Differences in Lipoprotein Profiles Between Palestinian and Israeli Adults

Rana Halloun (✉ r_halloun@rambam.health.gov.il)

Rambam Medical Center: Rambam Health Care Campus <https://orcid.org/0000-0002-8446-7737>

Ahmad Ighbariya

Rambam Medical Center: Rambam Health Care Campus

Suhair Hanna

Rambam Medical Center: Rambam Health Care Campus

Ronit Sinnreich

Hebrew University of Jerusalem

Ram Weiss

Rambam Medical Center: Rambam Health Care Campus

Original investigation

Keywords: Insulin resistance, Oxidized LDL, VLDL, Dyslipidemias, Diabetes, Cardiovascular disease

Posted Date: December 18th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-127500/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Palestinians exhibit a substantially greater prevalence of type 2 diabetes mellitus, cardiovascular disease (CVD) incidence and CVD mortality in comparison to Israelis. In view of Palestinians' increased insulin resistance, known to be associated with an adverse lipoprotein profile, we aimed at showing lipoprotein variations between Palestinian and Israelis residing in Jerusalem.

Methods: The study included, 968 Palestinians and 707 Israelis, ages 25-74 years, who underwent fasting and 2h post oral challenge plasma glucose determinations. We evaluated metabolic risk by measuring sub-populations of VLDL, LDL and HDL particles, using nuclear magnetic resonance spectroscopic analysis.

Results: Palestinians exhibit higher levels of very large VLDL including chylomicrons, in comparison to their Israeli counterparts, whereas levels of medium and small VLDL were similar between the two populations. Small oxidized LDL levels were higher among Palestinians while intermediate and large LDL were similar between the two groups. Levels of large HDL were higher among Israelis while levels of medium and small HDL were similar between the two populations. Small oxidized LDL levels were higher among Palestinians in comparison to Israeli participants. Levels of large HDL were higher among Israelis in comparison to Palestinians. Limiting the analysis to young participants with normal glucose tolerance, showed greater levels of large VLDL including chylomicrons, medium and small VLDL and oxidized LDL in Palestinians.

Conclusions: Palestinians, including healthy young participants, exhibit an adverse pro-atherogenic lipid profile compared to Israelis. These findings may explain the increased CVD morbidity and mortality observed in Palestinians.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the latest manuscript can be downloaded and [accessed as a PDF](#).

Figures

Bars: Black—Israeli males, white—Palestinian males, black dashed dashed—Israeli females, white dashed—Palestinian females

Figure 1

Comparison of VLDL particles by ethnicity and sex. Panels A- C results of bivariate model. Panels D- F multivariate model. data are presented as means $\pm$ SEs.

Bars: Black—Israeli males, white—Palestinian males, black dashed dashed—Israeli females, white dashed—Palestinian females

Figure 2

Comparison of LDL particles by ethnicity and sex. Panels A- C results of bivariate model. Panels D- F multivariate model. data are presented as means± SEs.

Figure 3

Comparison of HDL particles by ethnicity and sex. Panels A- C results of bivariate model. panels D- F multivariate model. data are presented as means $\pm$ SEs.

Bars: Black—Israeli males, white—Palestinian males,
black dashed dashed—Israeli females, white dashed—Palestinian females

Figure 4

Association of lipoproteins particles with population group (Palestinians, Israelis) by sex across BMI categories. Panel (A): Large VLDL including chylomicrons, panel (B): oxidized LDL, panel (C): medium and small HDL. data are presented as means± SEs.