The Relationship Between Gamma-Glutamyltransferase (GGT), Bilirubin (Bil) and Small Dense Low-Density Lipoprotein (sdLDL) in Asymptomatic Subjects Attending a Clinic for Screening Dyslipidaemias

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Abstract

Introduction: Gamma-glutamyltransferase (GGT), bilirubin (Bil) and small dense low-density lipoprotein (sdLDL) particles are each known to be risk markers for cardiometabolic diseases which are characterised by oxidative stress conditions. These markers are connected with the oxidative milieu; however, the association between GGT, Bil, and sdLDL has been hardly examined. This hospital-based study investigated the association between GGT and sdLDL, as well as the association between Bil and sdLDL, in asymptomatic subjects. Materials and Methods: Cardiometabolic variables, GGT, Bil and the mean LDL particle size were measured in 100 asymptomatic subjects attending a clinic for screening dyslipidaemias (36 men and 64 women, mean age 64 years). Correlation analyses of the association between the mean LDL particle size and other variables, such as GGT and Bil, were performed. Results: The mean (standard deviation) levels of GGT, Bil, and the mean LDL particle size were found to be 21.7 (8.3) IU/L, 14.0 (4.3) μmol/L, and 26.7 (0.6) nm, respectively. An univariate correlation test showed both a significant inverse correlation between the mean LDL particle size and GGT ($r = -0.33$, $P < 0.01$) and a significant positive correlation between the mean LDL particle size and Bil ($r = 0.32$, $P < 0.01$). A multiple regression analysis revealed similarly significant results of their correlations, independent of the other cardiometabolic variables. Conclusion: These results suggest that the correlation of GGT and sdLDL, as well as that of Bil and sdLDL, may be cooperatively associated with cardiometabolic processes. Further research is warranted in order to confirm the observed association.

Key words: Atherosclerosis, LDL particle size, Oxidative stress, γGT, Total bilirubin


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