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The standard measurement of HDL-C levels not enough in diabetic patients? Time for a new approach?

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Background & Aim: Dyslipidemia is the major risk factor for atherosclerosis, although the mechanism of this association has not been fully elucidated so far. HDL-cholesterol (HDL-C) is commonly considered as a “good cholesterol”, but some recent studies have identified individuals with a significant atherosclerotic burden despite normal or elevated levels of HDL-C. Antioxidant activity of HDL-C is associated with the levels of Paraoxanase -1 (PON-1). The main antioxidative protein in HDL is apoprotein A-I, and its role strictly depends on Myeloperoxidase (MPO). It has been shown that the expression of MPO is markedly enhanced in human atherosclerotic lesions. The aim of our study was to analyze if there are any differences in HDL-cholesterol subfractions’ profile and also in PON-1 and MPO levels between patients with ischemic heart disease in comparison to those with coexisting diabetes.

Method: The observational analytical case-control study was performed. The concentration of serum MPO and PON-1, as well as Apolipoprotein I and Apolipoprotein II were measured. We included 70 patients in the study, 35 with CVD and diabetes and 35 patients as a control group (patients without diabetes matched to study group according to the age, sex, statin type and dosage, and smoking status).

Results: The study showed the significant difference between the groups in MPO level. The mean MPO level was 21.177 ng/mL in study group comparing to 16.640 ng/mL in control group ($p=0.02$). In contrast, the average PON-1 level in study group was 856.2 comparing to 471.157 in control ($p=0.04$). There were no significant differences between Apolipoprotein I and Apolipoprotein II levels between the groups.

Conclusions: It is hoped that a new, more adequate lipid panel will be developed and available for GP practice in order to improve the standards of care. Enzymes that have an influence on HDL-C may be the potential aim of further analysis.