Function impairing polymorphisms of the hepatic uptake transporter SLCO1B1 modify therapeutic efficacy of statins in a population based cohort

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BackgroundThe efficacy of statins, which are used commonly in primary and secondary prevention of cardiovascular diseases, shows a wide range of interindividual variability. Genetic variants of OATP1B1, a hepatic uptake transporter, can modify access of statins to its therapeutic target, thereby potentially altering drug efficacy. We studied the impact of genetic variants of OATP1B1 on the lipid-lowering efficacy of statins in a population-based setting.Materials and methodsThe basis of the analysis was the Study of Health in Pomerania, a cohort of 2732 men and women aged 20-81 years. Included in the statistical analysis to evaluate the impact of OATP1B1 on therapeutic efficacy of statins were 214 individuals diagnosed with dyslipidaemia during initial recruitment and receiving statins during the 5-year follow-up.ResultsAnalysing the impact of the OATP1B1 genotype, we observed a trend for lower statin-induced total cholesterol reduction in carriers of the SLCO1B1 512C variant. Restricting the analysis to patients receiving simvastatin, pravastatin, lovastatin and fluvastatin indicated a statistically significant association of the OATP1B1 genotype on lipid parameters at the 5-year follow-up. No such effect was observed for atorvastatin. Calculation of achievement of treatment goals according to the NCEP-ATPIII guidelines showed a lower rate of successful treatment when harbouring the mutant allele for patients taking simvastatin (46.7 vs. 73.9%). A similar trend was observed for pravastatin (34.4 vs. 70.4%).Conclusion-Genetic variants of OATP1B1 leading to impaired hepatic uptake of statins translated into reduced drug efficacy in a population-based cohort. (C) 2014 Wolters Kluwer Health vertical bar Williams & Wilkins.
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