

# Plasma Adiponectin and Its Correlation with Carotid Intima-Media Thickness in Obesity and in Type 2 Diabetes and Nonalcoholic Fatty Liver Disease

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## Background and Aim:

Low plasma adiponectin has been found in both obese subjects and patients with type 2 diabetes mellitus (T2DM). It was also reported in patients with non-alcoholic fatty liver disease (NAFLD). We assessed plasma adiponectin and its correlation with carotid intima-media-thickness (CIMT), as a marker of atherosclerosis, in Egyptian patients with NAFLD.

## Methods and Results:

The study included 200 Egyptian subjects. They were divided into four equal groups. Group 1: obese patients with NAFLD and T2DM (O+/NAFLD+/DM+), group 2: non-obese patients with NAFLD and T2DM (O-/NAFLD+/DM+), group 3: obese non-diabetic patients with NAFLD (O+/NAFLD+/DM-) and group 4: non-obese healthy control subjects. Plasma adiponectin was measured using ELISA (Enzyme-linked immunosorbent assay) technique. Ultrasonography was used to diagnose NAFLD. CIMT was assessed using Doppler ultrasonography. Plasma adiponectin was significantly lower, and CIMT was significantly

higher, in O+/NAFLD+/DM+ as compared with O-/NAFLD+/DM+, O+/NAFLD+/DM- and control subjects ( $p < 0.001$  for all). A significant negative correlation was found between adiponectin and CIMT in obese patients with NAFLD ( $p < 0.05$ ), but not in patients with NAFLD and T2DM. The significant independent predictors of CIMT were diabetes duration, BMI (body mass index), albumin/creatinine ratio and cholesterol.

## Conclusion:

Plasma adiponectin is inversely correlated with CIMT in obese patients with NAFLD but not in patients with NAFLD and T2DM. Hypoadiponectinemia could be a good indicator of cardiovascular risk in obese patients with NAFLD, with or without T2DM, but not in non-obese patients with NAFLD.

## Keyword:

Plasma adiponectin, carotid intima-media thickness, type 2 diabetes, obesity, Non-alcoholic fatty liver disease.