Association of serum lipids with β-cell function in obese children and adolescents.

G. Bedogni, A. Mari, A. De Col, S. Tamini, A. Gastaldelli**,** A. Sartorio

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Few data are available on the association between serum lipids and insulin secretion (ISEC) in children. We evaluated the association of triglycerides (TG), HDL cholesterol (HDL-C) and LDL cholesterol (LDL-C) with ISEC in 1150 non-diabetic obese children and adolescents using multivariable robust median regression. The following models were employed: (1) IGI or incAUCR as the ISEC response variable; (2) QUICKI, OGIS, the Stumvoll index or the Matsuda insulin sensitivity index as the insulin sensitivity (ISEN) predictor; (3) TG, HDL-C and LDL-C as the predictors of interest; (4) 120-min glucose, age, sex and body mass index as confounders. LDL-C and TG were not associated with ISEC in any model. In three out of four IGI models, an increase of 1 interquartile range (IQR) of HDL-C was associated with a decrease of median incAUCR ranging from -9 (robust 95% CI -17 to -2) to -8 (-14 to -1) pmol/mmol. In two out of four incAUCR models, an increase of 1 IQR of HDL-C was associated with a decrease of median IGI ranging from -8 (-15 to -1) to -7 (-11 to -2) pmol/mmol. TG and LDL-C are not associated and HDL-C is inversely associated with ISEC in obese children and adolescents.