

# Hypertensive Crisis

## A Review of Pathophysiology and Treatment



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### KEYWORDS

- Hypertensive urgency • Hypertensive emergency • Hypertensive crisis

### KEY POINTS

- Treatment guidelines have been published by Joint National Committee (JNC) groups in an effort to reduce hypertension.
- Patients with hypertensive urgency may only need treatment with oral medications and can be safely discharged with close follow-up with a medical professional. Blood pressure in these patients will still be elevated above normal.
- Patients with hypertensive emergency require admission to intensive care units and administration of intravenous medications to safely reduce blood pressure levels. Blood pressure in these patients must be reduced over a period of time to avoid other medical crisis.
- The effects that hypertension has on vital the organs of the body has been shown to lead to other health issues in most patients.
- It is important for medical practitioners to have a working knowledge of medications for hypertensive crisis.

### INTRODUCTION

According to the Centers for Disease Control and Prevention, approximately 70 million American adults (29%) have hypertension and only about half (52%) have their blood pressure (BP) under control.<sup>1,2</sup> When uncontrolled over a time span of years, hypertension can lead to damage of vital organs, namely the cardiovascular, neurologic, and renal systems. Many medications are on the market to treat patients with hypertension. Knowledge of these agents, their characteristics, and their proper use helps to decrease the damage to organs that ultimately will result in an increased cost burden to the health care system.

Guidelines for treatment of hypertension were changed in late 2013 with the publication of the 2014 evidence-based guideline for the management of high BP in adults

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Disclosures: None.

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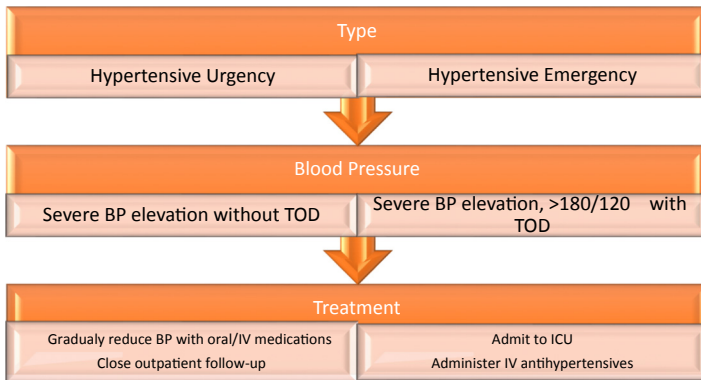
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from the panel members appointed to the Eighth Joint National Committee (JNC8).<sup>3</sup> Treatment modalities were now based on age, race, and the presence of diabetes mellitus or chronic kidney disease.

Despite these recommendations and others, however, clinicians continue to see many patients with undiagnosed and uncontrolled hypertension. Because the choice of medical therapy is crucial, through PubMed searches this article reviews the pathophysiology of hypertensive crisis and the treatment choices currently available.

## DEFINITIONS

Hypertensive crisis by definition is divided into 2 categories: hypertensive urgency or hypertensive emergency.<sup>2,4-6</sup> Both groups present with severely elevated BP, but the differences lie in the presence of target organ damage (TOD) (seen only in hypertensive emergency) and the treatment options (**Fig. 1**).



**Fig. 1.** Hypertensive crisis. BP, blood pressure; ICU, intensive care unit; IV, intravenous; TOD, target organ damage.

## CLINICAL PRESENTATION

### *Hypertensive Urgency*

Patients will present with elevated BP greater than 180/120 mm Hg, without signs of TOD. Presenting symptoms may include headache, shortness of breath, anxiety, and epistaxis.<sup>7</sup>

### *Hypertensive Emergency*

Patients will present with elevated BP greater than 180/120 mm Hg, and will show signs of TOD (**Box 1**).

When a patient presents with hypertensive crisis, several things should be done as soon as possible, including mental status checks, continuous monitoring of BP, and an electrocardiogram to ascertain heart rate and rhythm. The physician should obtain a medical history noting the length and extent of the presenting symptoms, and a review of all current medications (prescription and nonprescription), and ask questions to determine medication compliance and recreational drug use.<sup>6-8</sup> Close attention should be paid to those patients with comorbid disease states and effects on the neurologic, renal, and cardiovascular systems.

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