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Towards a Better Understanding of Cholesterol in Hispanics/Latinos

Hispanics make up ~18% of the United States (US) population and by 2050 the Hispanic population aged ≥65 years is projected to increase six-fold, making Hispanics the fastest-growing aging population. Hispanics are a diverse a heterogeneous group without a race/ethnicity- specific risk equation for atherosclerotic cardiovascular disease (ASCVD). We evaluated the impact of genetic ancestry (African and European) on ASCVD risk prediction on Multi-Ethnic Study of Atherosclerosis (MESA) Hispanic participants.

Methods: Our proposed study will evaluate the impact of Hispanic ethnic group and genetic ancestry on the performance of the Pooled Cohort Equation (PCE) on Predicted ASCVD risk among Hispanic participants of the using both NH-White and NH-Black PCE. Observed ASCVD Events and predicted ACSVD risk discrimination performance of NH-White and NH-Black PCE in Hispanics were stratified by three groups of Hispanic background [consisting of Caribbean-Hispanics (Dominicans, Cubans, Puerto Ricans), Mexicans and Central/South-Americans (Other Hispanic)] and by European and African ancestry.

Results: There were 955 MESA Hispanics included stratified into the following ethnic groups: Mexican (n=517), Caribbean (n=287), Other Hispanic (n=151). When comparing predicted to observed ASCVD events at 10-years using the NH-White and the NH-Black equation there is a general trend towards risk overestimation for all MESA participants. After stratifying by Hispanic ethnic group, we observed a trend towards risk underestimation among Mexicans particularly in the clinically significant categories of 5-7.5% and 7.5-20% risk using both the NH-Black and NH-White PCE. Among Caribbean-Hispanics, there was a general trend towards risk underestimation in the 7.5-20% risk category using the NH-Black and NH-White PCE. In the Other Hispanic group, there was a trend towards risk underestimation in the 5-7.5 and 7.5-20% with the NH-White equation and risk underestimation in the 7.5-20% with the NH-Black equation. In groups with greater than average African or European ancestry, there was risk overestimation across ASCVD categories using the NH-White or NH-Black equation.

Conclusions: Our study looked at the role of Hispanic ethnic subgroup and European or African ancestry on risk estimation of ASCVD risk. Overall, there was no significant difference in using the NH-Black vs NH-White PCE to predict ASCVD risk.
However, when stratifying by ASCVD risk categories, both the NH-White and NH-Black PCE seemed to underestimate risk among Hispanic background groups in the clinically relevant 5-7.5% and 7.5-20% risk categories. Given the importance of the PCE for blood cholesterol as well as blood pressure treatment in the current guidelines, our results can have important implications for a large segment of the US population.

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