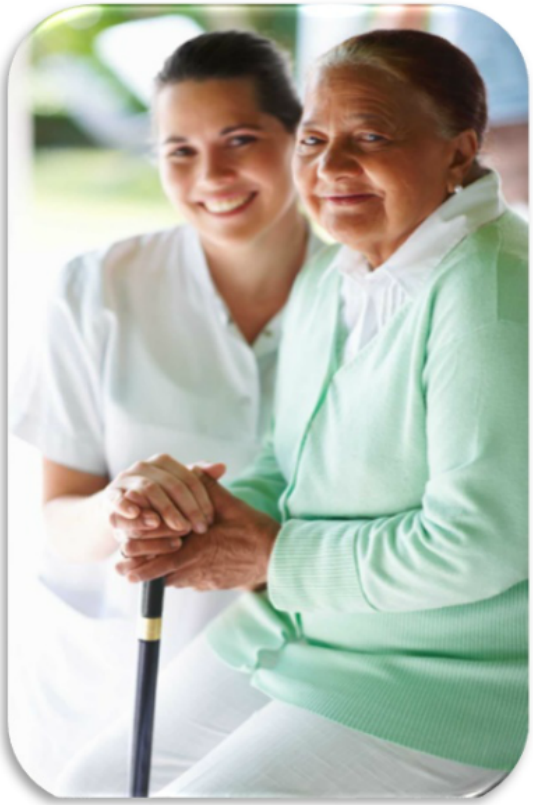
University of South Florida

GERIATRIC WORKFORCE ENHANCEMENT PROGRAM (GWEP)

Learn@Lunch

Geriatric Education Series



Kathryn Hyer, PhD, MPP
Principal Investigator

Providers of Continuing Education

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For additional information about this and other USF GWEP events, email amaynard@health.usf.edu

Richard Roetzheim, MD, MSPH is Professor and Chair, Department of Family Medicine at the University of South Florida Morsani College of Medicine. Dr. Roetzheim has considerable experience leading NIH funded projects. He has served as PI on randomized trials promoting novel cancer screening interventions in community health centers, testing the effectiveness of patient navigators in promoting early cancer diagnosis, and a community based intervention promoting sun protection behaviors of elementary students in Hillsborough County Florida. Along with Dr. B. Lee Green, he served as co-PI for the Center for Equal Health, an NIMHD Center of Excellence in Health Disparities Research.

Dr. Roetzheim has conducted and published seminal studies funded by the American Cancer Society (Primary Care and Cancer Outcomes among Medicare Beneficiaries) and the Robert Wood Johnson Foundation (The Effect of Primary Medical Care on Breast Cancer Stage at Diagnosis) outlining the important role that primary care plays in the early detection of cancer. He has conducted studies demonstrating the impact that primary care physician supply has on early diagnosis of cancer, cancer incidence, and cancer mortality. He has also demonstrated the impact that primary care access and utilization have on cancer stage, cancer incidence, and cancer outcomes. Dr. Roetzheim is a nationally recognized expert in primary care, and is highly regarded as an instructor and mentor to health professions students.

We are delighted to have Dr. Roetzheim with us today to discuss **Managing Hypertension in Older Adult Patients**.

Managing Hypertension in Older Adults

Richard Roetzheim, MD, MSPH
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USF Morsani College of Medicine
Department of Family Medicine
Geriatric Workforce Enhancement Program co-PI
December 8, 2017

Goals

- To understand how age related physiologic changes affect HTN management.
- To understand the BP goals and preferred therapies for older adults
- To review the new 2017 ACC/AHA guidelines for managing hypertension and contrast with JNC-8

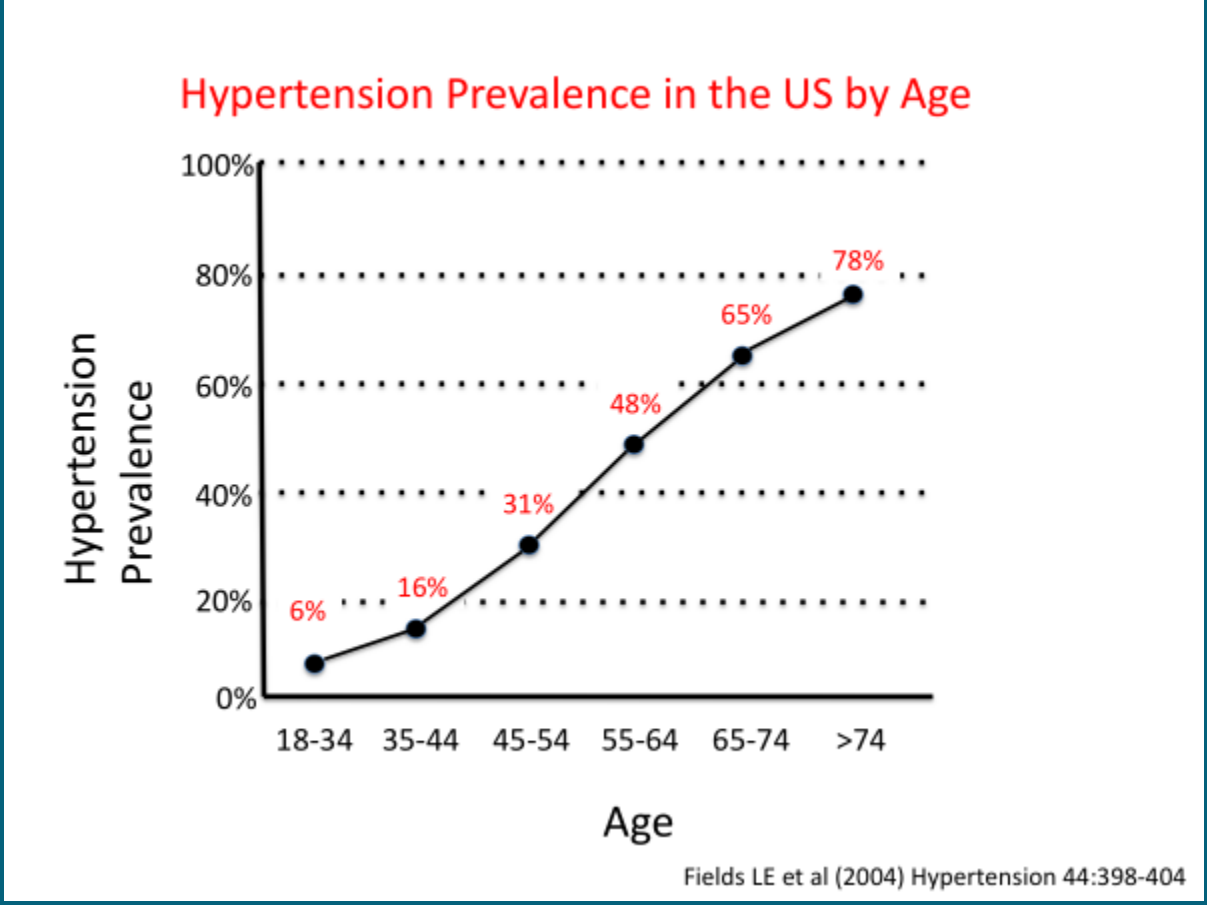
Case

An 83 year old woman has been receiving care in your practice for more than 20 years. She has history of CKD3, HTN, and Hyperlipidemia. Her blood pressures have been averaging 145/85 on her regimen of hctz 25 mg / Lisinopril 40 mg daily. You wonder if the goals of therapy are different at this point of her life and whether her existing regimen is appropriate.

Physiological Blood Pressure Related Changes with Age

- Reduced arterial compliance (increases systolic BP and pulse pressure)
- Diminished baroreceptor and sympathetic neural responses (more orthostasis)
- Impaired cerebral autoregulation (more lightheadedness and syncope)
- Reduced taste sensitivity to salt (higher sodium intake)

Hypertension Prevalence with Age



Which BP Measures Are Most Predictive of CV Outcomes in Older Patients?

a) Systolic BP
b) Diastolic BP
c) Pulse Pressure
d) Systolic BP and Pulse Pressure
e) All measures equally predictive

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Franklin SS, Larson MG, Khan SA, et al. Does the relation of blood pressure to coronary heart disease risk change with aging? The Framingham Heart Study. Circulation 2001; 103:1245.

Which Is True about BP in the Elderly Compared to Younger Patients?

a) BP more likely to be recognized by patient
b) BP more likely to be treated
c) BP less likely to be at goal
d) All of the above

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Egan BM, Zhao Y, Axon RN. US trends in prevalence, awareness, treatment, and control of hypertension, 1988-2008. JAMA 2010; 303:2043.

Studies Showing Improved CV Outcomes in Older Patients

- Systolic Hypertension in the Elderly Program (SHEP)
  - Mean age 72
- Swedish Trial in Old Patients (STOP)
  - Age range 70-84
- Hypertension in Very Elderly Trial (HYVET)
  - Patients 80 and older (mean age 84)
- European Systolic Hypertension in the Elderly (Sys-Eur)
  - Mean age 70
- Chinese Trial on Isolated Systolic Hypertension in Elderly (Syst-China)
  - Mean age 67 years

Studies Showing Improved CV Outcomes in Older Patients

	HYVET	SHEP	STOP	Syst-Eur	Syst-China
Mean treatment BP reduction, SBP/DBP, mmHg	-29/-13	-27/-9	-29/-17	-23/-7	-20/-5
Stroke, percent reduction	-30 percent	-32 percent	-47 percent	-42 percent	-38 percent
Coronary disease, percent reduction	-23 percent*	-27 percent	-13 percent	-30 percent	+6 percent
Heart failure, percent reduction	-64 percent	-55 percent	-51 percent	-29 percent	-58 percent

BP Targets: How Low Should We Go?

According to JNC-8 guidelines the goal systolic BP for our case patient should be.

a. <150 because patient is over 60
b. <160 because patient is over 80
c. <140 because patient has CKD
d. not applicable – there are no JNC-8 target goals for persons >80

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James PA et al. *JAMA*. 2014;311(5):507-520.

BP Targets: The "Old" Guidelines

JNC-8 targets for BP

- Goal BP is <140/90 for persons <60
- For persons 60+ goal BP is <150/90 (no upper age limit)
- If person 60+ is currently <140/90 and doing well no need to change
- Persons with CKD/DM goal is <140/90 (regardless of age)

Why the Higher Target for Persons 60+?

Japanese Trial to assess optimal systolic BP in elderly hypertension patients

- Ages 65-85
- average BP's 136/75 vs. 146/78
- No difference in outcomes at two years follow up

Valsartan in elderly isolated systolic hypertension (VALISH)

- Mean age 75
- Strict target (<140) vs. moderate control (140-150)
- No difference in outcomes at 3 years follow up

Studies were underpowered

Based on the findings from the SPRINT trial, which are true statements for our patient?

a. Targeting a goal systolic BP < 120 would improve CV outcomes
b. Intensive treatment would be associated with more falls and injuries
c. The balance of benefits and harms with treatment would be worse for patients >75
d. All of the above

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N Engl J Med 2015;373:2103-16.

SPRINT Trial

- Persons 50 and older
- Systolic BP 130-180
- Increased CV risk
  - History of CV disease (except stroke)
  - CKD
- Framingham 10 year CV risk 15% or more
- Diabetic patients excluded

SPRINT Trial

- Systolic BP target <120 vs. <140
- 'Standard' medications used to achieve goal
- Outcomes (median follow up 3 years)
  - Composite CV disease (MI, ACS, CVA, CV deaths), all cause mortality
  - Renal outcomes (progression, ESRD)
  - AE's (falls with injuries etc.)

SPRINT Trial - Outcomes

- Average systolic BP 121 vs. 136 (one more med)
- CV composite yearly rate - 25% reduction
  - (2.2% vs. 1.7% P<0.001)
- All cause mortality rates - 27% reduction
  - (1.4% vs. 1.0% P=0.003)
- No difference in outcomes persons >75 (or other subgroups)
- NNT (75+) 27 composite, 41 death

SPRINT Trial – Adverse Events

- Serious AE's – overall no difference (38.3% vs. 37.1% P=0.25)
- No difference in falls with injury
- Specific AE's with higher rates
  - hypotension/orthostasis (2.4% vs. 1.4%)
  - Syncope (2.3% vs. 1.7%)
  - electrolyte abnormalities (3.1% vs. 2.3%)
  - AKI (4.1% vs. 2.5%)

Our patient has developed signs of frailty and reduced gait speed. Based on the SPRINT trial which of the following are true regarding intensive BP control?

a) CV benefits are less likely
b) Adverse events and falls would be more common
c) The relative balance of benefits to harms would be less favorable
d) None of the above

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Williamson JD et al. JAMA 2016

SPRINT Trial – Persons 75+

- Assessed frailty using frailty index, gait speed, MOCA
- Mean BP's at follow-up 123/62 vs. 135/67
- No difference in CV benefits of treatment according to frailty or gait speed
- No difference in treatment AE's according to frailty or gait speed

SPRINT Trial – Summary

- Treating to a goal systolic BP < 120 improves CV outcomes
- 'Costs' are one more medication and some AE's (orthostasis/electrolytes/AKI)
- Benefits/risks same for persons over 75 (including those who are frail)
- Study did not include diabetics and results could differ in "real world settings"

2017 ACC/AHA BP Guidelines

- Hypertension is BP ≥130/80
- Persons with CV disease and those with 10 year CV risks 10% or more (includes DM / CKD)
  - Goal BP is <130/80
- Persons without CV disease (or DM/CKD) and 10 year risk <10%
  - Goal BP is <140/90

Whelton PK, et al. *Hypertension.* 2017

Comparison of BP Targets

	JNC-8	2017 AHA/ACC
• Low risk patients	140/90	140/90
• High risk patients (CVD/DM/CKD, 10% CV risk)	140/90	130/80
• Age ≥65	150/90	130/80

Non Pharmacologic Treatment

- Weight loss
- Heart healthy diet (DASH diet, Mediterranean diet)
- Sodium restriction
- Physical activity
- Moderate ETOH intake

Treatment Strategies for BP

• 120-129	Lifestyle changes
Stage 1 Hypertension	
• 130-139 (low risk)	Lifestyle changes
• 130-139 (high risk)	+ medications f/u 3-6 months
Stage 2 Hypertension	
• 140+	two meds if more than 20 mm Hg above target f/u monthly

Preferred Medications

- Primary drugs
  - Thiazides (Chlorthalidone preferred)
  - ACEI/ARB
  - CCB
- Black patients
  - Start thiazide / CCB
- Consider comorbidities and compelling indications
  - (CAD, heart failure, CKD, DM)

Are There Preferred Combinations?

- Few trials comparing combinations
  - ACCOMPLISH Trial – For patients at high CV risk benazapril plus amlodipine greater CV benefits than benazapril plus HCTZ
- Don't combine meds of same class
  - No ACEI with ARB
  - Don't combine CCB of same class (e.g. verapamil / diltiazem)
  - Ok for CCB of different class (amlodipine and verapamil)
  - Ok for different class diuretics (thiazide and loop, thiazide with potassium sparing diuretic)

Ischemic Heart Disease

- Initial drugs
  - Beta Blockers (atenolol less effective)
  - ACEI/ARB
- Patients with angina
  - Can add Dihydropyridine CCB
- Secondary drugs
  - Thiazides
  - Dihydropyridine CCB

Heart Failure

- Reduced ejection fraction
  - Diuretics
  - ACEI/ARB
  - Angiotensin-neprilysin inhibitor (Entresto)
  - Mineralcorticoid antagansist (e.g. spironolactone)
  - Beta blockers (carvedilol, metoprolol, bisoprolol)
  - Avoid non-dihydropyridine CCB (verapamil)

Diabetes

- All first line drugs effective
  - Thiazide diuretics
  - CCB
  - ACEI/ARB
- If albuminuria
  - ACEI/ARB

Chronic Kidney Disease

- Note tighter control of BP is based on reduced CV risk, not less progression of CKD
  - Sprint showed no changes in rates of progression
  - Declines in GFR in Sprint are hemodynamic
- CKD stage 3 or any stage with albumin/Cr ratio>300
  - ACEI
  - ARB if ACEI not tolerated
- Otherwise any of the first choice meds

Caveats treating older patients

- For patients ≥65 treat to goal of <130/80
- Assumed that majority of older adults are high risk
- Consider risks/benefits if high burden of comorbidity, limited life expectancy
- Guidelines apply to ambulatory community dwelling patients (not SNF, ALF)
- Caution if starting two drugs
- Monitor for orthostasis

BP Control and Cognitive Impairment

- Hypertension risk factor for
  - Small vessel ischemic changes
  - Dementia including Alzheimer's Dementia
- 4/5 clinical trials of BP control have shown reduced dementia incidence
- 2/7 clinical trials of BP control have shown lower rates of cognitive decline
- No studies have shown worsened outcomes

Conclusion

- New BP goals for persons 65+ 130/80 (even frail!)
- First line medications
  - Thiazide diuretics (chlorthalidone)
  - ACEI/ARB (except black patients)
  - CCB
- Benefits of new goal (25% reduction in CV outcomes, ?less dementia / cognitive decline)
- Risks include AKI/orthostasis/electrolyte problems
- Will require one additional drug on average

Case

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Questions?

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