

Hypertensive Emergencies in the Emergency Department



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KEYWORDS

• Hypertension • Hypertensive emergency • Hypertensive crisis

KEY POINTS

- Hypertensive emergency cannot be diagnosed based only on the combination of severely increased blood pressure with symptoms such as headache, shortness of breath, and blurred vision.
- Hypertensive urgency is defined as severe hypertension in a patient with comorbidities that place the patient at higher risk of end-organ dysfunction. Hypertensive emergency is defined as objective findings of end-organ damage.
- Asymptomatic and otherwise healthy patients with severe essential hypertension should be referred to a primary care doctor within a week for nonurgent blood pressure control; treatment of this group with aggressive intravenous medications can precipitate hypotension and subsequent end-organ damage.
- Select a therapeutic agent that has rapid and reliable pharmacodynamics that can be turned on and off easily.
- The goal in treating most hypertensive emergencies is to reduce the blood pressure 25% within the first 24 hours after diagnosis. An exception is in patients with aortic dissection, which calls for much more rapid blood pressure reduction.

INTRODUCTION

In 2014, the American Heart Association (AHA) estimated that 77.9 million Americans older than 20 years of age have hypertension (HTN).¹ That is approximately 1 in every 3 adults, which is a staggering figure compared with other common diseases such as diabetes and hyperlipidemia. In 2009, the AHA reported that almost a third of the population with HTN was unaware of their underlying diagnosis²; this percentage has decreased to 19% according to recent figures from the National Health and Nutrition

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Examination Survey.¹ Nearly 70% of all patients with a first-time myocardial infarction, stroke, or congestive heart failure have poorly controlled blood pressure.¹ However, the 2014 Joint National Committee (JNC) guidelines for blood pressure management recommend a less aggressive treatment approach for older hypertensive patients than that proposed in the JNC 7 guidelines,³ which could increase the number of patients found to be in a hypertensive crisis in the emergency department (ED).⁴

HTN is associated with significant short-term and long-term morbidity and mortality. The effects of HTN often build to hypertensive crises that can affect numerous organ systems either individually or simultaneously. The JNC 7 recommendations laid the groundwork for the identification and treatment of hypertensive crisis, but they did not clearly distinguish hypertensive urgency from hypertensive emergency. This distinction is important because their treatment approaches for blood pressure control are different. Despite the lack of large randomized controlled trials designed to establish evidence-based guidelines for the management of hypertensive emergencies, general consensus exists regarding the need for a timely response to prevent adverse outcomes.

This article discusses essential concepts in the evaluation and treatment of hypertensive emergencies that are encountered commonly in the ED. These emergencies include encephalopathy, pulmonary edema, myocardial ischemia, aortic dissection, nephropathy, and eclampsia (**Box 1**).

DEFINITION

Hypertension is defined as a systolic blood pressure greater than 140 mm Hg or a diastolic pressure greater than 90 mm Hg.⁴ Hypertensive crises are separated into 2 broad categories of urgency and emergency. They are both defined by a systolic blood pressure greater than 180 mm Hg and a diastolic pressure greater than 120 mm Hg but are differentiated by the absence or presence, respectively, of end-organ damage.⁴ End-organ damage is typically manifested by dysfunction in the cerebrovascular, cardiovascular, pulmonary, or renovascular systems. Organ dysfunction is the sole element that dictates the rapidity and modality of treatment required in a hypertensive crisis.

Hypertensive urgency is characterized by an acute increase of blood pressure that is not associated with end-organ damage. Recognition of hypertensive urgency can generate anxiety in emergency physicians (EPs), leading to the decision to administer intravenous (IV) medications. This therapeutic approach could inadvertently cause hypotension and organ hypoperfusion. In its definition of hypertensive urgency, the JNC includes symptoms such as headache, shortness of breath, and epistaxis. Many EPs are opposed to the term hypertensive urgency, citing its lack of meaningful definition. They prefer to refer to this entity as severe HTN.

Patients with hypertensive urgency are typically either noncompliant with prescribed medications or have been lost to follow-up and therefore lack proper titration of their medication dosages. Optimal treatment in this population is close outpatient follow-up with a gradual move toward oral antihypertensive medications.⁵ No validated studies have shown that acutely reducing blood pressure in ED patients who present with severe HTN has any benefits in short-term risk reduction. In its 2013 clinical policy, the American College of Emergency Physicians discouraged initiation of blood pressure medication in the ED for asymptomatic patients with HTN.⁶

In contrast, hypertensive emergencies are associated with significant short-term and long-term morbidity and mortality: 5-year mortality approaches 100%.⁷ Hypertensive emergencies represent up to one-fourth of all ED visits.⁴ The JNC recommends

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