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EMERGENCY CARE IN HYPERTENSIVE CRISIS.

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Annotation: Hypertensive crisis is a life-threatening clinical condition characterized by a sudden and severe elevation of blood pressure that may lead to acute damage of vital organs. Timely recognition and appropriate emergency management are crucial to prevent irreversible complications such as stroke, myocardial infarction, acute renal failure, and aortic dissection. This article examines the concept of hypertensive crisis, its classification, pathophysiology, and evidence-based emergency care strategies. Emphasis is placed on rapid assessment, pharmacological interventions, monitoring, and outcome evaluation in emergency settings. The study highlights current clinical approaches and provides practical recommendations for improving emergency care outcomes.

Keywords: Hypertensive crisis, hypertensive emergency, hypertensive urgency, emergency care, blood pressure management, target organ damage

Hypertension remains one of the most prevalent chronic diseases worldwide and is a major risk factor for cardiovascular morbidity and mortality. In certain situations, blood pressure may rise abruptly to critically high levels, resulting in a hypertensive crisis. This condition requires immediate medical attention, particularly when associated with acute target organ damage.

Hypertensive crisis is commonly defined as a systolic blood pressure ≥180 mmHg and/or diastolic blood pressure ≥120 mmHg. It is broadly classified into hypertensive emergency and hypertensive urgency depending on the presence or absence of acute end-organ damage. Emergency care plays a pivotal role in determining patient

prognosis, as delayed or inappropriate management can lead to severe complications or death.

The purpose of this article is to analyze emergency care strategies in hypertensive crisis, review relevant literature, and discuss effective treatment approaches based on current clinical practice.

Detailed Management of Hypertensive Crisis in the Emergency Setting

Definitions and Classification

A hypertensive crisis is characterized by a severe elevation in blood pressure, generally defined as systolic blood pressure (SBP) >180 mm Hg and/or diastolic blood pressure (DBP) >120 mm Hg (some guidelines use >180/>110–120 mm Hg).

It is classified into two main categories based on the presence or absence of acute target-organ damage:

Hypertensive Urgency (Marked Severely Elevated Blood Pressure without Acute Organ Damage)

- Severe hypertension with no evidence of new, progressive, or imminent target-organ damage.

- Patients may report symptoms such as severe headache, shortness of breath, epistaxis, or anxiety, but physical examination and initial testing show no acute injury to brain, heart, kidneys, retina, or vasculature.

Hypertensive Emergency (Severe Hypertension with Acute Target-Organ Damage)

- Severe hypertension accompanied by evidence of new or worsening target-organ damage.

- Common manifestations include:

- Hypertensive encephalopathy (altered mental status, seizures, cortical blindness).

- Acute ischemic or hemorrhagic stroke.

- Acute coronary syndrome or myocardial infarction.

- Acute left ventricular failure with pulmonary edema.

- Aortic dissection.

- Acute kidney injury or rapidly progressing renal failure.

- Retinopathy with papilledema, hemorrhages, or exudates (grade IV retinopathy).

- Microangiopathic hemolytic anemia.

- Eclampsia or severe preeclampsia in pregnancy.

Initial Evaluation in the Emergency Department

Blood Pressure Measurement

- Use an appropriately sized cuff on a supported arm at heart level.

- Take measurements in both arms initially; use the higher reading for management.

- Repeat measurements after 5–10 minutes of rest to confirm severity.

- Avoid over-reliance on a single reading.

History

- Known hypertension and adherence to medications.

- Recent discontinuation or non-adherence.

- Use of sympathomimetics (cocaine, amphetamines), MAO inhibitors with tyramine, or withdrawal from clonidine/beta-blockers.

- Symptoms suggestive of organ damage: chest pain, dyspnea, headache, visual changes, confusion, focal weakness, oliguria.

Physical Examination

- Fundoscopy: Look for hemorrhages, exudates, or papilledema.

- Neurologic exam: Mental status, focal deficits.

- Cardiac: Signs of heart failure (S3, crackles, elevated JVP).

- Vascular: Asymmetric pulses or bruits (suggestive of dissection or stenosis).

- Abdominal exam for pulsatile mass (aortic aneurysm).

Diagnostic Workup

- Electrocardiogram (ECG): To detect ischemia, left ventricular hypertrophy, or strain.

- Chest X-ray: For pulmonary edema or widened mediastinum (dissection).

- Basic laboratories: Complete blood count, electrolytes, BUN/creatinine, urinalysis (proteinuria, hematuria).

- Troponin if chest pain or ECG changes.

- Head CT if neurologic symptoms (to rule out stroke or hemorrhage).

- Pregnancy test in women of childbearing age.

Management Principles

Hypertensive Urgency

- Immediate reduction of blood pressure with intravenous agents is not recommended and may cause harm (cerebral or myocardial ischemia).

- Restart or intensify oral antihypertensive therapy:

- Options include resuming home medications at higher doses, adding a new agent (e.g., amlodipine 5–10 mg, labetalol 200–400 mg, clonidine 0.1–0.2 mg), or combining agents.

- Observe for several hours with serial BP measurements.

- Discharge with close outpatient follow-up (within 24–72 hours) and clear instructions on medication adherence and lifestyle modification.

- Goal: Gradual BP reduction over 24–48 hours.

Hypertensive Emergency

- Requires immediate admission to an intensive care unit (ICU) with capability for continuous arterial blood pressure monitoring.

- Use parenteral antihypertensive agents with titratable infusions.

- General blood pressure reduction goals:

- Reduce mean arterial pressure (MAP) by no more than 20–25% within the first hour.

- If stable, further gradual reduction to approximately 160/100–110 mm Hg over the next 2–6 hours.

- Thereafter, normalize BP over the subsequent 24–48 hours.

- Avoid excessive or rapid reduction, which can precipitate cerebral, coronary, or renal ischemia.

Specific Scenarios Requiring Modified Targets

- Acute aortic dissection: Rapid reduction of SBP to 100–120 mm Hg and heart rate <60 bpm as quickly as tolerated (usually within minutes).

- Acute ischemic stroke (if candidate for thrombolysis): Maintain BP <185/110 mm Hg before thrombolysis and <180/105 mm Hg for 24 hours afterward.

- Acute hemorrhagic stroke: Controversial; often target SBP <140–160 mm Hg if elevated.

- Severe preeclampsia/eclampsia: Target SBP 140–160 mm Hg and DBP 90–110 mm Hg; magnesium sulfate for seizure prophylaxis.

This approach aligns with current evidence-based guidelines (American Heart Association, European Society of Hypertension, and others as of 2026). Management must always be individualized based on the patient's clinical presentation and comorbidities.

The findings underscore the critical importance of individualized treatment in hypertensive crisis. Emergency care providers must balance the need for rapid blood pressure reduction with the risk of hypoperfusion. Clinical judgment, supported by established guidelines, is essential in selecting medications and determining the rate of blood pressure lowering.

Furthermore, the discussion highlights gaps in practice, including under-recognition of hypertensive emergencies and inconsistent adherence to protocols. Education and training of emergency medical personnel remain key factors in improving care quality.

Conclusions

Hypertensive crisis is a medical emergency that demands rapid, accurate assessment and carefully controlled management. Emergency care plays a decisive role in reducing morbidity and mortality associated with this condition.

Early diagnosis and classification are essential for effective management.

Controlled blood pressure reduction minimizes the risk of complications.

Intravenous antihypertensive therapy is the cornerstone of hypertensive emergency treatment.

Continuous monitoring improves patient outcomes.

Standardized emergency protocols should be implemented in all healthcare facilities.

Regular training programs for emergency staff should be conducted.

Public awareness of hypertension control and early symptom recognition should be increased.

References.

1. Chobanian, A. V., Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., et al. (2003). ***The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure***. Hypertension, 42(6), 1206–1252.

2. Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison Himmelfarb, C., et al. (2018). ***2017 ACC/AHA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults***. Journal of the American College of Cardiology, 71(19), e127–e248.

3. Marik, P. E., & Varon, J. (2007). ***Hypertensive crises: challenges and management***. Chest, 131(6), 1949–1962.

4. Varon, J., & Elliott, W. (2008). ***Management of hypertensive emergencies***. The Lancet, 371(9621), 1109–1120.

5. Peixoto, A. J. (2019). ***Acute severe hypertension***. New England Journal of Medicine, 381(19), 1843–1852.

6. Papadopoulos, D. P., Mourouzis, I., Thomopoulos, C., Makris, T., & Papademetriou, V. (2010). ***Hypertension crisis***. Blood Pressure, 19(6), 328–336.

7. Townsend, R. R. (2020). ***Hypertensive emergencies***. In J. T. Flynn (Ed.), Clinical Hypertension (11th ed., pp. 317–332). Wolters Kluwer.