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Panel Moderator:

Millicent Higgins, MD
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Panelists:

Wilfred Fujimoto, MD
University of Washington

Craig Hanis, PhD
University of Texas

Stephen Havas, MD MPH MS
School of Medicine, University of Maryland

Helen Hazuda, PhD
University of Texas

Barbara V. Howard, PhD
Medlantic Research Institute

Amelie G. Ramirez, DrPH
University of Texas Health Science Center at San Antonio

Everett Rhoades, MD
University of Oklahoma

Roger Sherwin, MB BChir
School of Medicine, University of Maryland

Elena Yu, PhD
San Diego State University

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NHLBI Workshop Panel Discussion: A Scientific Perspective

SYNOPSIS

THE WORKSHOP ON THE EPIDEMIOLOGY OF HYPERTENSION in Hispanic Americans, Native Americans, and Asian/Pacific Islander Americans concluded with a panel discussion of the findings from a scientific perspective. Panel members presented their ideas for research direction on measuring and identifying more accurately the frequency, distribution, and determinants of hypertension in minority populations, evaluating mechanisms leading to hypertension, and identifying the implications for public health and medical practice.

Several members stressed the need for additional data collections, using standardized methods. They stated that future studies, including longitudinal ones, should target specific ethnic populations and subpopulations and address the role of acculturation, assimilation, modernization, and socio-economic status. They also recommended comparative and collaborative studies among groups.

They emphasized the importance of obesity and diabetes or impaired glucose tolerance as determinants of hypertension in all three populations, and suggested that there may be differences in the etiology and pathophysiology of hypertension among the groups, with visceral adiposity or insulin resistance syndrome being more important in Asian populations. The potential for identification of genes involved in blood pressure variation and hypertension risk may help understand the interaction of genes with the environment. Minority groups in the United States share the problem of high prevalence of high blood pressure and low rates of control. For this reason, the panel urged a new era of community-based, culturally sensitive prevention and control projects.

Dr. Millicent Higgins, panel moderator, opened the discussion by explaining the two general purposes for which the National Heart, Lung, and Blood Institute convenes workshops like the Workshop on the Epidemiology of Hypertension in Hispanic Americans, Native Americans, and Asian/Pacific Islander Americans. The first is to bring together people with similar interests to share information not generally available that can advance understanding of the topic of the workshop. The second purpose is to consider future

research, including basic research, clinical and epidemiologic studies, clinical trials, and demonstration and prevention activities. She asked panel members to present ideas for research to help measure and identify more accurately the frequency, distribution, and determinants of hypertension in minority populations and to seek out opportunities to evaluate mechanisms leading to hypertension in minority populations as well as in the majority population. Implications for public health and medical practice are also appropriate for consideration by this panel, she said.

Dr. Barbara Howard stressed that longitudinal studies are more useful in identifying the strongest determinants of high blood pressure and may lead to the best intervention strategy. She said that there may be fundamental differences in the etiology and pathophysiology of hypertension among the various groups, noting that insulin resistance or excess abdominal fat appeared to be more important as determinants of hypertension in Asian Americans than in Native Americans and Hispanics. She also said that nonpharmacologic interventions, such as physical activity, diet and alcohol control, and weight control, should be attempted for the prevention of hypertension.

Dr. Wilfred Fujimoto agreed about the importance of diabetes as a risk factor for hypertension in all minorities and said that we need to examine the insulin resistance syndrome hypothesis, which seems to vary in its applicability to minority populations. He pointed out the importance of visceral adiposity in Asians and said that it had not been examined in other minority groups. He further stated that individual ethnic groups need to be oversampled in future research.

Dr. Roger Sherwin noted the importance researchers at this workshop and others had assigned to body fat, not only in relation to hypertension, but also in relation to diabetes as well as other respects. He underlined the importance of the amount of fat, its distribution, and the way we measure it.

He explained that body mass index is a crude index that does not distinguish various kinds of body tissue, ignores fat distribution, and ignores the muscle loss and fat gain that occur with aging. Total body fat is more valuable, but also ignores fat distribution. Skinfold thickness estimates subcutaneous fat but has low reproducibility. Waist-hip ratio fails to distinguish visceral from subcutaneous fat and depends on abdominal muscle tone. Computed tomography scan and magnetic resonance imaging are the only current methods to measure visceral fat, but they are expensive and not readily applicable to population studies or to routine clinical use. Researchers need to explore simpler methods of measuring visceral fat.

Dr. Craig Hanis emphasized the importance of the effect of genes on blood pressure and hypertension. At present, researchers do not know the number of genes, which genes, how they interact with environmental fac-

tors, or how they influence risk for high blood pressure or overt hypertension. He postulated that they are probably looking for genes whose effects are neither necessary nor sufficient to produce hypertension in and of themselves. The technology now exists, however, to contemplate identifying genes involved in blood pressure variation and hypertension risk in the next 5 to 10 years. This will be accomplished by studying candidate genes. Some genes have already been shown to have different effects in different populations. Dr. Hanis expects that gene identification and their effects or frequencies in various populations will be difficult to sort out on a global level, but it should be possible in terms of their pattern within individuals and families. This will permit understanding of how genes and environments interact. He encouraged researchers doing population studies to save white cells for DNA isolation.

Dr. Helen Hazuda recalled that all the speakers had talked about heterogeneity within various ethnic groups, saying that we need to target specific subgroups within ethnic populations that might bear a particular burden of disease. She cited the need to examine differences in assimilation, acculturation, and socioeconomic status within ethnic groups as markers that may indicate a need for research on a particular subgroup. She suggested that researchers also focus on identifying specific mediating mechanisms that link these markers to disease, including genetic, physiologic, psychosocial, and lifestyle factors. The general worldwide movement toward modernization, she noted, involves major lifestyle changes, which trigger high prevalence and incidence of disease among ethnic groups and subgroups with genetic predisposition. Consideration of a variety of potential mediating mechanisms and their relative contributions will allow researchers to focus interventions to achieve the biggest payoff in terms of reduced prevalence and incidence of disease.

Dr. Zoila Ortega-Harrison, speaking for Dr. Amelie Ramirez, listed several points that apply across cultures. She suggested that the field:

- Encourage young people to pursue health or research careers and to recruit and train more minority investigators, particularly those who understand ethnic issues and issues related to socioeconomic status.
- Conduct studies that compare differences between U.S. cultural groups and populations in their countries of origin; examine ethnic differences in risk factors and the effects of ethnicity and class; and evaluate the role of weight, physical activity, and alcohol consumption in high blood pressure prevention, treatment, and control.
- Initiate childhood studies to assess risk and start early cardiovascular disease prevention programs.
- Improve data collection methodology; for example, develop better ethnic and socioeconomic status identifiers on morbidity and mortality data.

- Evaluate biomedical outcomes in relation to proximal effects and to social factors that influence the distribution of risk factors.
- Develop qualitative and quantitative parameters and assessments of health and factors that influence health in ethnic groups.
- Conduct multidisciplinary studies emphasizing psychosocial and environmental factors that impact Hispanic populations.
- Target the family in prevention studies.
- Conduct comparability studies of high blood pressure and diabetes among Hispanics and other groups, taking socioeconomic factors into account.

Dr. Elena Yu stressed the importance of considering the geographic distribution of special populations in planning studies and suggested that sample sizes of 10,000 or more are required. Researchers, she continued, should target the largest Asian and Pacific Islander groups—Chinese, Filipino, and Japanese—as well as Hawaiians, who are also at higher risk for cardiovascular diseases. She recommended using the National Death Index in planning longitudinal studies and called for refined measures of acculturation.

Dr. Everett Rhoades noted that next to nothing is known about the normal physiology of the heart, peripheral vasculature, or the kidney in American Indians and Alaska Natives. Factors related to these systems might be different than in other ethnic groups as they appear to be in blacks. End-stage renal disease is so great a problem and increasing so rapidly in Indian populations that studies should be started, if they are not underway already. He mentioned two studies that demonstrate the extraordinary value of collaboration between research and preventive institutes: the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDKD) Research Program in the Phoenix Indian Medical Center and the Arctic Research Laboratory, run by the Centers for Disease Control and Prevention on the grounds of the Alaska Native Medical Center. He highlighted the need for longitudinal studies since the dynamics of change are so great. He recommended that researchers study the issue of acculturation in relation to hypertension and other diseases and explore possibilities for collaboration among the three minority groups. He noted, for example, that similarities seem to exist between certain Asian groups, Mexican Americans with a high admixture of American Indian blood, and American Indians, with American Indians being intermediate.

Dr. Stephen Havas presented a public health perspective. He observed that data from the Third National Health and Nutrition Evaluation Survey (NHANES III) indicate that 43 million Americans have high blood pressure, of whom 32 million are not controlled. Six million are unaware of their high blood pressure. Of the remaining 200 million, roughly 100 million will develop high blood pressure during their lifetime, of whom 75 million

will be uncontrolled. Minority groups, whose numbers are increasing in this country, share the problem of high blood pressure. He recommended that the NHLBI attempt to balance basic research (for example, molecular biology) with applied research. He recommended a new era of community-based, culturally sensitive prevention and control projects, with emphasis on minorities.