

Pharmacotherapy Casebook: A Patient-Focused Approach, 10e >

Chapter 13: Hypertension: Pass the Salt, Please Level II

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FIGURE 13-1.

Instructors can request access to the Casebook Instructor's Guide on AccessPharmacy. Email User Services (userservices@mhprofessional.com) for more information.

LEARNING OBJECTIVES

After completing this case study, the reader should be able to:

Classify blood pressure according to current hypertension guidelines, and discuss the correlation between blood pressure and risk for cardiovascular morbidity and mortality.

Identify medications that may cause or worsen HTN.

Discuss complications (eg, target organ damage) that may occur as a result of uncontrolled and/or long-standing HTN.

Establish goals for the treatment of HTN, and choose appropriate lifestyle modifications and antihypertensive regimens based on patient-specific characteristics, comorbid disease states, and current HTN guidelines.

Provide appropriate patient counseling for antihypertensive drug regimens.

PATIENT PRESENTATION

Chief Complaint

“I’m here to see my new doctor for a checkup. I’m just getting over a cold. Overall, I’m feeling fine, except for occasional headaches and some dizziness in the morning. My other doctor prescribed a low-salt diet for me, but I don’t like it!”

HPI

James Frank is a 64-year-old black man who presents to his new family medicine physician for evaluation and follow-up of his medical problems. He generally has no complaints, except for occasional mild headaches and some dizziness after he takes his morning medications. He states that he is dissatisfied with being placed on a low-sodium diet by his former primary care physician.

PMH

HTN × 14 years

Type 2 diabetes mellitus × 16 years

COPD, GOLD 3/Group C

BPH

CKD

Gout

FH

Father died of acute MI at age 73. Mother died of lung cancer at age 65. Father had HTN and dyslipidemia. Mother had HTN and diabetes mellitus.

SH

Former smoker (quit 6 years ago; 35 pack-year history); reports moderate amount of alcohol intake. He admits he has been nonadherent to his low-sodium diet (states, “I eat whatever I want”). He does not exercise regularly and is limited somewhat functionally by his COPD. He is retired and lives alone. He works at Wal-Mart and has healthcare insurance through his employer.

Meds

[Triamterene](#)/hydrochlorothiazide 37.5 mg/25 mg PO Q AM

[Insulin glargine](#) 36 units SC daily

[Insulin lispro](#) 12 units SC TID with meals

Doxazosin 2 mg PO Q AM

Carvedilol 12.5 mg PO BID

Albuterol HFA MDI, two inhalations Q 4–6 H PRN shortness of breath

Tiotropium DPI 18 mcg, one capsule inhaled daily

[Fluticasone/salmeterol](#) DPI 250/50, one inhalation BID

Mucinex D® two tablets Q 12 H PRN cough/congestion

[Naproxen](#) 220 mg PO Q 8 H PRN pain/HA

Allopurinol 200 mg PO daily

All

PCN—rash.

ROS

Patient states that overall he is doing well and recovering from a cold. He has noticed no major weight changes over the past few years. He complains of occasional headaches, which are usually relieved by [naproxen](#), and he denies blurred vision and chest pain. He states that shortness of breath is “usual” for him, and that his albuterol helps. He reports having had two COPD exacerbations within the past 12 months. He denies experiencing any hemoptysis or epistaxis; he also denies nausea, vomiting, abdominal pain, cramping, diarrhea, constipation, or blood in stool. He denies urinary frequency, but states that he used to have difficulty urinating until his physician started him on doxazosin a few months ago. He has no prior history of arthritic symptoms and states that his occasional gout pain is also relieved with [naproxen](#).

Physical Examination

Gen

WDWN, black male; moderately overweight; in no acute distress

VS

BP 162/90 mm Hg (sitting; repeat 164/92 mm Hg), HR 76 bpm (regular), RR 16/min, T 37°C; Wt 95 kg, Ht 6'2"

HEENT

TMs clear; mild sinus drainage; AV nicking noted; no hemorrhages, exudates, or papilledema

Neck

Supple without masses or bruits, no thyroid enlargement or lymphadenopathy

Lungs

Lung fields CTA bilaterally. Few basilar crackles, mild expiratory wheezing.

Heart

RRR; normal S₁ and S₂. No S₃ or S₄

Abd

Soft, NTND; no masses, bruits, or organomegaly. Normal BS

Genit/Rect

Enlarged prostate

Ext

No CCE; no apparent joint swelling or signs of tophi

Neuro

No gross motor-sensory deficits present. CN II–XII intact. A & O × 3

Labs

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Na 138 mEq/L	Ca 9.7 mg/dL	<i>Fasting lipid panel</i>	<i>Spirometry (6 months ago)</i>
K 4.7 mEq/L	Mg 2.3 mEq/L		
Cl 99 mEq/L	A1C 6.1%	Total Chol 161 mg/dL	FVC 2.38 L (54% pred)
CO ₂ 27 mEq/L	Alb 3.4 g/dL		
BUN 22 mg/dL	Hgb 13 g/dL	LDL 79 mg/dL	FEV ₁ 1.21 L (38% pred)
SCr 2.2 mg/dL	Hct 40%	HDL 53 mg/dL	
Glucose 110 mg/dL	WBC 9.0 × 10 ³ /mm ³	TG 144 mg/dL	FEV ₁ /FVC 51%
Uric acid 6.7 mg/dL	Plts 189 × 10 ³ /mm ³		

UA

Yellow, clear, SG 1.007, pH 5.5, (+) protein, (–) glucose, (–) ketones, (–) bilirubin, (–) blood, (–) nitrite, RBC 0/hpf, WBC 1–2/hpf, neg bacteria, 1–5 epithelial cells.

ECG

Abnormal ECG: normal sinus rhythm; left atrial enlargement; left axis deviation; LVH

ECHO (6 Months Ago)

Mild LVH, estimated EF 45%

Assessment

1. HTN, uncontrolled
2. Type 2 DM, controlled on current [insulin](#) regimen
3. COPD, stable on current regimen

4. BPH, symptoms improved on doxazosin
5. Gout, controlled on current regimen

QUESTIONS

Problem Identification

- 1.a. Create a list of this patient's drug-related problems, including any medications that may be contributing to his uncontrolled HTN.
- 1.b. How would you classify this patient's HTN, according to current HTN guidelines?
- 1.c. What evidence of target organ damage or clinical cardiovascular disease does this patient have?

Desired Outcome

2. List the goals of treatment for this patient (including his goal blood pressure).

Therapeutic Alternatives

- 3.a. What lifestyle modifications should be encouraged for this patient to help achieve and maintain adequate blood pressure reduction?
- 3.b. What reasonable pharmacotherapeutic options are available for controlling this patient's blood pressure, and what comorbidities and individual patient considerations should be taken into account when selecting pharmacologic therapy for his HTN? How might Mr Frank's HTN medications potentially affect his other medical problems?

Optimal Plan

- 4.a. Recommend specific lifestyle modifications for this patient.
- 4.b. Outline a specific and appropriate pharmacotherapeutic regimen for this patient's uncontrolled HTN, including drug(s), dose(s), dosage form(s), and schedule(s).

Outcome Evaluation

5. Based on your recommendations, what parameters should be monitored after initiating this regimen and throughout the treatment course? At what time intervals should these parameters be monitored?

Patient Education

6. Based on your recommendations, provide appropriate education to this patient.

SELF-STUDY ASSIGNMENTS

1. Describe the major causes of secondary HTN and the methods by which those could be ruled out in this patient.

2. Outline the changes, if any, that you would make to the pharmacotherapeutic regimen for this patient if he had a history of each of the following comorbidities or characteristics:

- Severe persistent asthma
- Major depression
- Ischemic heart disease with a history of MI
- Cerebrovascular accident
- Peripheral arterial disease
- Isolated systolic HTN
- Migraine headache disorder
- Liver disease
- Renovascular disease (bilateral or unilateral renal artery stenosis)
- Heart failure with reduced EF

3. Describe how you would explain to a patient how to use a digital home blood pressure monitor such as the one shown in Fig. 13-1.

FIGURE 13-1.

The LifeSource UA-767 Plus—One-Step Plus Memory digital home blood pressure monitor. (*Photo courtesy of A&D Medical, Milpitas, California.*)




Source: T.L. Schwinghammer, J.M. Koehler, J.S. Borchert, D. Slain, S.K. Park: *Pharmacotherapy Casebook: A Patient-Focused Approach*, Tenth Edition: www.accesspharmacy.com Copyright © McGraw-Hill Education. All rights reserved.

CLINICAL PEARLS


1. The risk of hemorrhagic stroke may be increased by the use of aspirin therapy in patients with uncontrolled HTN (eg, BP > 150/90 mm Hg).
2. The majority of hypertensive patients will require two or more blood pressuring-lowering medications to achieve recommended blood pressure goals.

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