Dyslipidemia in Special Ethnic Populations

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KEYWORDS

- Dyslipidemia • Racial/ethnic differences • Prevalence • Mortality • Treatment
- Lifestyle modification

KEY POINTS

- Among racial/ethnic groups, Asian Indians, Filipinos and Hispanics are at greater risk for dyslipidemia, which is consistent with the higher coronary heart disease (CHD) mortality rates.
- Compared with other racial/ethnic groups, statins may have a higher efficacy for Asians. Studies suggest lower starting dosage in Asians, but the data are mixed.
- Genetic differences in statin metabolism can in part explain this racial/ethnic difference in statin sensitivity and adverse effects.
- Lifestyle modification is recommended as part of dyslipidemia control and management; African Americans and Hispanics have more sedentary behavior and a less favorable diet profile.

INTRODUCTION

Dyslipidemia, including high levels of low-density lipoprotein cholesterol (LDL-C; $\geq$130 mg/dL), total cholesterol ($\geq$200 mg/dL), and triglycerides (TG; $\geq$150 mg/dL), or low levels of high-density lipoprotein cholesterol (HDL-C; <40 [men] and <50 [women] mg/dL), is among the leading risk factors for coronary heart disease (CHD) and stroke.[1] A report of the National Health and Nutrition Examination Survey (NHANES) from 2003 to 2006 estimated that 53% (105.3 million) US adults have at least one lipid abnormality: 27% (53.5 million) have high LDL-C, 23% (46.4 million)

have low HDL-C, and 30% (58.9 million) have high TG. In addition, 21% (42.0 million) of US adults have mixed dyslipidemia, defined as the presence of high LDL-C combined with at least one other lipid abnormality.[2]

Significant heterogeneity in patterns of dyslipidemia prevalence, its relation to CHD and stroke mortality rates, and response to lipid-lowering agents has been observed across racial/ethnic groups.[3] These differences in dyslipidemia provide important information that may in part explain the variation in cardiovascular disease (CVD) burden observed across racial/ethnic subgroups. Better understanding of dyslipidemia in special racial/ethnic populations is needed to guide prevention, screening, and treatment efforts.

PREVALENCE OF DYSLIPIDEMIA SUBTYPES AMONG SPECIAL RACIAL/ETHNIC GROUPS

The NHANES is the primary data source for national prevalence rates of dyslipidemia in the United States, sampling mainly non-Hispanic whites (whites), non-Hispanic blacks (blacks), and Mexican Americans. The NHANES has very limited samples from the Asian subgroups.[4] Other data sources, such as primary care settings and observational studies, contribute to a comprehensive picture of racial/ethnic differences in dyslipidemia by providing important information about races and ethnicities that are less represented in the NHANES. One should be aware that the prevalence of dyslipidemia varies by data source. The observed differences in the prevalence rates of dyslipidemia between studies can be attributable to factors such as study design, sampling methods, time period, geographic variation, and participants' characteristics.

Low-Density Lipoprotein Cholesterol

NHANES data in 2013 showed that the prevalence rate of high LDL-C was highest among Mexican men (40%) and women (30%), followed by non-Hispanic black men (33%) and women (31%). Non-Hispanic white men (30%) and women (29%) had the lowest prevalence of high LDL-C among the 3 racial/ethnic groups.[5]

Similarly, data from a clinic-based cohort in northern California from 2008 to 2011 showed that 63% of black men and 57% of black women had high LDL-C, which were slightly higher than the prevalence rates among non-Hispanic white men (62%) and women (53%).[3] Further, Mexican American men (66%) and women (57%) also had higher prevalence of high LDL-C compared with non-Hispanic whites.[3] Filipino men (73%) and women (63%) had the highest prevalence rates of high LDL-C among Asian subgroups, non-Hispanic whites, non-Hispanic blacks, and Hispanics.[3]

Several other studies provide further estimates for variation in prevalence among race/ethnic minority subgroups. Data from the Hispanic Community Health Study (HCHS)/Study of Latinos (SOL), an observational study in San Diego, Chicago, New York City, and Miami, showed variations among Hispanic subgroups with particularly high prevalence of dyslipidemia among Central American men (55%) and Puerto Rican women (41%).[6] The Study of Health Assessment and Health Risk in Ethnic groups (SHARE) investigated the prevalence of CHD risk factors for a multiethnic cohort from 3 Canadian cities. They found that South Asians, mainly Asian Indians, had an increased prevalence of higher total and LDL cholesterol compared with Europeans and Chinese.[7]

High-Density Lipoprotein Cholesterol

NHANES data in 2013 showed that 20% of black men and 10% of black women had low HDL-C, defined as less than 40 mg/dL in both men and women, which were lower than the prevalence rates among non-Hispanic white men (33%) and women (12%).[5]