**SLCO1B1 GENETIC POLYMORPHISMS IN CARDIAC PATIENTS ON SIMVASTATIN**

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**The SLCO1B1 rs4149056 c.521T>C gene variant is associated with higher serum simvastatin concentrations and increased risk of simvastatin-induced myopathy.**

**INTRODUCTION**

To classify a cohort of cardiac patients on simvastatin according to SLCO1B1 genotype, SLCO1B1 function and myopathy risk

**AIM**

To classify a cohort of cardiac patients on simvastatin according to SLCO1B1 genotype, SLCO1B1 function and myopathy risk

**METHOD**

- 110 patients (mean age 65.44 ±10.73 years, 81.8% (n=90) male, all Caucasian) were genotyped.
- 21.8% (n=24) of the patients were genotyped as carriers of one C allele (TC, heterozygous) or two C alleles (CC, homozygous variant), corresponding to intermediate and low SLCO1B1 function, and mild and high myopathy risk, respectively (Table 1).

**RESULTS**

- 15 of the 24 patients genotyped as TC or CC were on a higher dose of simvastatin (40mg daily) than suggested by the Clinical Pharmacogenetics Implementation Consortium (CPIC) guideline for SLCO1B1 and simvastatin-induced myopathy (20mg daily).

**Table 1. SLCO1B1 genotype, SLCO1B1 function and myopathy risk (N=110)**

<table>
<thead>
<tr>
<th>SLCO1B1 genotype</th>
<th>Number of patients (%)</th>
<th>SLCO1B1 function</th>
<th>Myopathy risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT</td>
<td>86 (78.2)</td>
<td>Normal</td>
<td>Normal</td>
</tr>
<tr>
<td>TC</td>
<td>22 (20.0)</td>
<td>Intermediate</td>
<td>Mild</td>
</tr>
<tr>
<td>CC</td>
<td>2 (1.8)</td>
<td>Low</td>
<td>High</td>
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</tbody>
</table>

**CONCLUSION**

In patients genotyped as TC and CC (24 patients in this study), the CPIC guideline suggests decreasing the dose of simvastatin from 40mg to 20mg/day or to consider prescribing an alternative statin (rosuvastatin or pravastatin).

Pharmacogenetic testing for the SLCO1B1 rs4149056 c.521T>C gene may be used to individualise statin therapy.

**Funding:** University of Malta Research Grant PHRRP12-17

**REFERENCES**
