



World Heart Day  
29<sup>th</sup> September, 2013

because each beat matters

### Hypertensive Crisis

Globally 9.4 million deaths each year, or 16.5% of all deaths can be attributed to high blood pressure. This includes 51% of deaths due to strokes and 45% of deaths due to coronary heart disease.

Hypertension is a major contributor to avoidable death and disease in India, too, with an increasing impact in the rural areas. Over 140 million people are believed to be suffering from high blood pressure in the country and the number is expected to cross the 214 million mark in 2030.

**A crisis is generally considered to occur when the systolic BP (SBP) exceeds 180 mmHg or the diastolic BP (DBP) exceeds 120 mmHg.**

Also known as high or raised blood pressure, hypertension increases the risk of heart attacks, strokes and kidney failure. Uncontrolled hypertension can also cause blindness, irregularities of the heartbeat and heart failure. However, high blood pressure is preventable and treatable. Early detection is key: all adults should know their blood pressure.

A hypertensive crisis is a severe increase in blood pressure that can lead to a stroke. Extremely high blood pressure — a systolic (top number) blood pressure of 180 millimeters of mercury (mm Hg) or higher or a diastolic (bottom number) blood pressure of 120 mm Hg or higher — damages blood vessels. They become inflamed and may leak fluid or blood. As a result, the heart may not be able to pump blood effectively. Despite increasing knowledge of and advances in the management of chronic hypertension, it is estimated that 1% to 2% of patients with hypertension will have a hypertensive emergency at some time in their life.

BP Classification	SBP (mmHg)	DBP (mmHg)
Normal	<120	and <80
Pre-Hypertension	120 - 139	or 80–89
Stage 1 Hypertension	140 –159	or 90–99
Stage 2 Hypertension	≥160	or ≥100

**Blood Pressure Categories as per JNC 7**

**Hypertensive crises are further classified as**

### Hypertensive Urgency

- a rapid and severe elevation in BP in the **absence** of organ injury
- Those experiencing hypertensive urgency may or may not experience one or more of these symptoms:
  - Severe headache
  - Shortness of breath
  - Nosebleeds
  - Severe anxiety
- urgencies may be treated on an outpatient basis, by gradually reducing BP using oral antihypertensives

### Hypertensive Emergency

- a rapid and severe elevation in BP in the **presence** of target organ damage\*
- The clinical presentation will depend on the particular organ that is undergoing injury, in addition to other symptoms like Swelling or edema (fluid buildup in the tissues), severe chest pain, Severe headache, accompanied by confusion and blurred vision, nausea and vomiting, severe anxiety, shortness of breath, seizures & unresponsiveness
- requires more immediate treatment with IV antihypertensives in an inpatient setting

\*Target Organ Damage may include: Renal failure, Central Nervous System (Stroke, Intra cranial Hemorrhage), Eclampsia (Seizure during pregnancy), Retinal Damage (Damage to the eyes)

A rapid but thorough assessment must be performed in order to differentiate between urgency and emergency. The clinician should inquire about use of all medications, including OTC and herbal therapies, and illicit drug use. Medication adherence, including time of last dose, should be evaluated in all patients previously diagnosed with hypertension. BP should be confirmed in both arms, using correct measurement techniques.

## **Treatment**

**Hypertensive urgencies** may be treated in an outpatient facility with oral antihypertensives; treatment consists of a slow lowering of BP over 24 to 48 hours. A reduction in BP of no more than 25% within the first 24 hours has been suggested. Adjusting current medication regimens to improve adherence or increasing the doses of current agents may be a sufficient management approach. However, additional agents may be necessary to attain desired results. Regular follow-up with the primary care provider following such episode is necessary.

**Hypertensive emergency** requires immediate medical attention, including admission to the intensive care unit. Continuous cardiac monitoring, frequent measurement of urine output, and neurologic assessment are all necessary. Treatment with IV antihypertensive agents is warranted in this setting. The primary goal would be to lower the mean arterial pressure by no more than 25% within the first hour, followed by BP reduction to 160/110-100 mmHg within the next 2 to 6 hours. BP reduction must be conducted in a controlled fashion in order to prevent organ hypoperfusion (decreased blood flow through an organ) and subsequent ischemia or infarction. However, in patients with aortic dissection (Aortic dissection is a serious condition in which there is a separation of the aorta walls), BP must be aggressively lowered. Once the BP has stabilized and the risk of end-organ damage has reduced, downward titration of the IV agent may begin, followed by conversion to oral therapy. Because overly aggressive BP reduction can cause further end-organ damage

## **Pharmacists' Role**

The two most important causes of crisis are patients forgetting to take blood pressure medication (non-adherence) which can be intentional or unintentional and the treatment prescribed can be sub-therapeutic. In both cases, the pharmacist's vigilance with appropriate & regular patient counseling can help patients prevent hypertensive crisis. Pharmacists can have a number of positive effects on the treatment of patients with hypertensive crises.

1. We can play an important role in screening patients to identify undiagnosed or uncontrolled hypertension. At-risk patients can be identified in various ways:
  - Self-identified
  - Screening days with validated BP measuring device
  - Identification from

- Patient medication profiles that include antidiabetes medications (oral hypoglycemics or insulin), Antianginals, Antiplatelet agents & Cholesterol-lowering drugs
  - Older patients
2. Encourage the patients to:
    - a. monitor their Blood Pressure regularly
    - b. maintain their Blood Pressure reading chart
    - c. immediately see a Doctor in case of any fluctuations in Blood Pressure readings
  3. Ensure patients have adequate training and, if needed, repeat training in measuring BP by observing patients' BP measuring techniques
  4. Proper patient education that includes the importance of medication adherence can help prevent the development of hypertensive urgencies.
  5. Pharmacists should proactively ensure that maintenance regimens are appropriate, simplified, and manageable for patients.
  6. Advise about potential adverse effects to monitor.

## **Conclusion**

Patients with hypertensive crises exhibit severe elevations in BP that can lead to extensive morbidity and even mortality if the hypertension is improperly managed. The appropriate therapeutic approach in a given case depends on the patient's clinical presentation. Patients with hypertensive urgency lack end-organ damage and can be treated with oral medications that gradually reduce BP to goal over a period of several hours to several days. Hypertensive emergencies, on the other hand, require intense monitoring in an ICU setting and IV therapy with the goal of halting the progression of end-organ damage. Through their expertise in retrieving medication histories and their knowledge of pharmacotherapeutic options, pharmacists can have a positive influence on the care of patients with hypertensive crises.

## **Source**

1. <http://www.who.int/mediacentre/factsheets/fs317/en/index.html>
2. [http://www.who.int/cardiovascular\\_diseases/en/index.html](http://www.who.int/cardiovascular_diseases/en/index.html)
3. [www.uspharmacist.com](http://www.uspharmacist.com)

**Prepared by**  
Maharashtra State Pharmacy Council's  
**Drug Information Centre**