

Relationship between fatty liver and glucose metabolism: a cross-sectional study in 571 obese children.

G. Bedogni, A. Gastaldelli, M. Manco, A. De Col, F. Agosti, C. Tiribelli, A. Sartorio
Nutrition, Metabolism & Cardiovascular Diseases 22: 120-126, 2012.

Background and aims: Early onset type 2 diabetes mellitus (T2DM) is associated with obesity, insulin resistance and impaired beta-cell function. Non-alcoholic fatty liver disease (NAFLD) may be an independent risk factor for T2DM. We investigated the relationship between NAFLD and glucose metabolism in a large sample of obese children.

Methods and results: A total of 571 obese children (57% males and 43% females) aged 8-18 years were consecutively studied at a tertiary care centre specialised in paediatric obesity. Liver ultrasonography was used to diagnose NAFLD after exclusion of hepatitis B and C and alcohol consumption. Oral-glucose tolerance testing (OGTT) was performed; insulin sensitivity was evaluated by using the insulin sensitivity index (ISI) and beta-cell function by using the ratio between the incremental areas under the curve (AUC) of insulin and glucose (incAUCins/incAUCglu). A total of 41% of the obese children had NAFLD. Impaired glucose tolerance or T2DM was present in 25% of the children with NAFLD versus 8% of those without it ($p < 0.001$). Children with NAFLD had higher body mass index (BMI), fasting glucose, 120-min OGTT glucose, incAUCins/incAUCglu and lower ISI as compared with children without NAFLD ($p \leq 0.002$). At bootstrapped multivariable median regression analysis controlling for gender, age, pubertal status and BMI, NAFLD was an independent predictor of 120-min OGTT glucose and ISI, but not of incAUCins/incAUCglu. Similar findings were obtained using continuous liver steatosis as the predictor, instead of dichotomous NAFLD.

Conclusion: NAFLD was present in 41% of our obese children and was associated with higher insulin resistance, but not with impaired beta-cell function.

Se desidera avere la fotocopia di questo lavoro, per esclusivo uso personale, può fare richiesta per mail a: info@cresceresani.it indicando il titolo, gli autori, la rivista e il proprio recapito lavorativo (nome, cognome, indirizzo, CAP, città).