Hypertensive Crisis

Introduction:

Hypertension occurs when a person's blood pressure exceeds normal values. There are two stages of hypertension:

- Stage 1 hypertension will produce a reading of 130–139 mm Hg over 80–89 mm Hg.
- Stage 2 hypertension, which is a more severe form, will produce a reading of 140 mm Hg or higher over 90 mm Hg or higher.

Uncontrolled hypertension can lead to a sudden and severe increase in blood pressure. This increase is known as hypertensive crisis.

Definitions:

- **Hypertensive crisis** is an acute elevation of blood pressure (greater than 180/120 mm Hg) that is associated with acute or imminent target organ damage.
- **Hypertensive emergency:** Rapid (hours to days) marked elevation in BP → acute organ tissue damage.
- **Hypertensive urgency:** Slow (days to weeks) elevation in BP that usually does not lead to organ tissue damage.

Pathophysiology

Any disorder or cause (essential hypertension, renal parenchymal disease, Reno vascular disease, pregnancy, endocrine drugs, autonomic hyper-reactivity, CNS disorder) → BP → vessel becomes inflamed → leak fluid or blood to the brain → CVA → long-term disability.

Causes of Hypertensive crisis

Common causes include:

- Exacerbations of chronic hypertension.
- The sudden withdrawal of antihypertensive medications.

- Acute or chronic renal disease.
- Autonomic dysreflexia.
- Thyrotoxicosis and Cushing's syndrome.
- Central nervous system disorders: head injury, cerebra infarction /hemorrhage, brain tumors
- Other causes include postsurgical status, eclampsia, and extensive burns.
- Other drugs such as amphetamines can also cause hypertensive crisis

Clinical Presentation

Hypertensive crisis presents with

1- Chest pain.
2- Dyspnea.
3- Neurological deficits.
4- Occipital headache.
5- Visual disturbance.
6- Vomiting.

Diagnostic Tests

a) CT scan of chest, abdomen, and brain.
b) Echocardiogram or Trans-esophageal echocardiogram.
c) ECG.
d) Lab draws: CBC, cardiac markers, BUN, creatinine, UA, urine toxicology.

Management

1- Administer O2 to maintain PaO2 >92%.
2- Obtain VS-orthostatic BP every 5 min, then longer intervals.
3- First-line medical therapy: Labetalol (Trandate) and adrenergic receptor blocker with both selective alpha-

adrenergic and nonselective beta-adrenergic receptor blocking actions.

4- Administer vasodilator: Nitroprusside (Nipride) and NTG.

5- Hypertensive emergency: IV route is preferred; reduce mean arterial pressure (MAP) by no more than 25% in the first hour; if stable, ↓diastolic BP to 100–110 mm Hg over the next 2–6 hours.

■ If patient has neurological complication, primary goal → maintain adequate cerebral perfusion, control HTN, minimize cerebral edema; ↓ BP by 10% but no more than 20%–30% from initial reading.

6- Hypertensive urgency: PO meds; ↓ BP in 24–36 hours; short-acting agents: captopril (Capoten) or clonidine (Catapres).

Nursing instruction:

- Change positions slowly to limit orthostatic hypotension.
- Avoid hazardous activities, since the drug may cause drowsiness.
- Do not discontinue the medication abruptly to prevent rebound hypertension. Not every patient with an elevated BP and no target organ disease will require emergent drug therapy or hospitalization.
- Allowing the patient to sit for 20 or 30 minutes in a quiet environment may significantly reduce BP.
- Additional nursing interventions include encouraging the patient to verbalize any concerns or fears, answering questions regarding hypertension, and eliminating any adverse stimuli (e.g., excess noise) in the patient's environment.