

Hypertension in Ethnic Populations: Tailoring Treatments

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The Hispanic population in the United States comprises different and distinct cultures and genetic backgrounds. Most of the data on hypertension in this community are specific to Mexican Americans, in whom studies consistently show a lower prevalence of the disease compared with non-Hispanic whites and blacks.* Mexican Americans have lower levels of awareness of hypertension, and fewer of them demonstrate adequate control of blood pressure compared with whites and blacks. Mexican Americans have a higher prevalence of cardiovascular risk factors other than hypertension, such as hypercholesterolemia, altered glucose metabolism, type 2 diabetes mellitus, and obesity (the metabolic syndrome), compared with whites and blacks. Hispanic Americans of Caribbean descent have a prevalence of hypertension similar to that in the black community. The reasons for the lack of awareness of hypertension in the Hispanic community and for the low rates of control with antihypertensive drugs are discussed. (*Clinical Cornerstone*. 2004;6[3]:39–48) Copyright © 2004 Excerpta Medica.

INTRODUCTION

Elevated arterial pressure is one of the most important health problems in developed countries.¹ Hypertension has a direct influence on cardiovascular mortality, and its treatment is associated with a reduction in mortality and morbidity, particularly in the elderly population.¹ In the United States, hypertension affects ~60 million individuals.

PREVALENCE OF HYPERTENSION IN THE HISPANIC POPULATION

Our current understanding of the prevalence of hypertension in the Hispanic community is derived primarily from studies of Mexican Americans, who comprise 56% of the Hispanic population in the United States. Many of these studies are based on data from the National Health and Nutrition Examination Survey (NHANES) conducted by the National Center for Health Statistics that provides periodic information on the health of the US popu-

lation. NHANES is a stratified multistage probability sample of the noninstitutionalized population of the United States.² The third of these surveys (NHANES III) was conducted between 1988 and 2000: the first phase in 1988–1991, the second phase in 1991–1994, and the third in 1999–2000. Each survey was similar in overall design. The NHANES III oversampled Mexican Americans, blacks, elderly individuals, and children to provide reliable estimates in these groups.

The analyses in these studies included data on blood pressure (BP), age, sex, and race/ethnicity (Mexican American, white, black). The surveys measured BP and body mass index (BMI), calculated as weight in kilograms divided by the square of height in meters (kg/m^2). It also recorded a history of hypertension and/or diabetes mellitus (DM), if present. Hypertension was recorded as being present if the subject had an average systolic BP (SBP) ≥ 140 mm Hg and/or average diastolic BP (DBP) ≥ 90 mm Hg, or the subject was currently receiving antihypertensive medications. Hypertension control was defined as an average SBP ≤ 140 mm Hg and an average DBP ≤ 90 mm Hg.

*In this article, the terms *white* and *black* signify Americans of non-Hispanic origin.

Overall, there is clear evidence of a consistent increase in the prevalence of hypertension from 1988 to 2000: from 25.0% in 1988–1991 to 28.7% in 1999–2000 ($P = 0.02$). Although the increase occurred among both sexes and in each of the racial categories, it was most evident among individuals aged ≥ 60 years—from 57.9% in 1988–1991 to 65.4% in 1999–2000 ($P = 0.002$) (Table I).

Among Mexican Americans, the overall prevalence of hypertension in the 1999–2000 survey was 20.7%, compared with 28.9% and 33.5% for whites and blacks, respectively (Table II). The consistently lower prevalence of hypertension among both men and women in the Mexican American population is notable: in the years 1988–1991 and 1999–2000, the prevalence ranged from ~16% to 18%, a full 8% lower than in the white and black populations (data not shown).

The lower prevalence of hypertension among Hispanic Americans has also been confirmed by Henderson and colleagues³ who studied 20,525 Hispanic Americans and 6387 blacks, ranging in age from 45 to 60 years. Of the Hispanic American subjects, 29% had hypertension, which compared favorably with the 47% prevalence in the black group. This study also confirmed that fewer Hispanic subjects were receiving treatment for hypertension compared with blacks (48% vs 61%). These statistics are not very different from those reported by NHANES.

Bassett et al⁴ examined the associations between ethnicity and the prevalence of hypertension using NHANES data from 1988 to 2000 in 14,899 subjects (6436 whites, 4244 blacks, and 4219 Mexican Americans). Mexican Americans had a lower prevalence of hypertension (odds ratio [OR] = 0.75) relative to whites, and blacks had an increased prevalence of

TABLE I. AGE-SPECIFIC PREVALENCE OF HYPERTENSION IN THE US POPULATION, 1988–2000 (DATA WEIGHTED TO THE US POPULATION).

Age Group	Prevalence, % (SE)			<i>P</i> *
	1988–1991	1991–1994	1999–2000	
18–39 y	5.1 (0.6)	6.1 (0.6)	7.2 (1.1)	0.05
40–59 y	27.0 (1.4)	24.3 (2.2)	30.1 (1.8)	0.09
≥ 60 y	57.0 (2.0)	60.1 (1.1)	65.4 (1.6)	0.002

**P* value is for change across time.
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TABLE II. AGE-ADJUSTED PREVALENCE* OF HYPERTENSION BY SEX AND ETHNICITY IN THE US POPULATION, 1988–2000 (DATA WEIGHTED TO THE US POPULATION).

	Age-Adjusted Prevalence, % (SE)			<i>P</i> †
	1988–1991	1991–1994	1999–2000	
Overall	25.0 (1.5)	25.0 (1.7)	28.7 (1.8)	0.02
Sex				
Male	24.9 (2.1)	23.9 (2.6)	27.1 (2.7)	0.26
Female	24.5 (1.7)	26.0 (1.8)	30.1 (2.4)	0.03
Race/ethnicity				
White	25.9 (1.8)	25.6 (2.1)	28.9 (2.3)	0.14
Black	28.9 (2.2)	32.5 (2.1)	33.5 (3.2)	0.12
Mexican American	17.2 (1.6)	17.8 (2.0)	20.7 (2.7)	0.13

*Adjusted to 2000 US population.
†*P* value is for change across time.
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the disease compared with whites (OR = 1.77). Race and physical activity were each important independent contributors to hypertension: its prevalence was significantly lower in the group that was most active physically. The overall increase in the prevalence of hypertension in all 3 racial groups may be related to an increase in BMI as well as the aging of the population in the United States.⁵

Prevalence of Hypertension in Hispanic Women

Several studies have examined the prevalence of hypertension in Hispanic women. Bell and coworkers⁶ examined 3266 nonpregnant women in the United States (NHANES III, 1988–1994) and compared them to 1814 nonpregnant women in China (China Health and Nutrition Survey, 1997). They found that the age-adjusted prevalence of untreated hypertension was significantly lower ($P < 0.01$) among Mexican American and Chinese women compared with white or black women.

In a comparative study of Hispanic ($n = 863$) versus non-Hispanic pregnant women,⁷ the former had a significantly decreased prevalence of gestational hypertension (1.6% vs 8.5%; $P < 0.01$). There was an increased relative risk (RR) for preeclampsia of 1.9 ($P < 0.01$) among Hispanic women, but their RR for gestational hypertension remained significantly lower (RR = 0.39; $P < 0.01$). Among patients who initially presented with hypertension during pregnancy, Hispanic women were more than 3 times as likely (hazard ratio = 3.3; $P < 0.01$) to develop preeclampsia than white women. This suggests that the initial presentation of hypertension during pregnancy in a Hispanic woman most likely represents early preeclampsia.

KEY POINT

The presentation of hypertension during pregnancy in a Hispanic woman most likely represents early preeclampsia.

Prevalence of Hypertension in Hispanic Americans of Caribbean Descent

Lin et al⁸ compared the prevalence of hypertension among Hispanic persons of Caribbean descent >65 years of age to that in non-Hispanic men. Subjects from Puerto Rico and the Dominican Republic were 2.6 times more likely to have systolic hypertension than whites after adjusting for potential confounders. Moreover, 21% of Puerto Rican women and 15% of women from the Dominican Republic had systolic hypertension compared with only 9% of white women ($P < 0.01$ and $P < 0.05$, respectively). Richardson and Piepho⁹ reported that the Hispanic Health and Nutrition Examination Survey also found an increased prevalence of hypertension among Hispanic Americans of Caribbean descent.

KEY POINT

Subjects from Puerto Rico and the Dominican Republic were 2.6 times more likely to have systolic hypertension than whites after adjusting for potential confounders.

AWARENESS OF HYPERTENSION IN THE HISPANIC POPULATION

Because hypertension may be asymptomatic, persons with the condition are often not aware of it. The NHANES III study examined the extent to which Mexican Americans, whites, and blacks were aware of the issue of hypertension.² As shown in **Table III**, the level of awareness of hypertension among Mexican Americans was consistently lower than among whites and blacks through all 3 phases of the NHANES. In the 1999–2000 phase of the survey, this difference was statistically significant ($P = 0.005$).

HYPERTENSION TREATMENT IN THE HISPANIC POPULATION

Given the lower level of awareness of hypertension among Mexican Americans compared with whites and blacks, it is not surprising that Mexican Americans are

less likely to receive treatment for hypertension than whites and blacks.

Throughout the NHANES study, the percentage of Mexican Americans being treated for hypertension was consistently lower than the percentages of whites and blacks receiving such treatment: in 1988–1991, the rates were lower by 20 percentage points; in 1991–1994, by 8 to 13 percentage points; and in 1999–2000, by >20 percentage points (Table IV).

Raji et al¹⁰ confirmed these findings in a study of elderly Hispanic persons in Galveston, Texas, who reported having hypertension. After adjusting for age, sex, years of education, income, Medicaid insurance,

number of physician visits, and cognitive function, Hispanic subjects were significantly less likely to be using antihypertensive drugs compared with whites (OR = 0.41).

Control of Blood Pressure in the Hispanic Population

The NHANES data showed that even when they were treated for hypertension, Mexican Americans had significantly lower BP control rates than whites and blacks (Table V). In 1999–2000, BP control rates for Mexican Americans were higher than in previous phases of the NHANES, but still unacceptably low at

TABLE III. AWARENESS OF HYPERTENSION BY SEX AND RACE/ETHNICITY IN THE US POPULATION, 1988–2000.

	Awareness of Hypertension Prevalence, % (SE)			P*
	1988–1991	1991–1994	1999–2000	
Sex				
Male	63.2 (2.2)	60.1 (2.1)	66.3 (2.4)	0.17
Female	75.1 (1.4)	73.6 (1.5)	71.2 (2.2)	0.93
Race/ethnicity				
White	70.6 (1.4)	67.5 (1.8)	69.5 (2.0)	0.67
Black	73.3 (1.6)	72.6 (1.6)	73.9 (2.7)	0.42
Mexican American	54.4 (2.3)	62.0 (4.0)	57.8 (3.6)	0.21

*P value is for change across time. Mexican Americans had lower awareness rates than either whites or blacks at each of the time periods examined. In the 1999–2000 phase of the survey the difference was significant (P = 0.005). Reprinted with permission.²

TABLE IV. TREATMENT OF HYPERTENSION BY SEX AND RACE/ETHNICITY IN THE US POPULATION, 1988–2000.

	Receiving Treatment for Hypertension Prevalence, % (SE)			P*
	1988–1991	1991–1994	1999–2000	
Sex				
Male	44.5 (1.9)	42.6 (1.8)	54.3 (2.5)	<0.001
Female	60.1 (1.5)	60.0 (1.5)	62.0 (2.3)	0.24
Race/ethnicity				
White	53.9 (1.6)	51.9 (1.4)	60.1 (2.1)	0.009
Black	55.8 (1.7)	56.4 (2.4)	63.0 (2.9)	0.02
Mexican American	34.1 (1.5)	43.5 (0.2)	40.3 (3.4)	0.05

*P value is for change across time. Reprinted with permission.²

17.7%. The rate was even lower for Hispanic men (13.1%, data not shown). The rate of hypertension control for the sample as a whole was only 32.6% for men and 29.1% for women, suggesting that the advances in antihypertensive medication have not translated into a meaningful solution to the problem of hypertension in the United States.

CARDIOVASCULAR RISK FACTORS IN THE HISPANIC POPULATION

Although the prevalence of hypertension is lower among certain subgroups of the Hispanic population than among whites and blacks, Hispanic Americans may have other risk factors that play a role in the development of cardiovascular disease.

The metabolic syndrome is a risk factor for cardiovascular disease as well as diabetes, which can be thought of as a cardiovascular disease.¹¹ Individuals with metabolic syndrome exhibit 3 or more of the following:

- Hypertension (BP ≥130/85 mm Hg)
- Abdominal obesity (waist circumference ≥102 cm in men, ≥88 cm in women)
- Low levels of high-density lipoprotein cholesterol (<40 mg/dL in men, <50 mg/dL in women)
- Fasting blood glucose ≥110 mg/dL¹²

The metabolic syndrome may favor the development of cardiovascular disease through increased resistance to the action of insulin.

The prevalence of metabolic syndrome increases with age, and data from the NHANES III indicate that Hispanic adults are at higher risk than whites or blacks.¹² The syndrome also occurs in overweight Hispanic children as young as 8 to 13 years of age.¹³

KEY POINT

Mexican Americans have a lower awareness of hypertension and much lower rates of control of their disease than whites and blacks.

Sharma and colleagues,¹⁴ using data from the NHANES (1988–1994), studied other cardiovascular risk factors (abnormal cholesterol, presence of DM, obesity, cigarette smoking, and socioeconomic status) and found a clustering of risk factors among individuals of low socioeconomic status. However, at the higher socioeconomic stratum, Mexican Americans had a greater risk of cardiovascular disease than whites.

Cossrow and Faulkner¹⁵ examined the correlation of race and ethnicity with the development of obesity. Obesity-related diabetes occurred at higher rates among

TABLE V. RATES OF BLOOD PRESSURE CONTROL IN MEXICAN AMERICANS AND IN WHITES AND BLACKS, 1988–2000.

	Hypertension-Controlled (all hypertensive patients treated) Prevalence, % (SE)			P*
	1988–1991	1991–1994	1999–2000	
Sex				
Male	19.9 (1.3)	17.2 (1.9)	32.6 (2.4)	<0.001
Female	29.1 (2.3)	27.4 (2.1)	29.6 (2.2)	0.44
Race/ethnicity				
White	25.6 (1.6)	22.7 (1.5)	33.4 (2.4)	0.002
Black	24.4 (1.6)	23.3 (2.0)	28.1 (2.6)	0.11
Mexican American	13.7 (1.3) [†]	16.3 (2.3)	17.7 (2.5)	NA [‡]

*P value is for change across time.

[†]Estimates are unreliable because of National Health and Nutrition Examination Survey minimum sample size criteria or coefficient of variation of at least 0.30.

[‡]Not applicable due to unreliable data.

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Mexican Americans, whereas obesity-related hypertension occurred at higher rates in blacks.

In a recent study from Venezuela,¹⁶ apparently healthy Hispanic persons who were not living in the United States were examined for the presence of metabolic risk factors. The incidences of these risk factors were as follows: excess body weight, 33% (BMI 25–30 kg/m²); obesity, 45% (BMI >30 kg/m²); sedentary lifestyle, 84%; arterial hypertension, 15% (BP >140/90 mm Hg). Hyperinsulinemia was present in 50% of the study population, glucose intolerance in 14% (>160 mg/dL 120 min after a 75-g glucose load), type 2 DM in 5%, hypercholesterolemia in 50%, hypertriglyceridemia in 28%, and salt sensitivity in 25%.

Clustering of 3 or more risk factors occurred overall in 59% of these apparently healthy individuals and was even more prevalent among obese subjects.

Improving Adherence to Blood Pressure–Lowering Medication

A recent large systematic review of randomized clinical trials sought to determine the effectiveness of interventions to increase adherence to BP–lowering medication.¹⁷ The authors examined 38 studies testing 58 different interventions in 15,519 patients in 9 countries between 1975 and 2000.

Reducing the number of daily doses appeared to be the most effective strategy in increasing adherence to therapy (in 7 of 9 studies). There was less evidence of an effect on reduction of BP. There were suggestions in the data that other strategies might be useful, including:

- Drug reminder charts
- Training on self-determination
- Reminders
- Packaging of medication alone and in combination
- Social support
- Nurse telephone calls
- Support from family members
- Electronic medication aid cap
- Telephone-linked computer counseling

More complex health and organizational interventions that might be useful include:

- Work-site care through specially trained nurses
- A combination of home visits, education, and special dosing devices
- An educational leaflet, a telephone reminder, a mailed reminder, and an educational newsletter

- A focused central pharmaceutical care model and a combination of a brief questioning protocol with advice, information, and referral to the family practitioner

GENETICS AND HYPERTENSION

Population studies in humans have long suggested that genetic factors play a role in the development of hypertension. Studies have examined the correlation of BP within families. However, the great variation in the estimates of these contributing factors suggests that individuals with hypertension come from heterogeneous populations and that the inheritance of hypertension is likely to be multifactorial.¹ This degree of variation may mean that each of a number of different genetic defects has elevation of BP as one of its phenotypic manifestations.

Chromosome 2 has been consistently identified as a genomic region, with genetic linkage evidence suggesting that one or more of the loci on this chromosome may contribute to BP control and hypertension. Recently the Family Blood Pressure Program has focused on a particular region of chromosome 2, demonstrating evidence of linkage in several populations and identifying underlying candidate genes for hypertension susceptibility. Studies have shown that SLC4A5, a sodium bicarbonate transporter, is a primary gene for hypertension.¹⁸ The relevance of this finding to hypertension in the Hispanic population remains to be established.

REASONS FOR LOWER LEVELS OF AWARENESS AND BLOOD PRESSURE CONTROL IN THE HISPANIC POPULATION

In December 2003, an advisory board convened to identify the most appropriate approach to treating hypertension in the Hispanic population.¹⁹ A summary of this review, which follows, is taken almost in its entirety from the deliberations of this group. The board consists of 16 Hispanic physicians who are experienced in the treatment of hypertension in Hispanic patients and who understand the barriers to effective treatment and how they stem from the diverse cultures of Hispanic Americans. The group held 2 initial meetings and others are planned.

The panel, chaired by Dr. J.M. Aranda, Jr. from the University of Florida College of Medicine, Gainesville, Florida, concluded that the 2 main barriers to the effec-

tive treatment of Hispanic patients with hypertension are culture and language.¹⁹

Culture

Cultural factors specific to the Hispanic community may influence health-related behaviors that then lead to undertreatment of hypertension or inadequate BP control even when treatment is initiated.

Many Hispanic patients do not have a primary care physician and use the emergency room as their primary source of basic care.

Hispanic men may seek to project a machismo image, and any sign of weakness (such as an admission of illness) is discouraged. Thus, when they receive a diagnosis of hypertension, Hispanic men may often refuse to accept the diagnosis or the need for treatment. Compounding this issue is the fact that, as in the general population, hypertension is usually asymptomatic.

There is a strong sense of fatalism in many Hispanic families. This fatalism (eg, “It is God’s will”) may contribute to reluctance to see a doctor and also to noncompliance.

Language

Language can be a significant barrier to seeking appropriate health care. Language barriers can lead to reluctance to see a physician, noncompliance with medication, and misunderstanding of diagnoses and treatment plans. Several other problems have been identified by the advisory board for the treatment of hypertension in the Hispanic population:

- Non-Hispanic physicians who treat Hispanic patients may face communication problems.
- Direct word-for-word translation from English can be misleading.
- Children translating for their parents may not feel comfortable asking the parent intimate questions.
- Many Hispanic patients may be reluctant to talk to their physician because of a poor ability to communicate effectively.
- Some Hispanic Americans may speak a language other than Spanish. For example, Brazilian patients speak Portuguese.

Cultural Diversity

Compounding the difficulties of culture and language barriers is the existence of numerous subpopu-

lations within the Hispanic population (eg, Mexican, Cuban, Dominican, Puerto Rican), each of which has its own cultural nuances. In the Southwest region of the United States, the Hispanic population is mostly of Mexican origin, including a considerable number of migrant workers who have little formal education. On the East coast, the Hispanic communities are mainly from the Caribbean (eg, Cuba, Puerto Rico, Dominican Republic), South and Central America, and Europe.

The diversity of the Hispanic community is an obstacle to raising the awareness of patients with a singular unified message about hypertension and the importance of control of BP. Given the issues described above, it is understandable that the Hispanic community lags behind the general population in terms of hypertension awareness and treatment.

Future Actions

The board has identified a number of actions that it intends to take to increase awareness, compliance, and education about hypertension and the need for treatment. These include actions to educate non-Hispanic physicians who care for Hispanic patients, along with a series of measures designed to increase the compliance of patients who already have a hypertension diagnosis and are currently receiving treatment.

KEY POINT

The level of awareness of hypertension and its treatment are lower in the Hispanic population. Even among those who are treated for hypertension, the rates of adequate BP control are lower than among whites and blacks.

CONCLUSION

Hypertension is associated with considerable morbidity and is a major risk factor for cardiovascular disease. Although the prevalence of hypertension is lower in Mexican Americans (who comprise the majority of the Hispanic population) than among

whites and blacks, this subgroup has a higher incidence of other cardiovascular risk factors, including hypercholesterolemia and altered glucose metabolism. In addition, in some Hispanic subpopulations, such as those of Caribbean descent, the rates of hypertension are higher than in whites. In general, the level of awareness of hypertension and its treatment are lower in the Hispanic population. Even among those who are treated for hypertension, the rates of adequate BP control are lower than among whites and blacks. This is likely due to a combination of language and cultural barriers that prevent Hispanic Americans from receiving appropriate hypertension therapy. Many of these barriers have been identified, and health initiatives designed to reduce or eliminate these barriers have been developed. With appropriate implementation of these initiatives, it is hoped that the awareness of hypertension and its treatment will improve in the Hispanic population.

REFERENCES

- Williams G. In: Isselbacher KJ, Braunwald E, Wilson JD, et al, eds. *Harrison's Principles of Internal Medicine*. New York: McGraw-Hill, Inc; 1994:1116–1131.
- Hajjar I, Kotchen TA. Trends in prevalence, awareness, treatment and control of hypertension. *JAMA*. 2003;290:199–206.
- Henderson SO, Bretsky P, DeQuattro V, Henderson BE. Treatment of hypertension in African Americans and Latinos: The effect of JNC VI on urban prescribing practices. *J Clin Hypertens*. 2003;5:107–112.
- Bassett DR Jr, Fitzhugh FC, Crespo CJ, et al. Physical activity and ethnic differences in hypertension in the United States. *Prev Med*. 2002;34:179–186.
- Fiegal KM, Carroll MD, Ogden CL, et al. Prevalence and trends in obesity among US adults 1999–2000. *JAMA*. 2002;288:1723–1727.
- Bell AC, Adair LS, Popkin BM. Understanding the role of mediating risk factors and proxy effects in the association between socio-economic risk factors and untreated hypertension. *Soc Sci Med*. 2004;59:275–283.
- Wolf M, Shah A, Jimenez-Kimble R, et al. Differential risk of hypertension disorders of pregnancy among Hispanic women. *J Am Soc Nephrol*. 2004;15:1330–1338.
- Lin H, Bermudez OI, Falson LM, Tucker KL. Hypertension among Hispanic elders of a Caribbean origin in Massachusetts. *Ethn Dis*. 2002;12:499–507.
- Richardson AD, Piepho RW. Effect of race on hypertension and antihypertensive therapy. *Int J Clin Pharmacol*. 2000;38:75–79.
- Raji MA, Kuo Y-F, Salazar JA, et al. Ethnic differences in antihypertensive medication use in the elderly. *Ann Pharmacother*. 2004;38:209–214.
- Bonrow RO, Gheorghiadu M. The diabetes epidemic: A national and global crisis. *Am J Med*. 2004;116:2S–10S.
- Ford ES, Giles WH, Dietz WH, et al. Prevalence of the metabolic syndrome among US adults: Findings from the Third National Health and Nutrition Examination Survey. *JAMA*. 2002;287:356–359.
- Cruz ML, Weigenberg MJ, Huang TT, et al. The metabolic syndrome in overweight Hispanic youth and the role of insulin sensitivity. *J Clin Endocrinol Metab*. 2004;89:108–113.
- Sharma S, Malarcher AM, Giles WH, et al. Racial, ethnic and socioeconomic disparities in the clustering of cardiovascular disease risk factors. *Ethn Dis*. 2004;14:43–48.
- Cossrow N, Faulkner B. Race/ethnic issues in obesity and obesity-related comorbidities. *J Clin Endocrinol Metab*. 2004;89:2590–2594.
- Hoffmann IS, Cubeddu LX. Clustering of silent cardiovascular risk factors in apparently healthy Hispanics. *Hum Hypertens*. 2002;16:S137–S141.
- Schroeder K, Fahey T, Ebrahim S. How can we improve adherence to blood pressure lowering medication in ambulatory care? Systematic review of randomized clinical trials. *Arch Intern Med*. 2004;164:722–732.
- Barkely RA, Chakravarti A, Cooper RS, et al. Positional identification of hypertension susceptibility genes on chromosome 2. *Hypertension*. 2004;43:477–482.
- Hypertension in the Latino Community Advisory Board. Executive Summary and Key Customer Insights. Prepared by Excerpta Medica, Inc; May 25, 2004.

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Dialogue Box

EDITORIAL BOARD

Do you find it curious that Mexican Americans seem to have a higher prevalence of almost every characteristic of the metabolic syndrome except for hypertension?

KOUNTZ

Yes, I do. It really doesn't make sense why an internal milieu responsible for the insulin resistance, glucose intolerance, and hyperinsulinemia that in almost every other population increases the risk of hypertension, does not create the same risk for Mexican Americans as well. I suspect that an unknown factor is responsible. It may be genetic or another factor related to some aspect of their diet. Perhaps an unidentified component in their diet produces glucose intolerance and the metabolic syndrome but is somehow protective against the development of hypertension. This paradox is one reason why it is so important to study Mexican Americans, because the results will not only benefit those with this specific phenotype, but advance our understanding of other groups as well.

EDITORIAL BOARD

That diet may be such a factor seems even more plausible in light of the higher prevalence of hypertension in obese black patients compared with obese Mexican Americans.

KOUNTZ

To a great extent, yes. The quick answer might involve differences in salt intake. Although somewhat of a myth, a significantly greater salt intake has been observed, overall, in some black populations compared with their Mexican American counterparts. I don't think, however, that diet is the sole factor. The etiology of hypertension is more likely multifactorial, with genetics also playing an important role.

EDITORIAL BOARD

Is there any evidence that Hispanic patients respond in a different fashion to available antihypertensive medications?

KOUNTZ

I'm unaware of any specific data answering that question. However, I think some general principles are applicable. As observed in other ethnic groups, when BP in Hispanics is identified as being out of the normal range, it tends to be mild or so-called Stage 1, and is usually amenable to monotherapy. And again, as with other groups, Hispanics respond to all classes of medications. Thus, clinicians should be aggressive and strive to achieve control with monotherapy. Although I have no data to support this, because Hispanics are more likely to have coexistent metabolic syndrome, the initiation of therapy with an angiotensive-converting enzyme inhibitor or an angiotensin receptor blocker potentially offers added benefit.

EDITORIAL BOARD

It's been suggested that the "machismo" trait seen in many Hispanic males may contribute to the challenge of adequately treating their hypertension. Has this been your experience?

KOUNTZ

For the most part, yes. In the emergency room as well as in our federally qualified health clinic in New Brunswick, I have often found it difficult to convince male Hispanic immigrants about the seriousness of hypertension and how they can still live a completely normal life if they accept their disease and adhere to its treatment. I suspect many of these males worry that, if they admit they have a medical problem (such as hypertension), it may somehow diminish how they're perceived by their spouse, family, and friends. This concern about

Dialogue Box

being perceived as weak likely contributes to their being less inclined to accept the diagnosis. Diagnosing and treating their hypertension seems to be such a personal affront that it becomes a huge barrier to convincing them to be more open to the recommended treatment options.

EDITORIAL BOARD

Are Hispanic females more compliant with treatment?

KOUNTZ

No. Men or women, there appears to be no difference.

EDITORIAL BOARD

When one looks at the percentage of patients adequately treated for hypertension among the different ethnic groups, it's surprising to see how dismal the figures are, regardless of the ethnic group considered.

KOUNTZ

I could not agree with you more. This has been such an ongoing scandal for the past 20 years that I'm surprised that it hasn't been discussed on "60 Minutes." It's not one group's fault but clearly is everyone's problem. Think about how much we could save in health care costs in this country by reducing the incidence of heart failure, end-stage renal disease, and premature myocardial infarction through better treatment of hypertension. We're

not doing well in any of the ethnic groups, and this seems particularly true in the Hispanic community.

EDITORIAL BOARD

Is chromosome 2 a factor in all patients with hypertension or does it play a unique role in the Hispanic population?

KOUNTZ

It seems to be a factor in all populations. Chromosome 2 has been identified and perhaps studied more than others, but I suspect that other genetic factors, still to be determined, likely play an important role in this particular population.

EDITORIAL BOARD

Many of the barriers you mentioned seem universally applicable to all patients, regardless of ethnicity.

KOUNTZ

They are. However, language seems to be a particularly important barrier in the Hispanic community. For example, during the last few minutes of an office visit of a patient with hypertension, I try to summarize what I've said during the session. When black or white patients nod their head, I know they fully understand what I've said. They may not assimilate every aspect, but language is not a barrier. With Hispanic patients, I think many of us fall into the trap of seeing the nodding head and mistakenly believing that all that has been said has been adequately understood.