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Association of serum bilirubin level with metabolic syndrome and non-alcoholic fatty liver disease: a cross-sectional study of 1672 obese children.

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As in adults, obesity also plays a central role in the development of metabolic syndrome (MS) in children. Non-alcoholic fatty liver disease (NAFLD) is considered a manifestation of MS. Not only MS but also NAFLD seem to be inversely associated with serum bilirubin concentrations, an important endogenous tissue protector when only mild elevated. The aim of the study was to evaluate the association between serum bilirubin levels and the prevalence of MS and NAFLD in Italian obese children and adolescents. A retrospective cross-sectional study was performed in 1672 patients aged from 5 to 18 years. Clinical and laboratory parameters were assessed. NAFLD was measured by liver ultrasonography. The study was approved by the Ethical Committee of the Istituto Auxologico Italiano (research project code 1C021_2020, acronym BILOB). MS was present in 24% and fatty liver (FL) in 38% of this population. Bilirubin was not associated with FL and MS as a whole, but it was inversely associated only with selected components of MS, i.e., large WC, high blood pressure and high triglycerides. Our data suggest that bilirubin is not protective against MS and NAFLD in the presence of severe obesity.

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