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Efficacy and toxicity of statins

Statins are one of the most commonly prescribed drugs to treat hyperlipidaemia and to prevent cardiovascular events. They are very efficient to lower the blood level of low-density lipoprotein cholesterol (LDLc) from 30% to 50% and are therefore a treatment of choice. Nevertheless, the efficacy of such treatment varies according to some genetic variants present in the genome of each patient. In addition, some patients would be more prone to develop severe side effects upon statin treatment. It is, therefore, important to test for genetic variants involved in the metabolism of the statins ahead of such treatment.

Statin efficacy

Most of the statins are metabolized via the cytochrome CYP3A*4*, which activity can be impaired in the presence of genetic variants such as the variant called *22, that reduces CYP3A*4* activity. In addition, variants in the *ApoE* gene, coding for a lipid transporter, are also associated with variations in the level of LDLc reduction.

Statin toxicity

Statin treatment is strongly associated with statin-induced myopathy, a severe side effect that occurs in 10 to 15% of the patients. Clinical symptoms of this myopathy may include muscle pain, soreness, weakness or cramping. Statin adverse effects are known to be associated with age, BMI, type of statin, statin dose and use of concomitant medications. In addition, genetic variants in two genes coding for statins transporters, the uptake transporter SLCO1B1 and the efflux transporter ABCG2, are strongly associated with statin-induced myopathy occurrence. It is, therefore, important to test for the presence of these variants ahead of statin treatment.

Genetic test

This test is not reimbursed by the basic health insurance. However, it is now reimbursed for patients with additional PRIMEO insurance from Helsana. These genetic analyses are performed only once in the patient's life, in a simple and non-invasive manner (buccal swab).

GENE PREDICTIS® S.A.
EPFL Innovation Park, Bâtiment B– CP 128 –1015 Lausanne– Suisse
Tél.:+41 21 691 43 75– Fax: +41 21 691 43 76
info@genepredictis.com – www.genepredictis.com