

Hypertensive Emergencies



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- Only a small subset of patients with significantly elevated BP (usually $>180/120\text{mmHg}$) have signs or symptoms of acute target-organ damage, termed hypertensive emergencies.
- The rate and magnitude of any increase in BP may be more important than the absolute level of BP in determining the severity of organ injury; this is key in obstetric medicine, where the usual BP in younger women may be verging on hypotensive ($90\text{--}110/60\text{--}70\text{mmHg}$), and pre-eclampsia may develop with a BP over $140/90\text{mmHg}$.



- In all hypertensive emergencies, intravenous antihypertensive medication therapy is indicated to cause rapid reduction of BP, as this is thought to minimize on-going organ damage and prevent or reduce the risk of morbidity and mortality.
- The timing, magnitude and other considerations related to the management of these conditions differ according to the type of target organ damage.



Referral to a specialist centre

- The majority of hypertensive patients are managed in primary care.
- Apart from the clear indications related to hypertensive emergencies described earlier, there are other reasons to mandate referral to specialist secondary care:
 - Patients taking ≥ 3 drugs with uncontrolled hypertension (resistant hypertension).
 - Suspected secondary causes:
 - Young age (<30–40 years)
 - Historical features (i.e. obstructive sleep apnoea, pheochromocytoma)
 - Examination findings (i.e. abdominal bruit suggesting renal artery stenosis)
 - Sudden change in BP.



Referral to a specialist centre

- Target organ damage detected with normal BP values.
- Intolerance of medicines preventing guideline-based treatment.
- Symptomatic hypertension or hypotension.
- Labile or highly variable BP.
- Mild hypertension when it is not clear whether a patient would benefit from BP-lowering.



Management

Presentation	History	Examination	Investigation of choice	Target/ timeframe	First line therapies	Notes
Malignant hypertension	Visual disturbance, headache	Moderate–severe retinopathy		25% MAP reduction within a few hours	i.v. Labetalol, nicardipine (with retinopathy only, some consider oral Atenolol sufficient)	Often associated with acute kidney injury, due to fibrinoid small-artery necrosis
Hypertensive encephalopathy	Visual disturbance, headache, seizures, confusion, coma	Often features moderate–severe retinopathy	MRI brain: posterior fossa oedema (PRES)	Immediate MAP reduction by 25%	i.v. Labetalol, nicardipine	



Management

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Acute aortic dissection	Tearing chest pain	Unequal arm pulses or BP Aortic valve incompetence	CT angiogram aorta, trans oesophageal echo: dissection flap visible	Immediate SBP reduction to 100–120mmHg <i>and</i> heart rate to 50–60 beats/min	i.v. Labetalol Once rate control is adequate, vasodilators can be added (GTN, nicardipine)	Patients with Marfan's or proximal aorta syndromes more commonly proceed to early surgery
Acute pulmonary oedema	Shortness of breath	Bibasal crackles, elevated jugular venous pressure	Chest X-ray: interstitial oedema	Immediate SBP reduction to <140mmHg	i.v. GTN, diamorphine	Loop diuretics are also vasodilating and lower BP



Management

Presentation	History	Examination	Investigation of choice	Target/timeframe	First line therapies	Notes
Acute coronary syndrome	Chest pain	Diaphoretic	ECG: ST/T-wave changes Serum troponin elevated	Immediate SBP reduction to <140mmHg	i.v. GTN, labetalol	
Pre-eclampsia	Oedema, visual disturbance, abdominal pain	Oedematous New proteinuria on string reagent testing	Chest X-ray: interstitial oedema	Immediate SBP reduction to <160 and DBP to <105mmHg	i.v. Labetalol, nicardipine	i.v. Magnesium used to prevent/treat eclamptic seizures



Hypertension in pregnancy

- Hypertension may be part of pre-eclampsia or eclampsia.
- Pre-eclampsia is diagnosed with two or more of: hypertension ($>140/90\text{mmHg}$), proteinuria, and oedema. This can be associated with haemolysis, elevated LFTs, low platelets (HELLP syndrome).
- Check urine for protein, and check blood for FBC, LFTs, platelets, uric acid level, and coagulation screen.
- Call for senior obstetric help. Eclampsia is diagnosed with the onset of grand mal seizures after 20 weeks' gestation and carries a significant mortality rate.



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