How Can We Improve Hypertension Care for African Americans?

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OBJECTIVES

• Incorporate at least one new communication approach to improve hypertension care for African Americans
• To build a trusting relationship
• Discuss lifestyle, medication adherence, and use of correct medications.

Which is NOT a social determinant of health that especially may affect some African Americans?

A. Limited areas for safe physical activity
B. Food outlets for healthy foods
C. Low renin profile
D. Under-utilizing preventive services.

66 y.o. black woman, BMI=32, eGFR>60, has averaged clinic BP 162/89 mm Hg. She reluctantly acquiesces to medication, and you inform her that to effectively control HTN in blacks:

A. Monotherapy in blacks for BP-lowering is equally effective with thiazides, long-acting CCBs, and ACEIs, or ARBs
B. For blacks, chlorthalidone-based regimen more beneficial for major cardiovascular events than lisinopril-based therapy
C. Long-acting CCB’s effectively reduce BP, stroke, and heart failure equally as well as with chlorthalidone in blacks
D. For resistant hypertension, spironolactone is contraindicated if already on ACEIs, or ARBs

Effective diuretics to control resistant HTN should utilize what information?

A. For thiazides, effectiveness generally increases when eGFR falls <50 ml/min/1.73 m²
B. Chlorthalidone is less effective for BP control than HCTZ
C. Furosemide once-daily, if adequately dosed, effectively causes natriuresis and avoids sodium retention
D. Torsemide duration of action may be effective given once or twice daily
Introduction

- Health, life expectancy, and care improved dramatically for Americans over last century
- Distribution of benefits not occurred equitably – Current mortality gap between black & white persists since 1960¹
- Large portion of disparity due to CVD²
- African Americans have a higher risk for HTN, DM, obesity, MI, stroke, CKD, and CV mortality, especially premature cardiac death


Life Expectancy at Birth

![Life Expectancy at Birth Chart](chart.png)

- Life expectancy at birth, by race/ethnicity and sex, 2010:
  - Black, not Hispanic: 71
  - White, not Hispanic: 79
  - Hispanic: 78
  - White, Hispanic: 81
  - Black, Hispanic: 84

CDC/NCHS, Health, United States, 2012, Figure 1. Data from the National Vital Statistics System.

HBP Awareness, Treatment, & Control Race/ethnicity

![HBP Awareness, Treatment, & Control Chart](chart.png)

- NHANES: 2007–2010

Go A S et al. Circulation 2013;127:e6-e245

Broad Policy Areas for Addressing Racial /ethnic Health Care Disparities

- Raising public and provider awareness of racial/ethnic disparities in care
- Expanding health insurance coverage
- Improving capacity and number of providers in underserved communities
- Increasing knowledge base on causes and interventions to reduce disparities

Concept of Race

- No active biologic or genetic category - flawed idea
- Over-reliance may undervalue SES, geography, stress and lifestyle
- Skin color imperfect for genetics

What Is Culture?

• A shared system of values, beliefs, customs, and learned behavior patterns
• Not same as, but related to, race or ethnicity, primary language, national heritage, and/or socioeconomic status

Contributing Factors

- Poverty
- Education Level
- Cultural Attitudes, Norms, and Values
- Minority Mistrust of Healthcare System
- Language

Social Determinants of Health

www.cdc.gov/socialdeterminants/

The social determinants of health are the circumstances in which people are born, grow up, live, work, and age, as well as the systems put in place to deal with illness.

These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics

Unhealthy Diets: High in Fat, Sodium, and Calories

I.O.M. Population-based Prevention

Five risk factors constitute the bulk of the hypertension problem:
- Unhealthy diet
- Overweight
- Lack of physical activity
- Too much salt
- Not enough potassium

http://www.iom.edu/Reports/2010

Cutting Sodium Intake / Increasing Potassium - I.O.M.

- One of most prevalent and modifiable HTN risk factors: inadequate consumption of K+
- Only 2% US adults meet current guideline dietary potassium (at least 4.7 grams/day)
- Gap in blacks and Hispanics even greater
- CDC, state/local develop and implement interventions to encourage potassium rich foods, particularly fruits and vegetables
Dietary Guidelines for Americans: 2010

- Reduce daily sodium less than 2,300 mg
- Further reduce intake to 1,500 mg
- Aged 51 years and older
- Those of any age: African American or have HTN, DM, or CKD
- Use DASH diet (Dietary Approaches to Stop Hypertension)

Hypertension in African Americans: Community-based Approaches

Public Health CVD Risk Interventions

- Promise of decreasing CVD across various populations at risk
- Social determinants of health addressed by educating and encouraging people about lifestyle modifications, e.g. physical activity, healthy foods, and utilizing preventive services.
- Achieve widespread behavioral change and risk reduction by identifying unrecognized CVD risk factors.

Healthy Heart Community Prevention Project

www.healthyheartcpp.org
HHCPP "Cut Your Pressure" Barbershop/beauty Shop Intervention
• Taught beauticians/barbers how to determine standardized BP.
• Recognized black-owned barbershops as a cultural institution with a loyal male clientele.
• Black churches often effective CV outreach community partners, less so among black men.
• HHCPP major early adopter of popular secular sites, e.g. sporting events and barbers for HTN.


Community Partnerships
Helping Children Maintain a Healthy Weight
National Heart, Lung, and Blood Institute
National Institute of Diabetes and Digestive and Kidney Diseases
Eunice Kennedy Shriver National Institute of Child Health and Human Development
National Cancer Institute

Benefits of Partnering
Showing your commitment to participating in a positive change for community residents and families
Working with the community to promote healthier lifestyles
Raising your profile as an organization that is involved with, and supports, local community programs

HHCPP Partner LSU Ag Center at We Can! Parent Program
Strategies for Building Community-based Partnership
• Build relationships prior to addressing community issues.
• Involve community in defining issues/identifying partners, name.
• Create Shared leadership
• Meaningfully involve diverse disciplines.
• Create networking environments.
• Recognize partnerships mature & face challenges.

Shopping Matters®, LSU Ag Nutrition Educator & St. Mary of the Angels Head Start Partner
Do you have the right partners at your table? Who is missing?

Principles for Successful Partnerships
1. Identify partners, community champions.
2. Make clear goals, shared vision/mission.
3. Create mutual trust.
4. Increase clear communication, transparency.
5. Develop governance, structures, roles, agreement.

Principles of Successful Partnerships
6. Ensure partners benefit.
7. Engage community.
8. Maintain active involvement, sustain efforts.
9. Adapt to changing conditions.
10. Focus on results, evaluate progress.
11. Celebrate successes.

Major Components for American Society of Hypertension (ASH) Community Outreach Program
- Hypertension and CV risk factor screening: BP, glucose, and cholesterol
- Health screening/education to various community settings (e.g., staff at NY Hilton Hotel)
- Distribution free home BP monitors, pedometers, BP chart cards, and educational booklets
- Educating lay volunteers to take BP with digital BP monitors

How to Read a Logic Model

Hypertension in African Americans: Overcoming Barriers
8 dimensions of patient-centered care

- 1) respect for patient's values, preferences, and expressed need
- 2) information and education
- 3) access to care
- 4) emotional support to relieve fear and anxiety
- 5) involvement of family and friends
- 6) continuity and secure transition between health care settings
- 7) physical comfort
- 8) coordination of care

Barriers & Strategies for Achieving Goals

- Three types of barriers to address
  - Patient-related barriers
  - Treatment-related barriers
  - Physician-related barriers


Barriers to achieving goals

**Patient-related**
- Asymptomatic disease
- Lack of belief in benefit
- Lack of understanding of illness
- Missed appointments
- Financial
- Educational
- Cultural
- Depression, cognitive impairment

**Physician-related**
- Inadequate follow-up or discharge plan
- Lack of setting goals
- Poor patient relationship


Barriers to HTN Control in AA's: Patient-Related

- Lack of awareness of disease and consequences
- Lack of access to patient education
- Delayed diagnosis
- Living in disadvantaged community
- Inadequate resources to support healthful lifestyle
- Poor diet
- Overweight, obesity
- Distrust of medical professionals
- Adverse view of medications

Douglas et al. Postgrad Med online. 2002;112.
What Is Being Done: Health Literacy

• Particularly challenging in racial-ethnic healthcare disparity
• Almost half (48%) of patients with hypertension or diabetes had inadequate health literacy – Less knowledge of their disease, important lifestyle modifications, and essential self-management skills
• Multicultural & multilingual patients tools valuable in this area


Educational Campaign with Every Heartbeat is Life

• With Every Heartbeat is Life A Community Health Worker's Manual for African Americans U.S. Department HH S NIH Publication No. 08-5844 November 2007.
• A promotores de salud intervention to reduce cardiovascular disease risk in a high-risk Hispanic border population Balcázar,H.et al Prev Chronic Dis 2010;7(2).

“With Every Heartbeat is Life” Heart Health Programs

Community Health Worker (CHW) Training Boston Housing Authority

With Every Heartbeat Is Life Resources

Manuals
Recipe Book
Risk Factor Book
Picture
HBP in African Americans

- Understanding HBP
  - How BP Measured
  - What Makes HBP Dangerous
- Symptoms of HBP: Risk Factors for HBP
  - Ones You Can’t Control/Those You Can Control
- Treating HBP
  - Healthy Eating Reducing Sodium; Making Healthier Choices
  - Physical Activity; Medications
  - Getting Support

To Order Call -- 800.333.3032 or www.kramesstore.com/aha

7 Steps to a Healthy Heart Educational Series overview

Addresses importance of:
- Being spiritually active
- Taking charge of your blood pressure
- Controlling cholesterol
- Tracking blood glucose levels
- Healthy diet and exercise programs
- Smoking cessation
- Gaining access to better health care

Therapeutic Lifestyle Changes: the Bedrock of Hypertension Prevention and Control

Lifestyle Modification: Indicated All Patients w/ HTN & Pre-HTN

<table>
<thead>
<tr>
<th>Modification</th>
<th>~SBP Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight reduction (in overweight patients)</td>
<td>5-20 mm Hg (10-kg weight loss)</td>
</tr>
<tr>
<td>Adopt DASH eating plan</td>
<td>8-14 mm Hg●</td>
</tr>
<tr>
<td>Dietary sodium reduction</td>
<td>2-8 mm Hg●</td>
</tr>
<tr>
<td>Increase physical activity</td>
<td>4-9 mm Hg</td>
</tr>
<tr>
<td>Moderation of alcohol intake</td>
<td>2-4 mm Hg</td>
</tr>
</tbody>
</table>

Target-Organ Damage Due to High Intake of Sodium


Mean SBP changes in DASH-Sodium trial.


DASH Diet

• BP can be significantly reduced with diet abundant in fruits, vegetables, complex carbohydrates, and low-fat dairy
• The DASH diet includes these daily servings:

DASH=Dietary Approaches to Stop Hypertension.


HTN in AAs: Potential Physiologic & Hemodynamic Determinants

• Obesity (>50% women ≥ 40 yo BMI ≥ 30 kg/m²)¹
• Higher salt sensitivity²
• Low levels of plasma renin²
• Vascular function (sympathetic overactivity)²
• Attenuated nocturnal fall in BP³
• Greater comorbidity (especially DM)²
• Inactivity
• Family history


Antihypertensive Therapy in African Americans

• Monotherapy BP-lowering may be more effective with thiazides and long-acting CCBs vs. BB, ACEIs, or ARBs
• For all patients, including blacks, thiazides effective initial therapy and well tolerated
• As first-line in blacks, diuretics reduce BP, stroke, HF, and overall CVD
• If additional agents needed, thiazides & CCB’s increase efficacy BB, ACEIs, & ARBs

Flack JM et al for the ISHIB. Hypertension. 2010;56:780-800.

Antihypertensive Pharmacotherapy in African Americans

1. DASH Diet
2. Antihypertensive Therapy in African Americans
3. Mean SBP changes in DASH-Sodium trial
4. HTN in AAs: Potential Physiologic & Hemodynamic Determinants
5. Antihypertensive Pharmacotherapy in African Americans
Pooled Estimates of Decrement in BP With Antihypertensive Treatments

<table>
<thead>
<tr>
<th>Drug Category</th>
<th>Mean BP Reduction*</th>
<th>White-Black Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuretics</td>
<td>11.5/9.1</td>
<td>–3.5/–1.5</td>
</tr>
<tr>
<td>CCBs</td>
<td>15.3/12.6</td>
<td>–2.4/–0.6</td>
</tr>
<tr>
<td>β-Blockers</td>
<td>11.7/11.3</td>
<td>6.0/2.9</td>
</tr>
<tr>
<td>ACE-Is</td>
<td>12.8/11.4</td>
<td>4.6/3.0</td>
</tr>
</tbody>
</table>

White-black response difference: negative values indicating greater response in blacks and positive indicating greater response in whites. SBP/DBP


The Renin-Angiotensin System

ACE = Angiotensin-converting enzyme; ARB = Angiotensin receptor blocker; CAGE = Chymase-angiotensin generating enzyme.

Adapted from Hollenberg 1998.

Outcomes in Hypertensive Black and Nonblack Patients Treated with Chlorthalidone, Amlodipine, and Lisinopril


Cumulative Event Rates Primary Outcome (Fatal CHD or Nonfatal MI) by Treatment Group

www.allhatresearch.org

ALLHAT

Black vs. Non-Black Lisinopril/Chlorthalidone RR and 95% CIs

ALLHAT in Blacks: amlodipine vs chlorthalidone

- Only, HF was the only pre-specified clinical outcome that differed significantly amlodipine>chlorthalidone
- Blacks: HF RR, 1.46; 95% CI, 1.24-1.73
- (P<.001 for each comparison)

Wright JT, Dunn JK, Cutler JA et al. JAMA 2005:293:1595-1608

ALLHAT Trial: Implications

- Diuretics should be choice initial HTN therapy.
- Recommendation evidence even stronger for Black hypertensive patients.
- For patients who cannot take a diuretic (should be unusual circumstance), CCB’s and ACEI’s may be considered.
- However, in Blacks, ACEI’s should be considered second-line therapy


Angioedema


Management of Resistant Hypertension

AHA: Treatment of Resistant Hypertension

- Withdrawal or down titration interfering substances
- Use adequate long-acting thiazide, preferably chlorthalidone
- Combine different mechanisms
- Recommended triple regimen of
  - ACE inhibitor or ARB
  - Calcium channel blocker
  - Thiazide diuretic


Resistant HTN: Optimal Use of Diuretics

- Most crucial part of diuretic therapy is know when kidney function has deteriorated
- For thiazides, deterioration generally thought occurred when eGFR falls <50 ml/min/1.73 m²
- Chlorthalidone can still be effective to eGFR 40 ml/min/1.73 m² if hypoalbuminemia or hyperkalemia not present.

Resistant HTN: Optimal Use of Diuretics

- Loop diuretic for eGFR <40 ml/min/1.73 m².
- Furosemide or bumetanide must be given 2X/d, and possibly 3X/d - short durations of action 3 to 6 h.
- Once-daily associated with intermittent natriuresis and consequent reactive Na+ retention mediated by RAS increases.
- Torsemide longer duration of action and may be given once or 2X/d


Additional BP Reduction w/ Spironolactone in Resistant HTN

![Graph showing blood pressure reduction with spironolactone]

Pimenta, Calhoun, Oparil. Arq Bras Cardiol 2007; 88(6) : 604-613

Predictors of Hyperkalemia Risk with Aldosterone Blockade (AA)

- Two university-based hypertension clinics N=46
- Resistant HTN and stages 2 or 3 CKD (mean eGFR) 56.5 +/- 16.2 ml/min/1.73 m
- Caution advised using AA for BP control with advanced stage 3 nephropathy with serum potassium of >4.5 mEq/l.


RESULTS: Aldosterone Antagonism (AA)

- Mean 64.9 +/- 10.7 years.
- All obese; 86% T2DM ; 82% black.
- Addition AA further mean ↓ SBP of 14.7 +/- 5.1 mm Hg (p = 0.001).
- Females with BMI >30 and those with baseline SBP >160 mm Hg greater AA-related BP reduction


Conclusions

- Uncontrolled HTN a major burden to African Americans with adverse cardiac, renal and cerebral events
- Intensive lifestyle changes bedrock of therapy
- Utilize sodium reduction and adequate potassium intake

Conclusions

- Monotherapy BP response better with thiazide-like diuretics and long-acting CCB’s
- However, multi-drug therapy, with diuretic plus ≥2 additional meds at optimal dosages, often needed.
Conclusions

• Adequate thiazide-like diuretics and chlorthalidone in difficult cases necessary to control BP
• Aldosterone antagonism e.g. spironolactone, eplerenone or amiloride helpful with resistance

Which is NOT a social determinant of health that especially may affect some African Americans?

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Thank You!