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# Hypertension Assessment

Manual BP

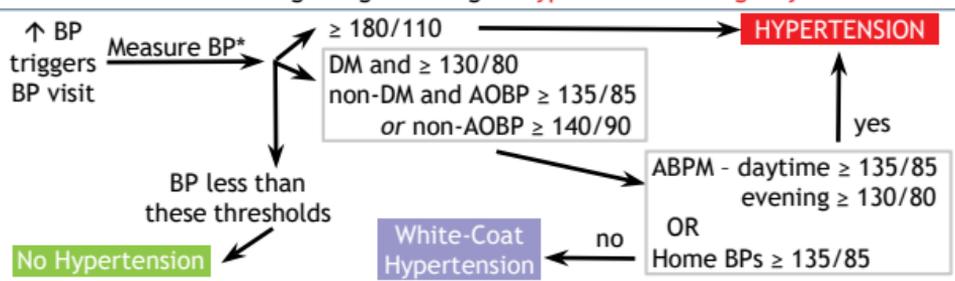
**PATIENT:** Back, arm supported, empty bladder, seated comfortably with legs uncrossed X 5 min, no talking prior/during measurement.

**CUFF:** Over bare arm, 3 cm above elbow crease, at level of right atrium, width & length of cuff bladder should be 40% & 80-100% of arm circ.

**MEASUREMENT:** Inflate 30 mmHg above radial pulse oblit., deflate by 2 mmHg per sec; do 3 times, at least 60 sec apart; discard 1<sup>st</sup>, take avg. of 2<sup>nd</sup> + 3<sup>rd</sup>.

## Diagnosis

BP  $\geq$  180/120 + acute target organ damage = **hypertensive emergency**  $\rightarrow$  EMS/ED



\* Measurements ideally taken by automated BP machines (AOBP)

**Routine laboratory assessment (if dx):** Na, K, Cr (or eGFR), FBG, fasting lipid panel, urinalysis (for blood & prot), ECG (for LVH), consider Alb:Creat. ratio.

## History and Physical: Red Flags

|  |   |
|--|---|
| Secondary Hypertension   | <b>GENERAL SIGNS:</b> abrupt or severe onset, or ages <25 or >55. <span style="float: right; border: 1px dashed black; padding: 2px;">*Tests to consider</span>   |
|  | <b>CONTRIBUTING FACTORS:</b> $\uparrow$ salt intake, sedentary, stress.   |
|  | <b>HYPERTHYROIDISM:</b> palpitations, sweating, tremor, anxiety, freq. bowel movements, weight loss, vision changes, goiter. <i>TSH</i>   |
|  | <b>AORTIC COARCTATION:</b> interscapular murmur, delayed femoral pulses, asymmetric BP across both arms or leg. <i>CXR, CT-Angio</i>  |
|  | <b>CUSHINGS:</b> easy bruising, truncal obesity, hyperglycemia, hirsutism, prox. muscle weakness, thin skin, ecchymosis, facial plethora, round face, buffalo hump, striae, depression, anxiety, psychosis. <i>24-hr urine cortisol excretion</i> |
|  | <b>PRIMARY HYPERALDOSTERONISM:</b> resistant HTN, signs of $\downarrow$ K <sup>+</sup> : arrhythmias, muscle weakness, fatigue, $\downarrow$ DTR & bowel sounds. <i>Ald:renin ratio</i>   |
|  | <b>OSA:</b> snoring, witnessed apneas, daytime drowsiness, AM headache, impaired concentration. <i>Sleep study with O2 saturation monitoring.</i>   |
| End Organ Damage   | <b>RENAL PARENCHYMAL DISEASE:</b> Hx of UTIs/obstructions, hematuria, NSAID abuse, FamHx of polycystic kidney disease, abdominal mass. <i>Renal US</i>  |
|  | <b>MEDS/HERBS:</b> NSAIDs, OCP, steroids, pseudoephedrine, cocaine.   |
|  | <b>PHEOCHROMOCYTOMA:</b> episodes of headaches, sweating & $\uparrow$ HR. <i>Plasma Fractionated Metanephrines, 24hr urine for metanephrines</i>  |
|  | <b>PERIPHERAL ARTERY DISEASE:</b> claudication, asym or delayed femoral pulses, cold extremities and weak/absent pedal pulses; carotid, abdominal, femoral bruits. <i>ABI, US Doppler</i>   |
|  | <b>HEART FAILURE:</b> exertional SOB, fatigue, PND, orthopnea, S3, murmurs, $\uparrow$ JVP, displaced apical impulse, basilar crackles, peripheral edema.   |
| <b>CAD:</b> angina <b>ARRHYTHMIA:</b> Palpitations, SOB, presyncope, syncope.  |   |
| <b>LVH:</b> S4, sustained apical impulse. <i>ECG, ECHO, Holter Monitor</i>   |   |
| <b>STROKE/TIA:</b> on PMHx, abnormal strength, gait, speech, cognition. <i>MRI, CT</i>   |   |
| <b>HYPERTENSIVE RETINOPATHY:</b> advanced findings include hemorrhages, exudates, papilledema on fundoscopy. <i>Ophthalmology referral</i> |   |