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PHARMACOGENETICS IS GROWING FAST

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What was done?

We have implemented **pharmacogenetic tests** in our hospital for a total of nine drugs.

Why was it done?

Pharmacogenetics (PGx) has the potential to **predict patient´s drug response**. Many genetic polymorphisms have been associated with variable drug response. This has been demonstrated with the highest level of evidence in fact many of them have been included in **clinical dosing guidelines** such as those from the Dutch Pharmacogenomics Working Group (DPWG) and Clinical Pharmacogenetics Implementation Consortium (CPIC). Actually, many drug labels include the **recommendation** about genotyping specific single nucleotide polymorphisms (SNP) prior to drug prescription.

How was it done?

Our hospital provides a PGx test service according to the following workflow. Physicians order the PGx test to the Pharmacy Unit, we take a saliva sample with sterile-cotton tipped swabs and send them to the Genomic Unit at GENYO. There, we extract the DNA and genotype the variants of interest. Genetic results are reported back to the Pharmacy Unit within 48-72 hours. After genotype-phenotype-recommendation translation according to CPIC and DPWG dosing guidelines, we upload the dosing recommendation as a PGx report to the electronic patient´s medical history.

What has been achieved?

Since 2012, 2414 patients have benefit from our PGx test service for at least one drug-gene interaction. These tests have been requested by seven hospital departments with regard to a total of nine different drugs. We have reported 932 PGx dosing recommendations (Table 1)

Drug	Number of Genotyped Patients	Number of Dosing Recommendations	Drug	Number of Genotyped Patients	Number of Dosing Recommendations
Clopidogrel	2013	845	**Tamoxifen**	117	48
Azathioprine	208	21	**Trastuzumab**	34	15
Capecitabine	48	1	**Irinotecan**	4	2
5-FU	5	0	**Simvastatin/ Atorvastatin**	2	0

What is next?

Since the first PGx test in 2012 we have been able to implement PGx tests in daily clinical routine in our hospital affecting 9 drugs. 2414 patients have benefit from this service, and we are working on the implementation of new drug-gene interactions.

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