

## Blood Pressure Management in the Emergency Care Setting

### Question:

When and to what extent should hypertension be corrected in the emergency care setting?

### Objective:

To establish reliable, evidence-based guidelines for optimal blood pressure management in the emergency care setting.

### Background

Hypertensive urgency in the emergency department can serve either as a concerning warning sign for impending end-organ damage (hypertensive emergency) or as an indication of essential physiologic compensation for another acute pathologic condition. The emergency physician must act quickly to determine the primary vs. secondary nature of a patient's hypertension in order to appropriately manage it and avoid causing harm.

### Findings

- A hypertensive crisis is typically defined as acute severe hypertension with diastolic blood pressure of 110 mm Hg or higher or a systolic blood pressure 180 mm Hg or higher.
- Severe Acute Hypertension **increases length of hospitalization across all potential underlying conditions, and increases in-hospital mortality for patients with underlying neurologic** pathology.
- Mortality rates for each 10 mmHg increase in SBP from 180 to >220 mmHg were 6.5%, 8.1%, 9.9%, 12.0%, and 19.7%, respectively (P <0.0001).
- Specific management depends on underlying condition, but **generally it is unnecessary in the emergency care setting to correct a systolic blood pressure <220, diastolic blood pressure <110, or MAP <130** (clear cut-off of when to treat is controversial).
- One notable exception to the previous point is in the case of hypertension after craniotomy. In this scenario, blood pressure should be kept <160/90.
- IV vasodilators (**Esmolol, Labetalol, Nicardipine, Nitroprusside, Nitroglycerin**) are the recommended drugs of choice. However, patients with renal disease are more likely to reach target blood pressures faster with nicardipine than with labetalol.
- Correct blood pressure slowly, only reducing ~20% at a time.

### Resources

[Varon J](#), [Soto-Ruiz KM](#), [Baumann BM](#), [Borczuk P](#), [Cannon CM](#), [Chandra A](#), [Cline DM](#), [Diercks DB](#), [Hiestand B](#), [Hsu A](#), [Jois-Bilowich P](#), [Kaminski B](#), [Levy P](#), [Nowak RM](#), [Schrock JW](#), [Peacock WF](#).

“The management of acute hypertension in patients with renal dysfunction: Labetalol or Nicardipine?” [Postgrad Med.](#) 2014 Jul;126(4):124-30. doi: 10.3810/pgm.2014.07.2790.

[Clifford S. Deutschman](#), and [Patrick J. Neligan](#). [Evidence-Based Practice of Critical Care](#). 46, 317-325, Copyright © 2010 by Saunders, an imprint of Elsevier Inc.

Andrew F. Shorr, MD, MPH, Marya D. Zilberberg, MD, MPH, Xiaowu Sun, PhD, Richard S. Johannes, MD, MS, Vikas Gupta, PharmD, Ying P. Tabak, PhD. “Severe Acute Hypertension Among Inpatients Admitted From the Emergency Department.” [Journal of Hospital Medicine](#) Vol 7 | No 3 | March 2012, pp. 203-209.