HYPERTENSIVE EMERGENCY

Management of a Hypertensive Emergency (Acute ↑ BP with End-Organ Damage)

Continuous Blood Pressure (BP) Monitoring

Insert arterial line with continuous BP monitoring or frequent (Q5-10 mins) cuff BPs
Establish peripheral IV *Consider Nifedipine 0.1-0.2 mg/kg sl if any delay in treatment

Immediate BP Goal

Reduce BP by 25 to 30% of planned reduction over first 6 to 8 hours
Final target BP approximately : 0 to5 years < 110/70 6 to 12 years < 120/80 ≥ 13 years <130/85

Investigations

CBC, Na, K, Cl, HCO3, Ca, BUN, Cr
Renin and Aldosterone
Urinalysis and Urine Na, K, Cr, Osm

Renal Ultrasound with Doppler
CT Head if Neurologic Signs
ECHO for Cause & Acute vs. Chronic HTN

Ophthalmology for Acute vs. Chronic HTN
Consider Urine Tox Screen
Consider Pregnancy Test

Medications

Initial:

IV **Labetalol**
Bolus
0.2 to 1 mg/kg

followed by infusion
0.25 to 3 mg/kg/hr

Can titrate q 5 min

No response:

Add **Nitroprusside**
0.25 to 10 mcg/kg/min

Usual Max dose 4 mcg/kg/min, can go as high as 10 mcg/kg/min

Can titrate q 5 mins

No response:

Consider **Nicardipine:**
(Requires authorization from Health Canada)
1 to 3 mcg/kg/min (max 6 mcg/kg/min)

Can titrate q 5-15 min

Still ↑ BP & tachycardic:

Consider **Esmolol:**
Bolus 500 mcg/kg

followed by infusion 50 to 150 mcg/kg/min (Max 1000 mcg/kg/min)

Can titrate q 5-10 min

CONSULT NEPHROLOGY

Re: Etiology, Chronicity, IV & PO Meds

* Further BP Management

If purely **ACUTE HYPERTENSION**, reduce BP by remainder over next 12-24 hours

If **ACUTE ON CHRONIC HYPERTENSION**, reduce BP by another 30% over next 12-36 hours and remainder over following 48-96 hours

*To be adjusted based on clinical situation.

NOTE: Up to 30% of children have a recurrence

Risk of too rapid a BP reduction: Stroke, Blindness, Paralysis, Renal Failure

End Organ Damage :

- Encephalopathy / LOC
- Seizures
- Visual Changes / Blindness
- Congestive Heart Failure
- Acute Kidney Injury

* Contraindications with Anti-Hypertensives :

Labetalol and Esmolol: Cardiogenic shock, heart block, asthma. Caution in diabetes and liver failure.
Nitroprusside: Caution with increased ICP, renal or liver failure. Do not use if pregnant. Monitor for cyanide toxicity after 24-48 hours.
Nicardipine: Use central line. Caution with increased ICP or IOP, liver or renal failure.

Causes :

Renal Disease
e.g. Dysplasia, GN
Renovascular Disease
e.g. Renal Artery Stenosis
Cardiac Anomaly
e.g. Coarctation of Aorta
Neurologic Cause
e.g. Head Injury, Infarct
Endocrine Cause
e.g. Hyperthyroid, Pheo
Medication
e.g. Ecstasy, Cocaine
Thrombotic MA
e.g. Preeclampsia, aHUS
Neoplasms
e.g Wilms, Neuroblastoma

* Use different medication or use with caution and monitor for side effects

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