Examining Racial/Ethnic Differences in Lipoprotein (a) levels

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RESULTS

Background

Lp (a) levels differ significantly in men but not women

To determine whether Lipoprotein (a) levels differ significantly among Non-Hispanic White (NHW), Asian Indian (AI) and Chinese adults living in California.

METHODS

Setting: The Palo Alto Medical Foundation is an outpatient, multi-specialty series of clinics in the San Francisco Bay Area with over 300 physicians, serving more than 45,000 active patients, with a rated racial/ethnic distribution: 32% of patients are Asian, with significant cohorts of Asian Indians and Chinese (12% and 11%, respectively).

Eligibility criteria:

- Active patients (one clinic visit between 2006 and 2008; labs could be drawn between 2001-2008)
- Age 18 years or older at time Lp(a) was drawn
- Lipoprotein (a) measurement (normal < 75 nm/L)
- Non-Hispanic White, Asian Indian and Chinese subjects were identified by self report (40%) or name analysis (60%)4

Lp(a) methods:

Lp(a) levels were measured using a Quest immunoturbidometric assay shown to be independent of apo(a) size.

Study method: Cross-sectional analysis to examine Lp(a) distributions stratified by race/ethnicity and gender

Analytical Statistics:

- Lp(a) values were highly skewed, and non-parametric methods were used to compare the distribution of Lp(a) levels.
- Data were analyzed for normality by Shapiro-Wilk normality test. Due to the non-normality of the data, distributions by race/ethnicity were compared using the Kruskal-Wallis test and the Brown-Mood median test.
- Differences in proportions were evaluated using the Chi-square test.
- Significance was assessed at the p<0.001 level for differences in Lp(a) median and distribution. Significance was assessed at the p<0.001 level for Chi-squared tests.

Figure 1: Lipoprotein (a) distribution in Non-Hispanic Whites (NHW), Asian Indians (AI) and Chinese.

Figure 2: Median Lipoprotein (a) levels in Non-Hispanic Whites (NHW), Asian Indians (AI) and Chinese.

Figure 3: ROC curves for comparison of medians between NHW and AI.

Figure 4: Newborns (37 weeks) with lower Lp(a) levels had significantly lower cholesterol (p<0.001), triglycerides (p<0.001) and lower Lp(a) levels were not significantly correlated with age or body mass index.

CONCLUSION

- The distribution of Lp(a) levels differs significantly in Non-Hispanic White, Asian Indian and Chinese men.
- There was no significant difference in Lp(a) distribution among women.
- Lp(a) levels were higher in AI and Chinese men with Type 2 diabetes mellitus (T2DM) than those without T2DM. Lp(a) levels were similar or lower in women with T2DM in each race-ethnic group.
- Further studies should strive to disaggregate these race-ethnic groups and stratify by gender when examining Lp(a) among Asians.
- The distribution of Lp(a) levels predicts cardiovascular events beyond traditional risk factors in these race-ethnic groups, stratifying by T2DM status and gender.

REFERENCES