

The Consequences of Noncompliance in Patients with Hypertension

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Summary

Hypertension is a prevalent condition for which there are significant age, racial, and geographic disparities. Hypertension occurs at an earlier age in African Americans and tends to be more severe in that population. As a result, complications occur at an earlier age and with a higher prevalence. Hypertension needs to be recognized early and controlled to reduce the risk of long-term complications.

Key Points

- Significant disparities exist for hypertension and hypertension-related outcomes.
- Disparities do not appear to exist for awareness of and treatment selection for hypertension but do exist for risk of development, outcomes, control, and treatment effects.
- Hypertension and its outcomes occur earlier in life in African Americans.
- Hypertension control varies by race and age.
- Fetal and early life events impact hypertension development.
- Important to recognize and treat hypertension early.

HYPERTENSION IS A COMMON PROBLEM in the U.S. (Exhibit 1).¹ One third of adults have hypertension and approximately ten percent are hypertensive before the age of 40. Heart disease and stroke are leading causes of death in the U.S.

Many disparities in hypertension outcomes, hypertension risks, prevalence, disease control, and treatment effects exist. African Americans are more likely to have hypertension, strokes, cardiovascular diseases, and end stage renal disease (Exhibit 2).¹ Forty to 50 percent of African Americans have the highest blood pressure values (Stage II hypertension) compared to other races. African Americans are have a 3 fold increased prevalence of end stage renal disease (ESRD) over Native Americans and 5 fold over Caucasians. There is also an earlier onset of ESRD in African Americans.

One aspect in the rising rates of hypertension is the increasing rate of overweight in the U.S, particularly an increase in waist circumference. The higher one's waist circumference is the higher the blood pressure.

Waist circumference is not the only explanation for racial disparity because a disparity is still seen between whites and African Americans even when waist circumference is not elevated (Exhibit 3).²

The long-term consequences of hypertension are seen 15 to 20 years after onset. It appears that if we lower blood pressure within first 5 years of having hypertension that risk can be significantly lowered. After that time point, blood pressure can be lowered but risk is not going to be lowered as much. Forty five percent of deaths in African American men can be attributed to hypertension (Exhibit 4).³ With blood pressure control, almost 1 out of 2 deaths in African American men could be prevented.

There is a geographic disparity in the major hypertension outcome – stroke. The incidence of stroke is much higher in the southeastern U.S. compared with other areas of the country (Exhibit 5).⁴ It appears that stroke occurs in patients in the southeast earlier than in other parts of the country. Caucasian men in the southeast have on onset of stroke 10 years

Exhibit 1: Prevalence of Hypertension

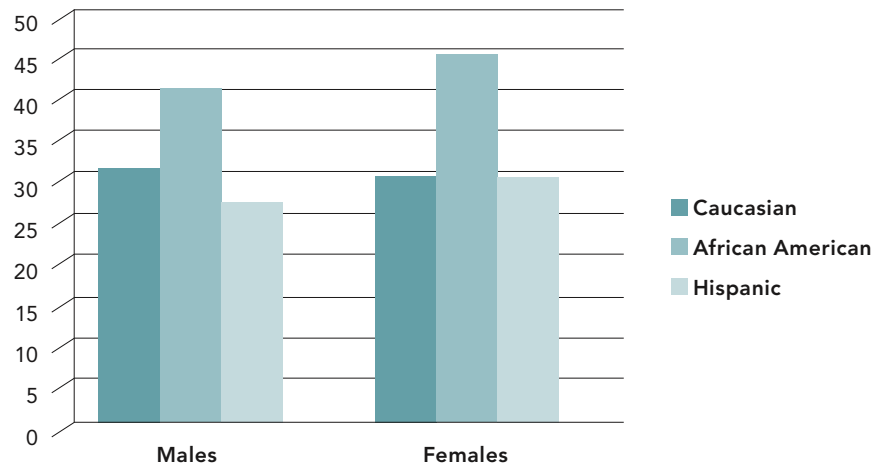
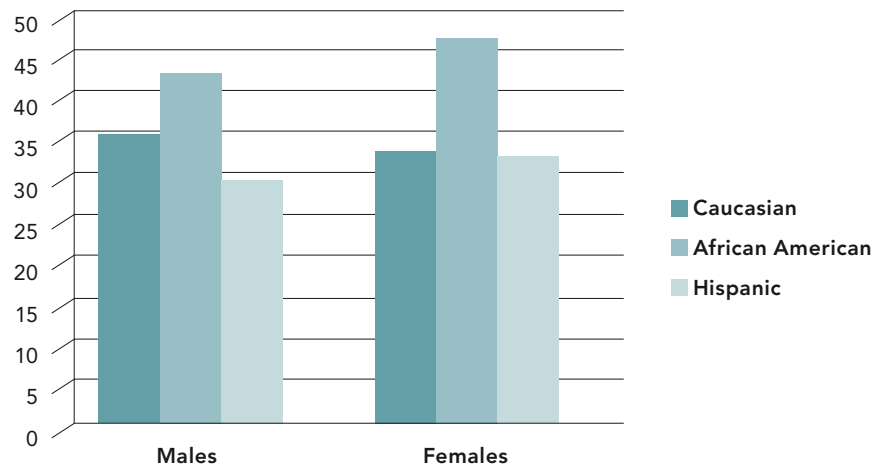


Exhibit 2: Prevalence of Cardiovascular disease



earlier than men in the Midwest and African American men have them 20 years earlier. Sixty five-year-old men from the Midwest compare with 55-year-old Caucasian men and 45-year-old African American men from the Southeast.

There is definitely a geographic risk factor for having a stroke if one has been born in the Southeast. Moving to the area later in life does not increase risk. An African American born outside the Southeast who moves to that area has a 50 percent lower risk of having a stroke and dying compared to an African American born in the Southeast.⁵ The time period of living in the Southeast with greatest risk is birth through 20 years.

Even today, about 30 percent of people with hy-

pertension are unaware. There do not appear to be any gender or racial disparities in awareness of hypertension.⁶ There are age disparities in awareness. Younger patients (18-39) are the least aware. This lack of awareness can play a role in the 10-year incubation period of hypertension.

Another possible factor to explain racial disparities in hypertension outcomes is differences in treatment. Differences in treatment rates in patients diagnosed with hypertension on a racial or gender basis do not appear to exist⁶ There are differences based on age. The group least likely to be treated is those who are young. Unfortunately, it is easiest to control blood pressure in the youngest age group.

There are differences in blood pressure control be-

Exhibit 3²: Hypertension by Waist-to-Hip Ratio

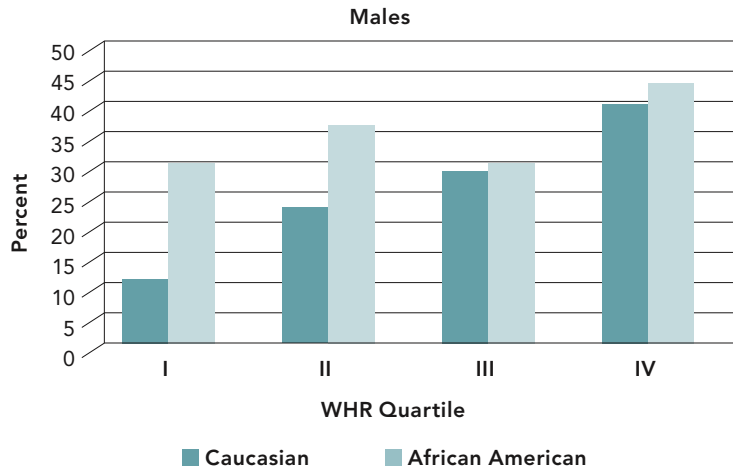


Exhibit 4³: 30-Year Population Attributable Risks for Hypertension: Charleston and Evans County Heart Study

White Males	23.8%
White Females	18.3%
Black Males	45.2%
Black Females	39.5%

Exhibit 5⁴: Stroke Incidence from Three US Populations, White Men

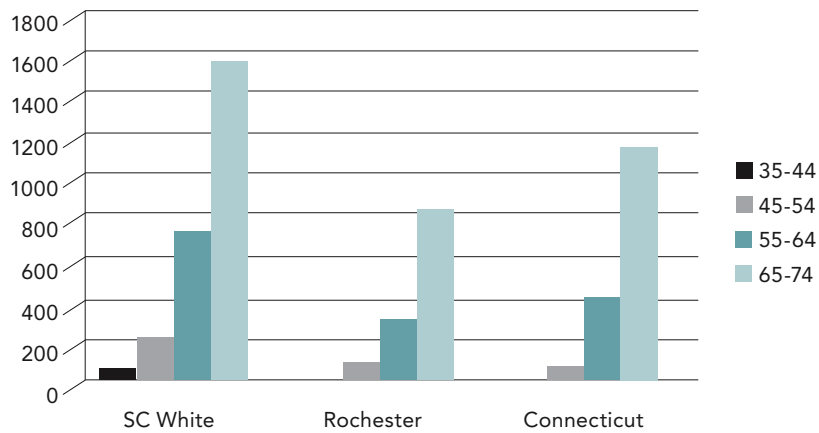


Exhibit 6⁶: Control (<140/90 mm hg) of Treated Hypertension

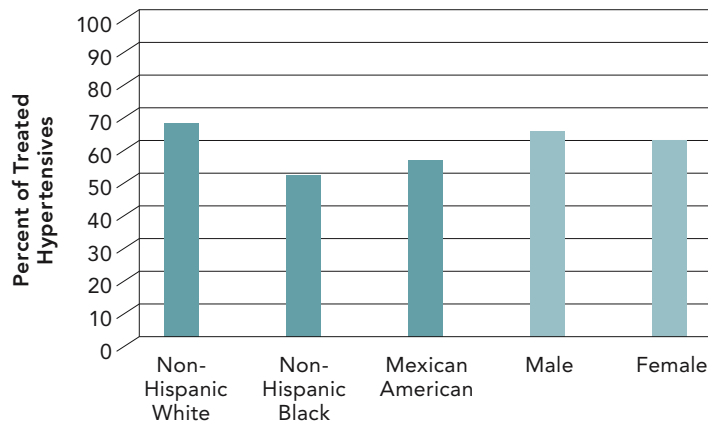


Exhibit 7⁷: Risk Factor Control Patients with Metabolic Syndrome

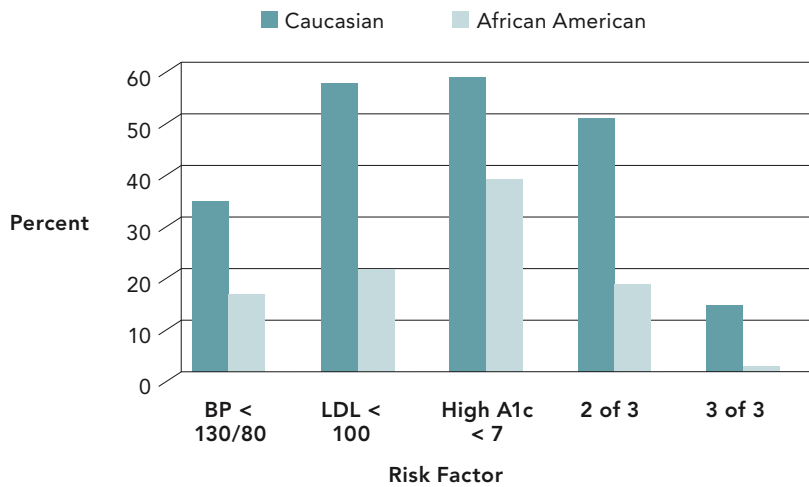


Exhibit 8⁸: Birth Weight and Hypertension

	White	Black	Total
OR – LBW (95% CI)	1.9 (1.3-2.9)	1.2 (1.0-1.9)	1.3 (1.1-1.6)
Linear Trend	P < .001	P = .04	P < .01

tween various races (Exhibit 6).⁶ Caucasians are most likely to have control and African Americans are least likely. Exhibit 7 compares control of various diseases across race.⁷ Although disease control is not great in any group, it is always better in Caucasians.

Fetal and early life events may play a role in racial disparities in hypertension. In addition to birthplace, birth weight appears to impact risk for hypertension (Exhibit 8).⁸ African Americans have twice the rate of low birth weight infants. Since the 1970s, there has been a trend for increasing rate of low birth weight infants in both Caucasians and African Americans. Additionally, birth weight can impact disease control. People with different birth weights respond differently to different medications.⁹

Conclusion

Significant disparities are identified for hypertension and hypertension-related outcomes. Onset of hypertension occurs earlier in African Americans and blood pressure levels tend to be higher in this group.

Blood pressure control varies by race and age. Racial disparities may be affected by high blood pressure levels at younger ages and sustained for longer periods of time. Racial disparities may be affected by fetal and early life events. Overall, it is important to recognize hypertension early and control the disease as soon as possible to reduce the risk of long term complications. **JMCM**

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