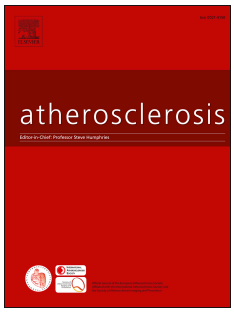
Accepted Manuscript



Elevated 1-h post-load plasma glucose levels in subjects with normal glucose tolerance are associated with a pro-atherogenic lipid profile

Francesco Andreozzi, Gaia C. Mannino, Maria Perticone, Francesco Perticone, Giorgio Sesti

PII: S0021-9150(16)31488-5

DOI: 10.1016/j.atherosclerosis.2016.11.020

Reference: ATH 14878

To appear in: *Atherosclerosis*

Received Date: 25 June 2016

Revised Date: 25 October 2016

Accepted Date: 16 November 2016

Please cite this article as: Andreozzi F, Mannino GC, Perticone M, Perticone F, Sesti G, Elevated 1-h post-load plasma glucose levels in subjects with normal glucose tolerance are associated with a pro-atherogenic lipid profile, *Atherosclerosis* (2016), doi: 10.1016/j.atherosclerosis.2016.11.020.

Elevated 1-hour post-load plasma glucose levels in subjects with normal glucose tolerance are associated with a pro-atherogenic lipid profile

Francesco Andreozzi, Gaia C. Mannino, Maria Perticone, Francesco Perticone, Giorgio Sesti*

Department of Medical and Surgical Sciences, University Magna Graecia of Catanzaro, Catanzaro, Italy

*Corresponding author: Department of Medical and Surgical Sciences, University of Catanzaro "Magna Graecia", Viale Europa, loc. Germaneto, I-88100, Catanzaro (CZ), Italy. Tel.: + 39 0961 3647204; Fax: +39 0961 3647192. E-mail address: sesti@unicz.it (G. Sesti).

Keywords: 1h-post load hyperglycemia, dyslipidemia, pre-diabetes, apolipoproteins.

Abstract

Background and aims: Evidence suggests that plasma glucose concentration ≥ 155 mg/dl at 1-h during an oral glucose tolerance test (OGTT) (NGT 1h-high) predicts both development of type 2 diabetes (T2DM) and cardiovascular events, among adults with normal glucose tolerance (NGT). An atherogenic lipid profile is detectable in subjects with impaired glucose tolerance (IGT) and T2DM. Whether individuals with NGT-1h-high also exhibit a pro-atherogenic lipid profile is still uncertain.

Methods: The study cohort includes 1011 non-diabetic Caucasian adults participating in the CATAMERI study. All participants were submitted to anthropometrical evaluation before undergoing an OGTT. Subjects were categorized into NGT-1h-low (1h glucose < 155 mg/dl), NGT-1h-high, IGT, and newly diagnosed T2DM. Lipid profile includes triglycerides, total and HDL cholesterol, apolipoprotein B (ApoB) and ApoA-1.

Results: 510 subjects were NGT-1h-low, 211 NGT-1h-high, 232 IGT and 58 were newly diagnosed T2DM. Triglyceride and ApoB levels were significantly higher in NGT 1h-high, IGT and T2DM subjects compared to NGT 1h-low, and HDL cholesterol was significantly lower. Triglycerides-to-HDL cholesterol ratio was significantly higher in NGT 1h-high, IGT and T2DM groups compared with NGT 1h-low individuals. The ApoB/ApoA-1 ratio was significantly higher in NGT 1h-high, IGT and T2DM groups than in the NGT 1h-low group. NGT 1h-high, IGT and T2DM subjects exhibited reduced LDL/ApoB ratio compared with NGT 1h-low. Noticeably, there were no significant differences in ApoB/ApoA-1 and LDL/ApoB ratios when comparing NGT 1h-high with IGT and T2DM.

Conclusions: Individuals with NGT 1-h-high exhibited an atherogenic lipid pattern qualitatively and quantitatively similar to that observed in individuals with IGT and newly diagnosed T2DM.