Management of Hypertensive Urgency and Emergency

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Hypertensive Urgency and Emergency

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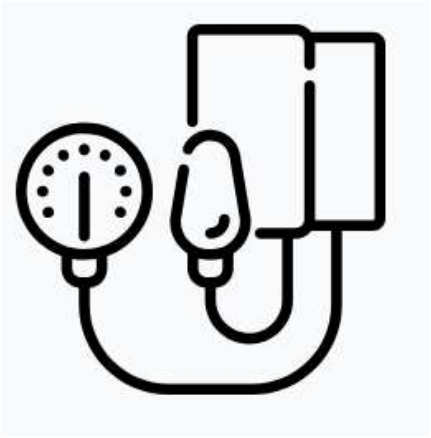


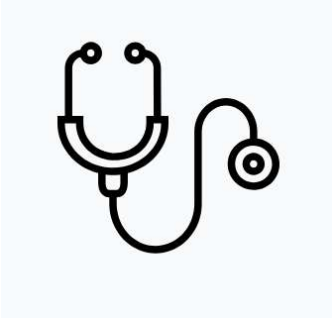
Case 1:

- 62 yo M with a history of hypertension, normally on Lisinopril, presents to PCP for routine check-up. Patient with no complaints.
- BP found to be 224/130 on check in clinic.
- PE normal.
- Referred to ED for “hypertensive crisis”.

Hypertensive Urgency

- Definition: Severe BP elevation in otherwise stable patients without acute or impending change in target organ damage or dysfunction.

- "Severe" typically recognized to be SBP > 180 and/or DBP > 120.



- ACC/AHA 2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults

Hypertensive Urgency- To Treat or Not?

- To Treat:
  - If we don't, something bad will happen.
  - One year mortality after episode of hypertensive urgency is about 9%. (Guiga et. al.)
- Not to Treat:
  - Study after study show benefits to treating hypertensive urgency accrue over a period of months to years, not hours or days. (Breu et. al., Patel et. al.)
  - Even with extremely high bp (SBP > 220), adverse events at seven days are very low (< 0.2%)
  - Downside to treating as well.

Hypertensive Urgency- Treatment Options

- Confirm that patient has no end-organ damage (i.e. this is urgency, not emergency)
  - History with focused review of systems and PE sufficient.
  - Screening labs are generally not needed. (ACEP Guidelines)

- Search for common causes of treatable hypertension
  - Missing antihypertensives
  - Pain/nausea
  - Withdrawal syndromes

Hypertensive Urgency- Monitoring and Follow-up

- Allow period of rest (30min) and recheck blood pressure.
  - This will fix up to a third of patients. (Grassi, et. al., Park, et.al.)
- If bp remains elevated, consider augmenting or beginning home anti-hypertensive regimen.
- Typically felt that outpatient follow-up within 1 week is sufficient.

Case 1 Follow-up:

- Patient had run out of Lisinopril and been off it for more than a week.
- In ED, remained asymptomatic. Repeat BP 210/120.
- PE normal.
- Restarted on Lisinopril, referred back to PCP in a week for bp check.
- In clinic later that week, BP 150/92.
- Started on second anti-hypertensive.

Case 2:

- 54 yo M with history of hypertension, presents to PCP with family with multiple complaints, including severe HA, vomiting, and “not acting right”
- BP 240/144. PE reveals patient in moderate distress due to pain. Slightly slowed and slurred speech. Confused as to day of week. Remainder of neuro exam non-focal.
- Referred to ED for “hypertensive emergency”.

Hypertensive Emergency

- Definition: severe elevations of BP associated with evidence of new or worsening target organ damage (TOD).

- "Severe": Again, typically recognized to be SBP > 180 and/or DBP > 120.

- ACC/AHA 2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults

Hypertensive Emergency- Target Organ Damage (TOD)

- Two Categories:
  - Microvascular
    - Encephalopathy, eclampsia, renal failure
    - Small vessel mediated, with endothelial damage and local inflammation.
  - Macrovascular
    - Aortic dissection, hemorrhagic stroke, subarachnoid hemorrhage, CHF

- In a chronically hypertensive individual, the rate of change, rather than any absolute level, determines TOD.

Hypertensive Emergency- Must Treat!

- In-hospital mortality up to 13%
- One year mortality 39%

- An aside about “malignant hypertension”- 1930’s with mortality >79% and median survival 10.4 months.

Hypertensive Emergency- Treatment Goals and Timing

- In hypertensive emergencies, BP should almost never be rapidly lowered.
- Goal of 10-20% reduction of MAP in first hour, and then 5-15% further in next 23 hours.
  - Usually results in acute target of <180/<120 in first hour, then <160/<110 in next 23 hours.
- Exceptions:
  - Acute aortic dissection (SBP < 120 in 20 minutes)
  - Acute ischemic stroke (tPA candidate < 185/110)
  - ICH (variable targets. To be discussed tomorrow)

Hypertensive Emergency- Treatment Options

- Ideal Drugs for hypertensive emergency:
  - Parenteral therapy
  - Rapidly titrateable
- No trials have investigated optimal therapy for hypertensive emergencies.
- Typically choose based on patient comorbidities and target organ involved.

Hypertensive Emergency- Treatment Options

- 3 Major categories:
  - Beta-blockers
    - Labetalol commonly used, push dose or as gtt.
    - Esmolol tends to have less impact on bp and more on HR (reduce shear in Ao dissection)
  - Calcium Channel Blockers
    - Nicardipine- vasodilation
    - Diltiazem more chronotropic
  - Direct vasodilators
    - Ntg (at high doses will arteriodilate)
    - Nitroprusside (familiar but falling out of favor)

Hypertensive Emergency- Monitoring and Follow-up

- Typical management with ICU level-care
- Arterial line for close bp management
- At about 24 hours, switch to oral bp medications as wean IV meds.

Case 2 Follow-up

- On arrival to ED, patient remained confused, with bp 230/140 (MAP 170).
- Head CT negative for acute hemorrhage.
- Labs essentially unremarkable (Cr 1.6 – unknown baseline)
- Assumed to have hypertensive emergency with encephalopathy.
- Target MAP 140-150 (10-20% reduction)
- Started on nicardipine gtt and arterial line placed, admitted to ICU.

Case 2 Follow-up

- AMS cleared as blood pressure improved.
- Remained on Nicardipine gtt overnight, transitioned to oral therapy next day and discharged from hospital after 5 day stay.

Questions?

References:

Breu AC, Axon RN, Acute Treatment of Hypertensive Urgency. Journal of Hospital Medicine. 2018;13(12):860-862.

Guiga H, Decroux C, Michelet P, et al. Hospital and out-of-hospital mortality in 670 hypertensive emergencies and urgencies. J Clin Hypertens (Greenwich). 2017;19(11):1137-1142.

Patel KK, Young L, Howell EH, et al. Characteristics and outcomes of patients presenting with hypertensive urgency in the office setting. JAMA Intern Med. 2016;176(7):981-988.