SYSTEMIC HYPERTENSION
Hypertension in childhood is defined as blood pressure greater than 95th percentile for age obtained on three separate occasions usually several weeks apart.
Normal Blood Pressure

- Systolic & diastolic blood pressure below 90th percentile for age, gender & height
EPIDEMIOLOGY

Incidence; 1% of pediatric population

Accurate blood pressure measurement should be part of routine annual physical examination of all children 3 yrs or older

A complete family history of hypertension should always be elicited
BLOOD PRESSURE MEASUREMENT

METHODS

- Palpatory method
- Auscultatory method
- Flush method
- Doppler & Oscilometer

Use appropriate cuff size
ETIOLOGY

Secondary Hypertension
- Most common in infants & young children
- Cause varies with age
- Renal & renovascular hypertension accounts for majority of cases

Essential Hypertension
Hypertension may be:

- Transient
- Chronic
ETIOLOGY OF TRANSIENT HYPERTENSION

RENAL CAUSES

* Acute Glomerulonephritis
* HS Purpura
* Hemolytic Uremic Syndrome
* Acute Tubular Necrosis
* Pyelonephritis
* Obstructive uropathy
* Leukemic infiltration
DRUGS & POISONS

- Corticosteroids
- Vitamin D intoxication
- Oral contraceptives
- Sympathomimetics
- Amphetamines
- Cyclosporine
- Lead / Mercury
- Anti hypertensive withdrawal
CENTRAL/ AUTONOMIC NERVOUS SYSTEM

- Increase Intracranial Pressure
- GB Syndrome
- Brain Tumors
- Porphyria
- Poliomyelitis
- Encephalitis
MISCELLANEOUS

- Hypercalcemia
- Post coarctation surgery
- White cell transfusion
- Chronic upper airway obstruction
ETIOLOGY OF CHRONIC HYPERTENSION

RENAL CAUSES

* Ch Glomerulonephritis
* Ch Pyelonephritis
* VUR
* Hydronephrosis
* Congenital Dysplastics kidney
* Renal tumor
* Renal Trauma
* SLE
VASCULAR

- Coarctation of aorta
- Renal Artery lesions
- Umbilical artery catheterisation
- NF
- RVT
- Vasculitis
- AV shunts
ENDOCRINE & CNS CAUSES

**ENDOCRINE**
- Hyperthyroidism
- Hyperparathyroidism
- Congenital Adrenal Hyperplasia
- Cushing syndrome
- Pheochromocytoma
- Diabetic nephropathy

**CNS**
- Intracranial mass
- Haemorrhage
CLINICAL MANIFESTATIONS

- Asymptomatic
- Growth failure
- Headache
- Dizziness
- Epistaxis
- Anorexia
- Visual Changes
- Seizures
- CCF
- End organ (cardiac / renal ) dysfunction
Hypertensive Encephalopathy

- Seizures
- Vomiting
- Temperature elevation
- Ataxia
- Stupor
DIAGNOSIS
HISTORY

- Age
- Level of BP elevation
- Intermittent febrile illness
- Family history
- Drug intake
PHYSICAL EXAMINATION

- Weight
- Flank masses
- Abdominal bruit
- BP & pulse in all extremities
- Fundoscopy
INVESTIGATIONS

- Blood CP
- Urine R/E & C/S
- RFT’s
- S calcium
- Lipid Profile
- Echocardiography
- Abdominal USG
- Renal Imaging / scan
- Renal angiography
- Plasma renin
- Urine Catecholamines
- CT scan
TREATMENT

Non Pharmacological
- Reduction in salt intake
- Weight reduction
- Increased physical activity
PHARMACOLOGICAL TREATMENT

Hypertensive Emergency
- S/L Nifedipine
- I/V Furosemide

1/3rd BP reduction in first 6 hrs & rest in next 48-72 hrs
PHARMACOLOGICAL TREATMENT

- Long Term Anti Hypertensives
  - Diuretics
    - Hydrochlorothiazide
    - Furosemide
  - Calcium Channel Blockers
    - Nifedipine
  - Beta Blockers
    - Propranolol
    - Atenolol
    - Labetalol
  - ACE Inhibitors
    - Captopril
    - Analapril
Control risk factors

- Obesity
- Raised cholesterol levels
- High dietary sodium
- Sedentary life style
- Alcohol / tobacco use
THANK YOU