Cardiovascular Disease and Cholesterol in Latinos

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Speaker Introduction

Harvard Medical School
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BWH
Internal Medicine Residency Brigham and Women’s Hospital

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Zuckerman Fellowship, Harvard Kennedy School

Cardiology Fellowship Stanford University
- Chief Fellow
- ACC/Merck Fellowship
- NHLBI NRSA
The Latino Cardiovascular Mortality Paradox
Importance of Disaggregation
Cholesterol and Latinos
Questions and Discussion
Background

>55 million Latinos in U.S.

By 2060, 1 in 3 Americans will be of Latino origin

Data on the health of Latinos remain sparse

Population in millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Census</th>
<th>Estimate</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>14.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>22.4</td>
<td></td>
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<tr>
<td>2000</td>
<td>35.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>52.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020*</td>
<td>66.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2030*</td>
<td>85.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040*</td>
<td>108.2</td>
<td></td>
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</tr>
<tr>
<td>2050*</td>
<td>132.8</td>
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</tbody>
</table>

*Projected Population as of July 1
CVD Mortality by Racial/Ethnic Group

Yet CVD remains #1

A = Heart Disease  
B = Cancer  
C = Accidents  
D = Diabetes  
E = Lung Disease  
F = Alzheimer Disease
Despite lower levels of education, income, and employment, Latinos experience lower mortality as compared to other groups.
Hispanic Heterogeneity
Geographic Heterogeneity
The Hispanic Community Health Survey/Study of Latinos

- Community-based cohort of 16,415 self-identified Hispanics/Latinos
- Results from baseline survey show importance of disaggregation

Daviglus ML, et. al. JAMA. 2012;308:1775-1784
Heart Attack Deaths

A Men

B Women

Group
- Non-Hispanic white
- All Hispanic
- Mexican
- Puerto Rican
- Cuban

Stroke Deaths

A Men

Age-Adjusted Mortality per 100,000

Year

2003 2005 2007 2009 2011 2012

B Women

Age-Adjusted Mortality per 100,000

Year

2003 2005 2007 2009 2011 2012

Group

- Non-Hispanic white
- All Hispanic
- Mexican
- Puerto Rican
- Cuban

Prevalence of Dyslipidemia

High Cholesterol Awareness, Treatment, and Control

![Bar chart showing weighted percents of awareness, treatment, and control for different Hispanic subgroups.](chart.png)
Pooled Cohort Equations – Assessing ASCVD Risk

http://tools.cardiosource.org/ASCVD-Risk-Estimator/

Gender
- Male
- Female

Age
20-79

Race
- White
- African American
- Other

HDL - Cholesterol (mg/dL)
20-100

Total Cholesterol (mg/dL)
130-320

Diabetes
- Yes
- No

Systolic Blood Pressure
90-200

Treatment for Hypertension
- Yes
- No

Smoker
- Yes
- No

*Intended for use if there is not ASCVD and the LDL cholesterol is <190 mg/dL.

**Optimal risk factors include: Total cholesterol of 170 mg/dL, HDL-cholesterol of 80 mg/dL, Systolic BP of 110 mm Hg, Not taking medications for hypertension, Not a diabetic, Not a smoker
<table>
<thead>
<tr>
<th>Racial/Ethnic Groupings</th>
<th>Asian Americans <em>(S4.5.1-4, S4.5.1-13)</em></th>
<th>Hispanic/Latino Americans <em>(S4.5.1-7–S4.5.1-11)</em></th>
<th>Blacks/African Americans <em>(S4.5.1-14)</em></th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Evaluation</strong></td>
<td></td>
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<tr>
<td>ASCVD issues informed by race/ethnicity</td>
<td>ASCVD risk in people of South Asian and East Asian origin varies by country of origin; individuals from South Asia (see below) have increased ASCVD risk.</td>
<td>Race/ethnicity and country of origin, together with socioeconomic status and acculturation level, may explain risk factor burden more precisely (e.g., ASCVD risk is higher among individuals from Puerto Rico than those from Mexico).</td>
<td>ASCVD risk assessment in black women shows increased ASCVD risk compared with their otherwise similar white counterparts.</td>
<td>There is heterogeneity in risk according to racial/ethnic group and within racial/ethnic groups. Native American/Alaskan populations have high rates of risk factors for ASCVD compared to non-Hispanic whites. <em>(S4.5.1-12)</em></td>
</tr>
<tr>
<td>Lipid issues informed by race/ethnicity <em>(S4.5.1-15, S4.5.1-16)</em></td>
<td>Asian Americans have lower levels of HDL-C than whites. There is higher prevalence of LDL-C among Asian Indians, Filipinos, Japanese, and Vietnamese than among whites. An increased prevalence of high TG was seen in all Asian American subgroups.</td>
<td>Hispanic/Latino women have higher prevalence of low HDL-C compared with Hispanic/Latino men.</td>
<td>Blacks have higher levels of HDL-C and lower levels of triglycerides than non-Hispanic whites or Mexican Americans.</td>
<td>All ethnic groups appear to be at greater risk for dyslipidemia, but important to identify those with more sedentary behavior and less favorable diet.</td>
</tr>
</tbody>
</table>
## Statin Intensity

<table>
<thead>
<tr>
<th>High-Intensity (≥50% LDL-C reduction)</th>
<th>Moderate-Intensity (30-50% LDL-C reduction)</th>
<th>Low-Intensity (&lt;30% LDL-C reduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atorvastatin 40-80mg</td>
<td>Atorvastatin 10-20mg</td>
<td>Fluvastatin 20-40mg</td>
</tr>
<tr>
<td>Rosuvastatin 20-40mg</td>
<td>Fluvastatin 40mg BID or 80mg XL</td>
<td>Lovastatin 20mg</td>
</tr>
<tr>
<td></td>
<td>Lovastatin 40mg</td>
<td>Simvastatin 10mg</td>
</tr>
<tr>
<td></td>
<td>Pitavastatin 2-4mg</td>
<td>Pitavastatin 1mg</td>
</tr>
<tr>
<td></td>
<td>Pravastatin 40-80mg</td>
<td>Pravastatin 10-20mg</td>
</tr>
<tr>
<td></td>
<td>Rosuvastatin 5-10mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Simvastatin 20-40mg</td>
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</tbody>
</table>
Statin Intensity and Mortality

Dose-response relationship between statin intensity and all-cause mortality among veterans with heart attacks and strokes.
Barriers to LDL-C control in Latino communities

• Distrust of the medical establishment
• Access to high-quality, language-concordant care
• Cost of novel LDL-C lowering agents (i.e. PCSK-9 inhibitors)
• Underrepresentation in lipid-lowering therapy trials
• Bad statin press and perceived side-effects
• Lack of medication adherence
Statins only work in people who take them

Women, minorities, and older/younger adults were least likely to be adherent

Dose-response relationship between statin adherence and all-cause mortality

Rodríguez F et al.: Association of Statin Adherence With Mortality in Patients With Atherosclerotic Cardiovascular Disease *JAMA Cardiol.* 2019.
Conclusions

The Latino Paradox is based on limited data, largely focused on Mexican Americans, and may not be consistent across all groups.

Latinos have high rates of dyslipidemia and high cholesterol awareness/treatment/control vary by subgroup.

Latinos experience unique barriers to LDL-C control.

More research is needed to predict and prevent cardiovascular disease among Latinos.
Thank you for your attention!

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PCSK9 Inhibitors

• PCSK9 is a protein that targets the LDL receptor for destruction

• PCSK9 inhibitors block this process resulting in more LDL receptors on the surface of liver cells → lower LDL-C
Proportion of patients who filled their prescription after approval by range of copay (black line with markers), and the number of patients whose out-of-pocket costs were in that range (gray bars). Copay reflects ultimate out of pocket costs after co-insurance, patient approval program use, and coupon use.