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Comparison of apolipoproteins B and A1 in people with versus without metabolic syndrome

Abstract :

Introduction: Apolipoproteins B (apoB) and Al (apoAI) are better predictors of cardiovascular disease (CVD) than traditional lipid indices. Metabolic syndrome (MetS) is a constellation of CVD risk factors. Low NHDLC/apoB ratio is used as a surrogate for the presence of highly atherogenic small dense LDL (sd-LDL).

Objectives: We aimed to assess if apoB and apoAI levels were related to MetS and its components.

Methods: Total cholesterol (TC), high density lipoprotein cholesterol (HDLC), triglycerides, glycated haemoglobin (HbA1c), apolipoprotein B (apoB) and apolipoprotein A1 (apoA1) were measured in fasting serum samples from 1007 individuals with diabetes (<45 years, males = 426). Low density lipoprotein cholesterol (LDLC) and non-HDLC were calculated. MetS was diagnosed according to the International Diabetes Federation criteria.

Results: MetS was diagnosed in 608 individuals (males = 166). More women had MetS than men (p<0.0001). Means of HbA1c, TC, HDLC, triglycerides, apoB and apoA1 were 8.04%, 5.08mmol/L, 1.47mmol/L, 1.08mmollL, 1.22g/L and 1.56g/L respectively. Levels of apoB, and apoB/A1 ratio were significantly higher in those with MetS than those without. LDLC/apoB and HDLC/apoA1 ratios were significantly lower in MetS. There were no significant differences in TC, LDLC, NHDLC and apoA1 between the two groups. ApoB increased (p <0.0001), apoA1 decreased (p<0.0001) and apoB/A1 increased (p<0.0001) when the number of MetS components increased.

Conclusions: Raised apoB is another CVD risk factor that clusters with other components of MetS. Low NHDLC/apoB ratio imply that sd-LDL particles to be more common in diabetic patients with MetS than those without MetS.