

MANAGEMENT OF HYPERTENSION

Diagnosis:

Hypertension emergency is patient with hypertension associated with end organ damage. It can occur in patients with or without pre-existing hypertension.

Immediate control to minimize end organ damage (CNS - hypertensive encephalopathy; cardiac - AMI, APO, dissecting aortic aneurysm; renal – ARF; eclampsia) is necessary.

Otherwise BP should be lowered slowly and cautiously.

Management of Hypertension:

There are many causes of hypertension in ICU patients, common causes include:

- underlying hypertension (primary, secondary – remember pheochromocytoma)
- agitation
- pain
- withdrawal
- cold, shivering
- hypoxia, hypercarbia
- increased ICP
- preclampsia
- wrong measurement: check transducer height

Common intravenous antihypertensive agents used in our unit

Drug	Dilution and Dose
Labetalol	5mg/ml initial bolus 5-20mg titrate 1-20ml/hr
Nimodipine	0.2mg/ml titrate 1ml-10ml/hr
Nitroglycerine (GTN)	1mg/ml titrate 1-20ml/hr

Nitroprusside	100ug/ml Start with 0.3ug/kg/min Usual range 0.5-6ug/kg/min (15-180ml/hr) Look for sign of toxicity: tachyphylaxis, lactic acidosis
Esmolol	10mg/ml initial bolus 250-500ug/kg titrate 25-100ug/kg/min (7.5-30ml/hr)

Other IV drugs

Phentolamine 1-5mg slow IV bolus

Hydrallazine 5-10mg slow IV bolus

Oral antihypertensives can be used in patients with stable haemodynamics. Otherwise use of IV antihypertensives is more easily titratable in ICU patients.

Note on choice of antihypertensives:

- Avoid β -blockers in patients with increase adrenergic activity e.g. pheochromocytoma, use of sympathomimetic drugs such as cocaine, amphetamine etc
- Avoid β -blockers in patients with poor LV function, also check for other contraindications, e.g. bronchospasm
- Nimodipine produces cerebral vasodilation, effect noticeable in areas of brain with restricted circulation than healthy areas, usually used in patients with vasospasm after subarachnoid haemorrhage
- Nitrates and nitroprusside can produce cerebral vasodilation and hence should be avoided in patients with intracranial pathology
- Prolonged nitroprusside administration can lead to acidosis and cyanide toxicity