Gene test information

SIDE-EFFECTS of STATINS (SLCO1B1 GENE TEST)

- **Background**

  Statins are well established drugs for the treatment of hypercholesterolaemia and the prevention of atherosclerosis and related coronary heart disease. Treatment with statins leads to significant low-density lipoprotein cholesterol (LDL) lowering, reducing major coronary and vascular events. Although statins are generally well tolerated and safe; there is wide inter-individual variability in response to statin therapy, in terms of both lipid-lowering and adverse drug reactions.

  The most common adverse effect of statin therapy is myopathy, ranging from mild myalgia to severe rhabdomyolysis. In observational studies, myopathies occur in 10% - 20% of patients taking statins. For most statins, both efficacy and risk of adverse muscle events is influenced by membrane transporters, which are important determinants of statin disposition. The hepatic uptake of statins from portal blood is mediated by a influx transporter encoded by the SLCO1B1 gene. A common haplotype, SLCO1B1*5, which can be tagged by the Val174Ala polymorphism, interferes with localization of the transporter and leads to greater systemic statin concentrations and an increased risk for myopathies.

- **SLCO1B1 V174A genotypes**

Genotype	Frequency	Commentary
VV	70%	Normal SLCO1B1 activity.
VA	28%	Intermediate SLCO1B1 activity. Increased risk for statin-induced myopathy.
AA	2%	Low SLCO1B1 activity. Strongly increased risk for statin-induced myopathy.

- **Indications for testing**
  - Individuals starting statin therapy
  - Individuals suffering from myopathy during statin therapy.

References:

Niemi M. Transporter pharmacogenetics and statin toxicity. Clin Pharmacol Ther. 2010;87:130-3.

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