use

Aortic dissection

Na nitroprusside 0.1-10mcg/kg/min; arteriole and venoD

Pros: rapid onset, short HL

Cons: direct vasodilation so risk of reflex incr HR; SE = incr ICP (CI in CVA), XS hypotension, cyanide poisoning esp if >4hrs use; use with...

Esmolol: 500mcg/kg over 1min - can repeat at 2-5mins - 50mcg/kg/min titrated to effect (max 300mcg/kg/min); beta-1 selective; onset 1-4mins; DOA 30mins

Pre-eclampsia

MgSO₄

Labetalol: as above

Hydralazine: 5-10mg IV over 5-10mins - rpt Q20min to max 20mg - 5mg/hr INF

onset 10-20mins; arteriole vasoD; decr DBP>SBP; SE = lupus-like syndrome, N, headache, reflex tachy (give IVF bolus to prevent); CI in CAD

Pheochromocytoma

Labetolol, not betablocker

Hypertensive encephalopathy

Failure of autoregulation (MAP >150); vasospasm with ischaemia and incr vasc perm; cerebral oedema and haemorrhages; change in LOC

Aim: Reduce MAP by 25% over 8 hours

Rx Esmolol IV/labetalol