Hypertension Management in Minorities: Closing the gap

Gbemiga Sofowora, MBChB, Msc, FACC

Summary

• Epidemiology
  – Hypertension
  – Target organ damage
  – Death
• Pathophysiology
• Factors linked to poor BP control in Blacks
  – Non physiological
  – Physiological
• Treatment
Epidemiology

- The age adjusted prevalence of hypertension among adults in the US population in 2011-2014 was 29%.
  - Non-Hispanic blacks had the highest age adjusted prevalence (41.2%)
  - Non-Hispanic whites had an intermediate prevalence (28.0%)
  - Non-Hispanic Asians and Hispanics had the lowest prevalence (24.9% and 25.9% respectively)
Epidemiology

- Cross continental studies also show an escalating gradient of hypertension in black populations. Africa < Caribbean's< Midwestern USA

- A study of Cameroonianians in rural Cameroon, urban Cameroon and Cameroonianians in Chicago showed that the rate of hypertension in these locations were 15%, 19% and 33% respectively


Epidemiology

- Pressure related complications occur excessively in Blacks compared with whites

- In 2005, the death rate from Hypertension per 100,000 was 15.1 in white men, 51.0 in black men, 15.1 in white women and 40.9 in black women.

• The adverse consequences of Hypertension in Blacks are likely attributable to a number of factors
  – Excessive prevalence of hypertension
  – Disproportionate prevalence of severe hypertension ≥ 180 mmHg
  – Inadequate BP control over the long term
  – The high frequency of comorbid conditions (diabetes mellitus, albuminuria, CKD…)


• Blacks have been shown to manifest more microvascular and macrovascular structural and functional abnormalities than whites even in the normotensive range of BP
  – Impaired endothelium independent and endothelium dependent vascular function
  – Greater stiffness of large central arteries in blacks vs whites
  – Lesser capacity to dilate in response to vasodilatory stimuli

Factors affecting BP control in Blacks

- Non physiological factors

- Physiological factors

Non-physiologic factors linked to Poor BP control

- African-Americans were more likely than whites to have inadequate baseline clinic BP control as defined as ≥ 140/90 mmHg (OR 1.8; 95% CI 1.3-2.5)
  - Being older
  - Reporting hypertension medication non-adherence
  - Hypertension diagnosed ≥ 5 years
  - Reporting high levels of stress
  - Being worried about hypertension
  - Reporting an increased number of medication side effects

Non biomedical beliefs

• In a study of 93 hypertensive African-American patients a considerable number of patients had non biomedical expectations of their treatment.
  – 38% expected a cure
  – 38% did not expect to take their medications for life
  – 23% only take medications with symptoms.


Patient provider Interactions

• Blacks reporting multiple episodes of discrimination delayed seeking medical care and reported poor adherence with medical recommendations
• Once in the system 2 factors affected patient adherence to medication
  – Physician demographics- Race concordance
  – Physician cultural competence correlated well with patient willingness to share information during a visit.

Diet and lifestyle

- Blacks consume similar amounts of sodium but less potassium than whites
- Blacks, especially women, are less physically active, consume more calories and are more obese in the pre-adult years than whites.

Ford ES. Race, education and dietary actions: Ethn Dis. 1998;8:10-20

- Salt sensitivity. More common in black than white hypertensives (OR-1.88, 1.03-3.52, 95%CI)
- Sleep apnea. The prevalence of sleep apnea in hypertensive populations is between 30-40%. OSA is more common in blacks than in whites < 25 years and > 65 years

Redline S et al. Am J. Respir Crit Care Med 1997;155:186-192
Treatment

- Non biological

- Biological

Treatment- Non Biological Factors

- Education- Identify patient expectations of their illness
- Ask
  - Do you expect to take your medications for life?
  - Do you expect a cure for your high blood pressure?
  - Do you take your blood pressure medicines only when you have symptoms of high blood pressure?

- Also discuss expectations regarding
  - Weight loss
  - Physical activity
  - Adherence to prescribed medications

Treatment

• Evaluate and treat other cardiovascular disease risk factors
  – Hyperlipidemia
  – Smoking
  – Diabetes mellitus

Treatment

• Lifestyle modification
  – Eat more grains fresh fruits and vegetables
  – Fewer processed foods and fast foods
  – Eat fewer fats overall and use healthier fats like olive oil
  – Gradual weight loss through dietary changes
Treatment

• Lifestyle modifications
  – Limit alcohol
    • Men- No more than 2 beers, 1 glass of wine or 1 shot of whiskey daily
    • Women-No more than 1 beer or 1 glass of wine daily
  – Physical fitness
    • Increase physical activity as part of the daily routine
    • Gradually increase time spent in an enjoyable activity to 30-45 mins, ≥ 5 times weekly
  – No tobacco
    • Do not start!
    • Be willing to attempt smoking cessation until success is achieved
    • Be aware that smokeless tobacco also has risks
Drug therapy
Principles

• Monotherapy is appropriate if BP ≥ 10/5 above target values
  – Thiazide diuretics and calcium channel blockers preferred as monotherapy in blacks

• It is logical to use two drug combination therapy if BP ≥15/10 mmHg above target values.
  – Preferred CCB+RAS blocker or thiazide + RAS blocker


Drug therapy

• If BP is still above goal after 4-6 weeks- Intensify therapy
Drug therapy

• Combinations to avoid
  – ACEI + ARB: Modest incremental BP lowering but increased risk of hyperkalemia and kidney failure, hypotensive symptoms and no incremental reduction in CVD risk
  – B-blocker + non-dihydropyridine calcium channel blocker: Risk of bradycardia
  – Beta blocker and clonidine: Risk of bradycardia and orthostatic hypotension
  – Clonidine+α-blocker: Significant risk for orthostatic hypotension

Summary

• Epidemiology
  – Hypertension
  – Target organ damage
  – Death
• Pathophysiology
• Factors linked to poor BP control in Blacks
  – Non physiological
  – Pathophysiological
• Treatment
  – Non pharmacological
  – Principles of drug therapy