

Managing Hypertension in the Frail Elderly

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My Aunt in Georgia

- 82 yo woman, lives just outside Atlanta. She lives in a nice home with her husband, has full access to health care, and two sons who live out of town who are physicians.
- It can be hard to manage HTN in frail older adults, but it is also possible to make an older adult frail with antihypertensive medications

Objectives

- Describe 3 physiologic factors that complicate the management of hypertension in frail older adults.
- Describe a strategy for managing hypertension in frail older adults in the context of multiple co-morbidities.
- Describe at least 3 key prescribing points for managing hypertension in frail older adults.

Background: Hypertension

- By year 2030, 20% of Americans age 65 or older
- Rates of hypertension 60-80% in adults ages > 60 years, with earliest and highest in African-American women
- Linear relationship between increasing blood pressure and coronary artery disease, stroke, and cardiovascular mortality (both systolic and diastolic)
- Lowering the blood pressure clearly reduces these negative outcomes, even in older adults

HTN Definitions (JNC 7)

- Normal blood pressure: systolic <120 mmHg and diastolic <80 mmHg
- Prehypertension: systolic 120 to 139 mmHg or diastolic 80 to 89 mmHg
- Hypertension:
 - Stage 1: systolic 140 to 159 mmHg or diastolic 90 to 99 mmHg
 - Stage 2: systolic \geq 160 mmHg or diastolic \geq 100 mmHg
 - Isolated systolic hypertension \geq 140/<90 mmHg

Aging and Hypertension

- Renal function tends to decline with age
 - Increased risk for hyperkalemia, hyponatremia
 - Increased difficulty managing fluid shifts
- Reduction in vascular compliance in large capacitance vessels, tends to increase blood pressure
- Decreased cerebral autoregulation increases susceptibility to orthostatic declines in BP
- Decreased left ventricular compliance increases risk for CHF

Blood Pressure Testing in Older Adults

- Screening for hypertension
 - USPSTF: Recommends screening all adults age 18 and older for HTN, but not sure about interval
 - JNC 7:
 - Every 2 years if $< 120 / 80$ mm Hg
 - Every year if $120-139 / 80-89$
 - Mean of two or more seated clinic measurements used to make the diagnosis
- Secondary hypertension, especially if severe HTN, consider RAS in older adults

Blood Pressure Testing (cont.)

- Seated, with back supported, and arm supported
- Proper size cuff: in elderly, small cuff may be necessary
- Orthostatic measuring is important prior to initiating therapy, and to monitor response.
 - Older adults and those with diabetes more susceptible to orthostatic hypotension
 - Orthostatic hypotension is diagnosed when, within two to five minutes of quiet standing, one or more of the following is present:
 - At least a 20 mmHg fall in systolic pressure
 - At least a 10 mmHg fall in diastolic pressure
 - Symptoms of cerebral hypoperfusion, such as dizziness

Treatment of Hypertension - General

- Accurate diagnosis
- Lifestyle
 - Diet, especially low salt
 - Exercise
 - Healthy Weight
 - Proper rest
- Medication
 - Multiple drug classes available
 - Morbidity and mortality benefits variable
 - Frail older adults especially susceptible to side effects

Medications for Hypertension in Older Adults

- Thiazide type diuretics:
 - Long acting more effective, low dose
 - May cause hyponatremia
 - Hypokalemia less common in older adults, but possible
 - Lose effectiveness as renal function declines
- Beta-blockers:
 - Older adults more likely to experience bradycardia
 - Good for patients with CAD or CHF

Medications (cont.)

- Calcium channel blockers
 - Long acting dihydropyridines effective, but may cause resistant edema
 - Diltiazem and verapamil not with systolic heart failure
 - May cause constipation
 - Risk for drug-drug interactions, especially with verapamil

Medications (cont.)

- ACE Inhibitors
 - Effectively lower BP, and have reduced primary outcomes
 - Older adults at increased risks for hyperkalemia and AKI
 - May be difficult to sort out ACEI cough in older adults with other risks
- Angiotensin II receptor blockers
 - Also effective, less likely to cause hyperkalemia, and cough

Medications (cont.)

- Direct vasodilators:
 - α blockers, probably not a good choice
 - Minoxidil, only for severe hypertension, usually with ESRD
 - Hydralazine, better for short term urgent use, tends to cause edema over time, short duration of action
- α agonists:
 - Anticholinergic, adverse CNS effects very problematic
 - Clonidine with very high anticholinergic burden

Treatment Strategies

- Monotherapy if BP < 20/10 mmHg over goal
 - Low dose thiazide diuretic (chlorthalidone more effective than hydrochlorothiazide)
 - Long acting ACEI or Angiotensin II receptor blocker
 - Long acting dihydropyridine CCB
- Combination therapy if BP > 20/10 mmHg over goal

Challenges in Treating HTN

- Hypertension doesn't make you feel bad for a long time, i.e. until you have the stroke
- Low health literacy levels, “why bother, especially if the medication makes me feel bad?”
- Other factors affect adherence / compliance
- Medications have side effects
- Older adults are more susceptible to the side effects
 - Pharmacokinetics and pharmacodynamics

Hypertension and Frailty

- A 2004 American Geriatrics Society / National Institute on Aging conference on frailty in older adults describes frailty as "a state of increased vulnerability to stressors due to age-related declines in physiologic reserve across neuromuscular, metabolic, and immune systems"
- 7-11% prevalence of frailty, 30% by age 90
- Caring for older adults with hypertension and frailty means caring for older adults with multimorbidity

“Primum non nocere”

- Hypertension is a chronic illness
- Beer’s list and blood pressure medication
 - α 1 blockers: doxazosin, prazosin, terazosin
 - α agonists: clonidine, others
 - nondihydropyridine CCB’s for systolic heart failure
- Side effects
- Drug – disease interactions
- Drug – drug interactions
- **All antihypertensive medications increase fall risk.**

Approach to the Evaluation and Management of the Older Adult with Multimorbidity.

- Inquire about the patient's primary concern (and that of family and/or friends) and any additional objectives for visit.
- Consider prognosis.
- Consider interactions within/among treatments and conditions.
- Weigh benefits/harms of components of the treatment plan.
- Communicate and decide for or against implementation or continuation of intervention/treatment.
- Reassess at selected intervals: for benefit, feasibility, adherence, alignment with preferences.

Mr. H.

- 83 yo man who has fallen 3 times in the past week. During one of the falls, it sounds as if he passed out after getting up out of bed in the morning. He has a history of congestive heart failure (diastolic), hypertension, and diabetes mellitus. He has mild dementia and lives with his 86 yo wife. He has lost 15 pounds in the past year. Fortunately, he has not broken any bones as the result of these falls, but he does have extensive bruising. His blood pressure medication was increased two weeks ago for readings that averaged 165/90.

What About Mr. H?

- Is he “frail”?
 - Frequent falls
 - Unintentional weight loss
 - Multiple co-morbidities
- What should his treatment goals be for HTN?
- Who decides?

Treatment Goals

- What are his goals / concerns?
- What is his prognosis?
- How are his diabetes and heart failure?
- What did his blood pressure do when he stood up?
- What happened with his blood pressure when medications were changed?
- What would you do now?

So We Have Mutual Goals, Now What?

- Home medication system?
- How bad is his dementia?
- How will you monitor?
- What will you tell him and his caregiver? (who is his primary caregiver?)
- Should we do anything else about the falls?
- Don't forget about community resources, informal and formal.

Summary

- Frail older adults are likely to experience complications from hypertension in their lifetime.
- It is possible, even with frail older adults to effectively reduce the morbidity and mortality associated with hypertension and its management.
- In order to maximize benefit / risk ratio when treating hypertension in this population, providers need to adopt an individualized approach for goal setting and care strategies.