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1.10 Superiority of Apolipoproteins Compared to Non-HDL Cholesterol in Predicting the Presence of Coronary Disease in Hypertensive Patients with Ischemic Heart Disease

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Introduction. Among low-density lipoproteins (LDL -C), apolipoprotein B (apo B) represents the small and dense LDL, easily prone to oxidation and particularly atherogenic. Conversely, apolipoprotein A1 (apo A1), represents high-density lipoproteins (HDL-C) and seem to exert a protective role against atherosclerotic disease. However, in clinical practice it is still debated the real superiority of apolipoproteins when compared to non-HDL cholesterol (nonHDL-C) in stratifying the risk of coronary disease.

Aim. To compare the predictive value for coronary disease of apolipoproteins versus non-HDL cholesterol in a population of hypertensive patients with ischemic heart disease.

Methods. From July 2007 to April 2008 we prospectively enrolled 102 hypertensive patients with ischemic heart disease aging from 30 to 75 years. In all patients were measured total cholesterol (TC), LDL-C, HDL-C, triglycerides (TG), apo A1, apo B and Lp(a). Non-HDL cholesterol was calculated as difference between TC and HDL-C. All patients underwent coronary angiography and the presence of coronary disease was defined both anatomically (one, two, three vessels disease with or without left main involvement) and by using the Gensini Score (GS). According to coronary angiography, the study population was divided in two groups: single and multi-vessel disease. The 10% of enrolled patients assumed statins but the prevalence of treated patients did not differ between the two groups ($p=ns$).

Results. Apo B and non HDL-C levels resulted significantly higher in patients with multivessel disease when compared to single vessel group ($p<0,05$). Also Lp(a) levels resulted significantly higher among patients with multi-vessel disease ($p<0,05$). Conversely, among patients with multivessel disease, apo A1 levels were significantly lower compared to single vessel disease group ($p<0,05$) while HDL-C values did not differ significantly between the two groups ($p=ns$). Moreover, patients in the higher quartile of GS presented higher values of apo B and non HDL-C cholesterol. In multiple linear regression analysis adjusted for age, gender, SBP, DBP, BMI, LDL-C, TG and diabetes, the presence of multi-vessel disease was directly and independently associated to higher values of apo B and apo B/apo A1 ratio ($p<0,05$).

Conclusions. In a population of hypertensive patients with ischemic heart disease, apo B and the apo B/apo A1 ratio resulted superior to non-HDL cholesterol in predicting the presence and the severity of coronary disease.