

Publication

Serum bilirubin is associated with lung function in a Swiss general population sample

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Bilirubin is a strong antioxidant. Increased serum levels have been associated with lower respiratory disease and mortality risk. We studied the association of bilirubin with lung function in the Swiss study on Air Pollution and Lung Disease in adults (SAPALDIA) cohort. Associations between natural logarithmised bilirubin and forced expiratory volume in 1 s (FEV1), forced vital capacity (FVC), FEV1/FVC and mean forced expiratory flow between 25%-75% of FVC (FEF25-75%) were tested using multiple linear regression in the whole study population (n=4195) and strata of ever-smoking and high body mass index (BMI, defined by the highest distribution quartile). Associations were retested with single nucleotide polymorphism rs6742078, a genetic determinant of bilirubin. High bilirubin levels were significantly associated with higher FEV1/FVC and FEF25-75% overall. Upon stratification, significant associations persisted in ever-smokers, amounting to 1.1% (95% CI 0.1-2.2%) increase in FEV1/FVC, and 116.2 mL \dot{u} s(-1) (95% CI -15.9-248.4 mL \dot{u} s(-1)) in FEF25-75% per interquartile range of bilirubin exposure in smokers with high BMI. Associations were positive but nonsignificant in never-smokers with high BMI. Similarly, rs6742078 genotype TT was associated with increased FEV1/FVC and FEF25-75%. Our results suggest a possible protective role of bilirubin on lung tissue, which could be important for prevention and therapy.

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