COMMENTARIES

AVOIDING THE LOOMING LATINO/HISPANIC CARDIOVASCULAR HEALTH CRISIS: A CALL TO ACTION

Context: Cardiovascular disease (CVD) is the leading cause of death among the largest and fastest growing ethnic minority in the United States, Latinos/Hispanics. CVD risk factors such as metabolic syndrome, obesity, and diabetes are prevalent in Latinos/Hispanics at alarming rates. It is therefore imperative to understand this population's risk of CVD and the most effective and culturally sensitive treatment methods.

Objectives: To review recent findings on the prevalence of CVD, CVD risk factors, and related illnesses in the US Latino/Hispanic population, and discuss gaps in the current knowledge. To summon a call for greater action on the part of governmental agencies, pharmaceutical companies, academia, industry media, professional and community organizations to address the escalating health problem of CVD and related illnesses, such as diabetes, in the Latino/Hispanic population.

Data Sources: An extensive PubMed and Internet literature search for studies published from January 1995 to July 2005 was conducted, using a combination of search terms (cardiovascular disease, CVD, Latino, Hispanic, prevention, guidelines, clinical trials, interventions).

Study Selection: Studies meeting initial search criteria were distilled using the date of publication, study population size, and specific relevance to the topic being reviewed.

Data Extraction: Data validity was assessed based on the quality of the source (large sample size, government agencies, major publications) and a consensus of the authors on perceived validity.

Data Synthesis: The review found limitations in current research as well as treatment methods and options for Latinos/Hispanics at risk for developing CVD and related illnesses.

Conclusions: Due to limitations in current data and trials and public health concern, additional research needs to be conducted to fully determine the best predictors of CVD and diabetes in Latino/Hispanic patients. A combined effort on the part of health-influencing and health-governing bodies is needed on all levels in order to address the CVD problem in the Latino/Hispanic population. (*Ethn Dis*. 2007;17:568–573)

Key Words: Latino, Hispanic, Cardiovascular Disease

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INTRODUCTION

One of the largest and fastest-growing ethnic minorities in the United States is the Latino/Hispanic population. Along with its growth in size, this ethnic group is experiencing an increase in the prevalence of cardiovascular disease (CVD) and related risk factors, which is in stark contrast to the limited healthcare resources, screening, and prevention tools at the disposal of Latinos/Hispanics.

An inadequate amount of data is available regarding CVD in the Latino/Hispanic population. This dearth of data, combined with cultural integration difficulties, can lead to conflicting opinions on how to deal with a burgeoning health crisis.

In this article, we review recent findings on the prevalence of CVD and related illnesses in the US Latino/Hispanic population and discuss gaps in the current knowledge. We present a call to greater action on the part of governmental agencies, pharmaceutical companies, academia, industry media, and community organizations to deal with the escalating health problem of CVD and related illnesses, such as diabetes, in the Latino/Hispanic population.

MATERIALS AND METHODS

We conducted an extensive PubMed and other Internet literature searches for studies published from January 1995 to July 2005, using a combination of search terms (cardiovascular disease, CVD, Latino, Hispanic, prevention, guidelines, clinical trials, interventions). Older studies were included if they were particularly relevant to the Latino/Hispanic cardiovascular health crisis.

In instances in which research data were available on both Hispanic and Hispanic subgroups, such as Mexican Americans, we used the all-inclusive Hispanic data. If only subgroup data were available and used, this is specified in the text.

DEMOGRAPHICS

The Latino/Hispanic population is one of the largest and fastest growing ethnic groups in the United States. By the year 2050, it is projected that the Hispanic population will represent 24.4% of the total US population—nearly half the size of the projected non-Hispanic White population, and have grown at a rate of nearly 188%.[1]

States with traditionally high numbers of Hispanic residents, such as California, Texas, New York, Florida, and Illinois, continue to have the largest populations of Hispanics in absolute numbers. However, states that traditionally had few Hispanic residents, such as North Carolina, Arkansas, and Georgia, have experienced a substantial increase in the number of Hispanics during the last decade.[2]

EPIDEMIOLOGY

Cardiovascular disease (CVD) is the leading cause of death among both Hispanic males and females, at 22.5% and 25.4%, respectively. However, many Latinos/Hispanics do not know they are at risk for the disease.[3,4] In 2003, only 27% of Hispanic females were aware that heart disease is a major health problem for women, compared with 55% of non-Hispanic White females.[5]

The Latino/Hispanic population has a high rate of several CVD risk factors, most notably diabetes and metabolic syndrome. The prevalence of diabetes among Mexican Americans ≥40 years of age has been shown to be 22%, nearly twice that of non-Hispanic Whites.[6] For this same Latino/Hispanic subgroup, the highest age-adjusted prevalence of metabolic syndrome was reported as 31.9% vs 23.8% in their non-Hispanic White counterparts. Among Mexican Americans, women had a 26% higher prevalence of metabolic syndrome than did men.[7] The prevalence of metabolic syndrome has been shown to increase with age (6.7% among those 20 to 29 years, 43.5% among those 60 to 69 years, and 42.0% among those ≥70 years of age).[7]

Not only are Latinos/Hispanics developing CVD risk factors at an alarming rate, but they are also developing them at a younger age than are non-Hispanic Whites. The Corpus Christi Child Heart Study found significantly higher fasting insulin and glucose concentrations among Mexican American children compared with non-Hispanic White children.[8] Childhood and adolescent obesity was also shown to be approximately 10% higher among Mexican American males 6 to 19 years of age than among their non-Hispanic White counterparts.[9]

As with metabolic syndrome, diabetes is another CVD risk factor that is reported more often in Latinos/Hispanics than in non-Hispanic Whites. The cumulative residual lifetime risk for diabetes is 45.4% in Hispanic males vs 26.7% in non-Hispanic White males. In Hispanic females, the risk for developing diabetes is 52.5%, compared with 31.2% in non-Hispanic White females.[10]

Many Latinos/Hispanics are not aware of their personal risk factors for developing CVD. Among Mexican Americans, a subgroup that represents 67% of the total US Hispanic population, only 41.8% were aware of having high blood cholesterol levels, compared with 65.5% of non-Hispanic Whites.[11,12] One reason for this lack of awareness is limited cholesterol screening. According to a 1999 to 2002 National Health and Nutrition Examination Survey, only 47.6% of Mexican Americans were screened for high blood cholesterol levels during the past 5 years, whereas 65.2% of non-Hispanic Whites received screening.[12]

BARRIERS TO CARE

Despite their higher incidence of cardiovascular risk factors, Latinos/Hispanics have a more difficult time than non-Hispanic Whites becoming integrated into the US health care system. In 2002, 32.4% of Hispanics reported that they did not have health insurance, whereas only 10.7% of non-Hispanic Whites were uninsured.[13] Individuals without health insurance or those who changed health plans were more likely to delay seeking medical care, risking the development of complications that could be avoided with early detection.[14]

According to the US Department of Health and Human Services, in 2002, 25% of Hispanic adults did not have a usual place of care, compared with 11% of non-Hispanic Whites.[15] For those who did have a usual place of care, 72% of Hispanics considered it to be a physician's office or HMO, compared with 83% of non-Hispanic Whites.[15] Community health centers are a popular source of regular care for many Latinos/Hispanics, with 25% using such centers vs 8% of the overall population (see Figure 1).[16]

Language and educational level play a role in Latino/Hispanic health care, as well as in the population's understanding of health issues. Of English-speaking patients, 35.1% have inadequate or marginal functional health literacy, compared with 61.7% of Spanish-speaking patients.[17] Only 57.0% of Hispanics are high school graduates, compared with 89.4% of non-Hispanic Whites.[18]

Inferred cultural biases are to blame for twice as many Hispanics as non-Hispanic Whites (18% vs 9%, respectively) feeling as if they had been treated with disrespect at their last physician visit. Many believed this disrespect was because of their race or ethnicity, their inability to speak English, or their inability to pay for the visit.[16]

Culturally based barriers are not the only obstacles to Latino/Hispanic health care. A significant under-representation

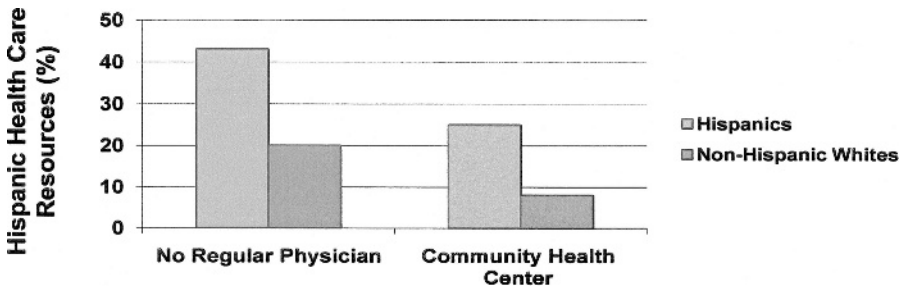

Fig 1. Hispanics are much more likely than non-Hispanic whites to have no regular physician and to use community health centers as a source of primary care. From Doty MM, Ives BL. Commonwealth Fund 2001 Health Care Quality Survey, 2001.

of ethnic and racial minority groups has been observed in clinical trials. Of trials known to be conducted in the United States between 1995 and 1999 in which race could be determined, 83% of the participants were White and only 3% were Latino/Hispanic (see Figure 2).[19] For the fiscal year 2000, although 12.5% of the US population was noted to be Hispanic, only 7.9% of subjects were Hispanic in National Institutes of Health–funded clinical trials.[20]

Previous epidemiologic studies have incorrectly assigned a lower risk for death to Latinos/Hispanics. Recently, this ''Hispanic paradox'' has been challenged by such studies as the San Antonio Heart Study, which demonstrated that, compared with non-Hispanic Whites, the hazard ratio for all-cause mortality was 1.66 (95% confidence interval [CI], 1.15–2.40) in US-born Mexican Americans vs 1.14 (95% CI, 0.63–2.06) in Mexican-born Mexican Americans.[21] In the Corpus Christi Heart Project, the coronary heart disease mortality rate ratio for Mexican Americans vs non-Hispanic Whites was 1.16 (95% CI, 0.91–1.47) in men and 1.32 (95% CI, 1.08–1.63) in women.[22] National death certificate data, which confirmed the trends of these other studies, reported that, in 2001, the rate of premature deaths from heart disease was substantially higher among Hispanics (23.5%) than among non-Hispanics (16.5%).[23]

A CALL TO ACTION

In order to deal with the growing CVD health problem in the Latino/Hispanic population, future initiatives need to be based on a coordinated effort among governmental agencies, pharmaceutical companies, academia, industry media, professional and community organizations.

Modifying CVD Screening: Focus on Latinos/Hispanics

Establishing Latino/Hispanic culturally sensitive screening methods for the detection of CVD, incorporating ethnic customs, language, and logistical preferences, is as essential for reaching this at-risk population as is finding the most effective methods for treating these individuals.

One potentially important preliminary diagnostic tool for predicting CVD and diabetes in Latinos/Hispanics may be the presence of metabolic syndrome, which is readily diagnosed on the basis of a simple, standard clinical examination without the use of calculations.[24] If metabolic syndrome is identified, early steps can be taken to reduce a person's risk for developing CVD and/or diabetes.[24] However, issues have been raised questioning the accuracy of metabolic syndrome definition, compared with the Framingham Risk Score and other models,

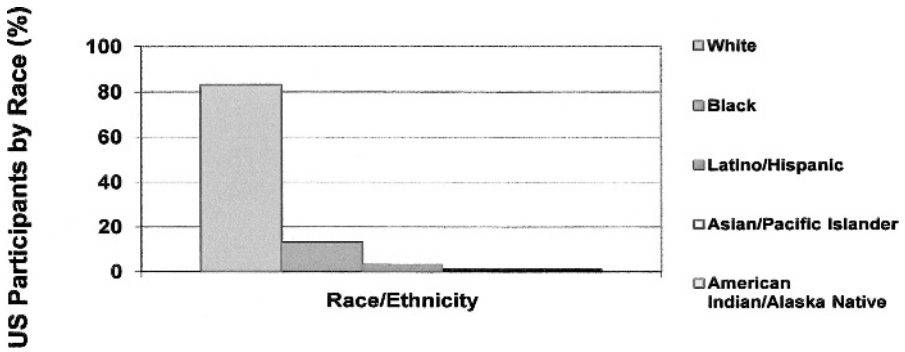

Fig 2. Of trials known to be conducted in the United States between 1995 and 1999 in which race could be determined, 83% of the participants were white and only 3% were Latino/Hispanic. Adapted with permission from Evelyn B et al. *J Natl Med Assoc*. 2001;93(12 suppl):18S–24S.

as a predictor of CVD.[25] Studies have shown that those with metabolic syndrome, diagnosed using either the ATP III or WHO definitions, have higher rates of CVD or are at greater risk of developing it. Studies have also shown that the increased CVD risk in patients with metabolic syndrome ranged from 30% to 400%. This large range is most likely due to variations in the population studied, the definition of metabolic syndrome used, and the length of patient follow-up.[26] Although the Framingham risk scoring method is an excellent predictor of CVD, it has been shown to overestimate risk in its unadjusted form. Modifications must be made in order to increase the predictive accuracy of the Framingham Risk Score, particularly in the Hispanic male population.[27,28]

The Insulin Resistance Atherosclerosis Study (IRAS) study has demonstrated that low-density lipoprotein (LDL) particle size differs significantly among ethnic groups, with Hispanics having smaller (257.6±0.6 Å) particle sizes than non-Hispanic Whites (259.2±0.4 Å; $P<.001$).[29] On further analysis, the IRAS data showed that elevated apolipoprotein B (apoB) was more strongly associated with CVD risk factors than was LDL cholesterol (LDL-C).[30] Therefore, apoB screening may be more accurate than LDL-C screening for the prediction of CVD risk.

Additional research should be conducted to fully determine the best predictors of CVD and diabetes in Latino/Hispanic patients.

Clinical Trial Design

US clinical trials related to CV risk factors or CVD do not currently mirror the ethnically diverse population of the United States. Suggested improvements include enrolling subjects who reflect the country's general population, with a focus on Latinos/Hispanics.

When targeting the Latino/Hispanic population, cultural differences need to be considered in order to ensure successful recruitment and compliance in trials. Patients should first be made aware that a trial is taking place. In the Latino/Hispanic population, this may translate into using a community-based announcement rather than a traditional print or online method.[20] Once aware of the study, Latino/Hispanic patients should be informed of its terms, duration, and follow-up visits. For Latinos/Hispanics, the acceptance of a trial is based on perceived harm vs perceived benefit.[20] In order to retain patients for the life of the study, initial contact between trial organizers and participants must clearly spell out the anticipated time commitment and extent of followup visits. If subjects are unable to comply with this regimen, it may be necessary to alter follow-up procedures to include flexible times, appointments, and remote locations for visits.[20]

To gain meaningful data and reduce ethnic and racial disparities in clinical trials, study designs should be modified from those of current practices. Studies are needed that specifically target Latinos/Hispanics as a single ethnic group. Within these trials, subgroup analyses, such as Caribbeans, Cubans, Mexican Americans, and other Latin Americans, should be performed. Prespecified subgroup data analysis, while still not statistically robust, will offer much more information than what is currently available. For comparison purposes, racially heterogeneous studies that include two or more racial/ethnic groups are important, as are increased efforts to share data among multiple clinical trials.[31]

Materials used in clinical trials should be culturally sensitive in the explanation of their objectives and methods to patients. A successful example of an institution making a concerted effort to do so is the Hispanic Resource Center of the Clinical Trials Office at Columbia University Medical Center in New York City. The center designs recruitment materials, creates and produces announcements in Spanish, and provides Spanish-language translation services. In addition, the center designs Hispanic-targeted research questionnaires that ensure the answers provided are accurate in meaning across languages. This facilitates the transfer of data and assures validity and comparability of results.[32]

Key personnel in clinical trial design and implementation should include Latino/Hispanic experts, where appropriate and possible, in order to guarantee cultural sensitivity and aid in participant compliance. Such experts include those serving as principal investigators, as statisticians, as nurses, on the data safety and monitoring committee, and on executive boards.

Addressing Cultural Barriers to Care

A need exists to address Latino/Hispanic cultural barriers to health care, in order to enhance both the physician-patient relationship and the level of cardiovascular care patients receive.

Limited data are currently available on the actual number of practicing Latino/Hispanic physicians and nurses in the United States. Attempts have been made in the past to recruit underrepresented minorities, including Mexican Americans and Puerto Ricans, into the healthcare professions. The most prominent of these programs was the Project 3000 by 2000 initiative launched by the Association of American Medical Colleges, which attempted to enroll 3,000 underrepresented minority students in medical school by the year 2000. This program fell short of its enrollment goal, in large part because of court decisions hindering affirmative action programs in several parts of the nation.[33] However, much can be learned by reviewing and expanding on the educational-pipeline interventions implemented in this program, in order to develop new and creative ways to foster recruitment in the future.

With Hispanic physicians treating more Hispanic patients, the need for additional Latino/Hispanic healthcare professionals is evident. One study found that Hispanic physicians cared for significantly more Hispanic patients (21%; $P<.001$) and more uninsured patients ($P=.03$) than did other physicians.[34] Efforts should be undertaken to make it advantageous for healthcare professionals to practice in primarily Latino/Hispanic commu-

nities. Currently, the lack of insurance in this population often makes it financially undesirable for physicians.

Although graduate medical education in this country has evolved, further changes are needed to reflect society's overall diversity. The number and percentage of programs that offer opportunities in cultural competence awareness increased between 2000 to 2001 and 2003 to 2004, from 35.7% to 50.7%, respectively. The percentage of programs with a complementary/alternative medicine curriculum remained steady at 24% from 2000 to 2001 and 2003 to 2004, and in that same time frame the proportion of programs providing instructional opportunities in a non-English language decreased by 12% (from 21.6% to 19.0%).[35]

Some strides have been made in assisting Latinos/Hispanics who are entering the healthcare system. For example, access to healthcare language interpreters is now mandatory for federal financial assistance recipients who qualify as limited English proficient, in compliance with the Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons.[36] However, more efforts must be made to integrate cultural aspects into treatment plans, include Spanish language package inserts with medications, and to overcome stereotypes from both the patient and the physician perspectives. In some cases, this may be as simple as altering methods of dealing with patients to incorporate cultural aspects of care, such as using formal titles to address patients, greeting patients using basic Spanish, becoming aware of body language, and encouraging patients to ask questions.[37]

Targeting Interventions to Improve Awareness and Prevention of CVD in the Latino/Hispanic Community

To be successful, CVD screening and prevention interventions targeted at the Latino/Hispanic population need to incorporate cultural attitudes. Where and how the Latino/Hispanic population is targeted is just as important as is the message being conveyed. Initiatives targeting schools, churches, community centers, clinics, and colleges may reach this population more readily than by currently used methods.

Health intervention programs that integrate cultural aspects of minority or ethnic groups have increased success rates. One example of this is Project Joy, conducted in affiliation with the Johns Hopkins University School of Medicine in Baltimore, Maryland. This cardiovascular health program for African American women compared the impact on CVD risk of three intervention strategies. The study examined self-help intervention, standard behavioral intervention, and standard intervention supplemented with a church-based spiritual component. Compared with the self-help group, the church-based treatment and standard intervention arm participants exhibited significant improvements in body weight (−1.1 lb), waist circumference (−0.66 in), systolic blood pressure (−1.6 mm Hg), dietary total fat (−8 g), and sodium intake (−145 mg).[38]

Certain Latino/Hispanic–specific cultural aspects should be emphasized with respect to CVD awareness and prevention programs, as well as everyday life. Latinos/Hispanics stress the importance of family involvement in decision-making, including those that are healthcare related.[39] They also have a high regard for personal relationships, which is why many seek out and receive their primary care from community-based organizations and clinics. Latinos/Hispanics believe in the concept of *respeto*, which dictates appropriate and deferential behavior toward others based on such factors as age, sex, social position, economic status, and authority. According to this concept, elders would expect respect from younger people, men from women, and teachers from students.[39] To this end, efforts should be focused on developing improved methods for patients to provide feedback to physicians and other health care professionals regarding their feelings about communication, respect, and appropriateness of educational programs.

CONCLUSIONS

CVD and related illnesses, such as diabetes, are serious health issues that plague the fastest-growing ethnic minority group in the United States. The observation that Latinos/Hispanics have lower all-cause and cardiovascular mortality, despite their increased prevalence of diabetes and obesity, lower socioeconomic status, and barriers to health care, is not ''genuine,'' but is caused instead by distortions in data analysis and unaccounted demographic factors. Recent studies not only challenge lower CVD mortality rates among US Latinos/Hispanics compared with non-Hispanic Whites, but they also suggest equal or higher mortality rates in some cases.

Because of limitations in current data and trials, additional research needs to be conducted to fully determine the best predictors of CVD and diabetes in Latino/Hispanic patients. A concerted effort on the part of health-influencing and health-governing bodies is needed on all levels in order to address these problems in the Latino/Hispanic population. If specifically targeted intervention, screening, awareness, and research initiatives are begun now, the problem can be averted before it becomes a major health crisis.

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Supervision: Davidson, Morales, Ovalle