A PHARMACOGENETIC CLINICAL DECISION SUPPORT SYSTEM (CDSS)

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What was done: We have developed a local Clinical Decision Support Systems (CDSS) that informs the physician on the availability of a PGx test in our hospital for certain prescribing drugs. This system will also be able to translate the genetic information into dosing recommendations.

Why was done: Nowadays, it is known that at least 33% of patients show variable response to drugs. Of those, genetic polymorphisms explain around 15-30% of these cases, single nucleotide polymorphisms (SNP) being the genetic markers most clinically relevant. In 2013, 40 million SNPs were identified in humans and some have been observed to determine drug response. These observations lead to the incorporation of genotyping some of these SNPs as recommendation in many drug labels before treatment initiation.

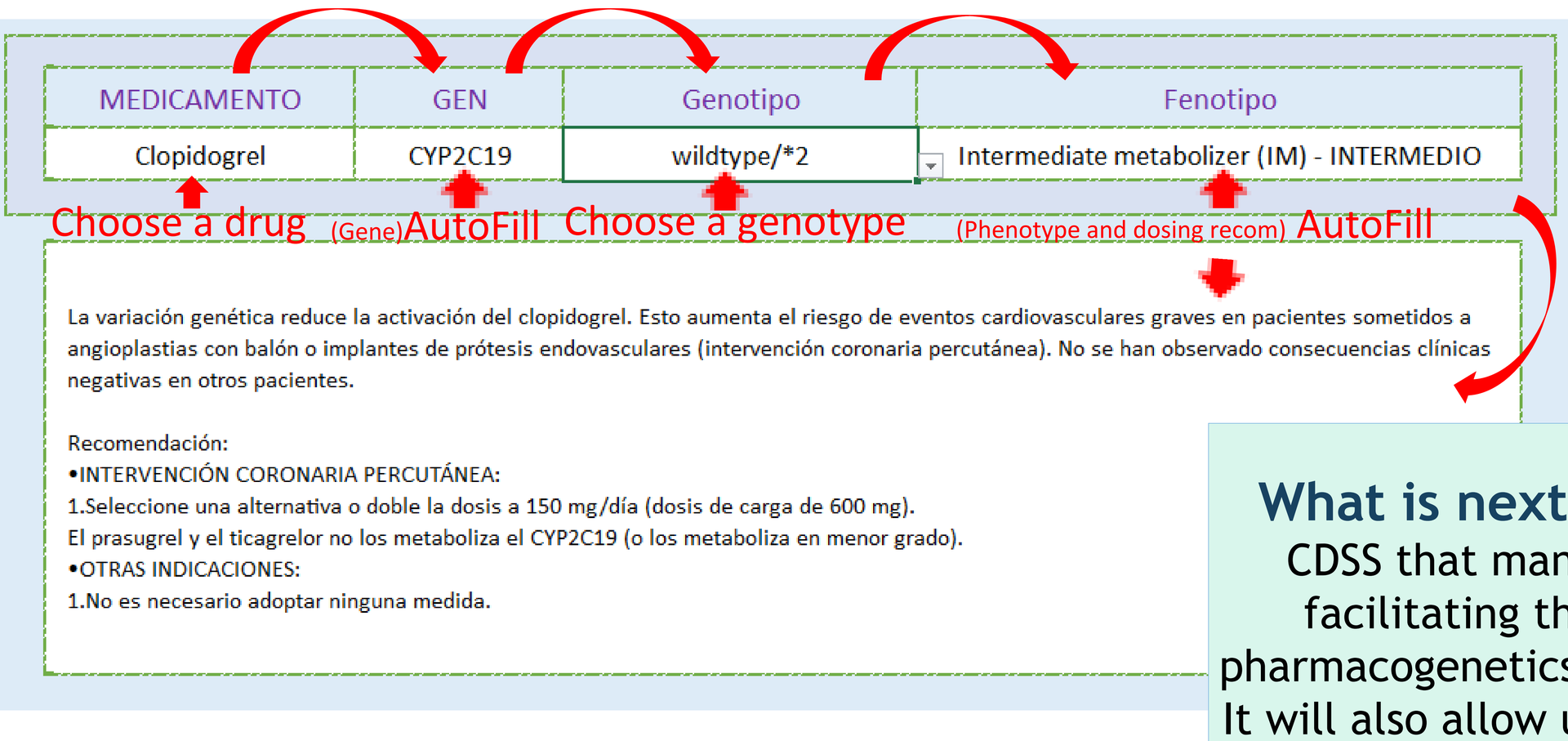
Since patient´s drug response may be determined by certain SNPs in different genes it is necessary to develop CDSS based on pharmacogenetic (PGx) information that make feasible its application in clinical routine, translating genotypes into phenotypes and dosing recommendations.

How it was done:

We selected all the SNPs affecting drug response for which there is already a PGx test available in our hospital. All of them have been previously validated, and, only genes/SNPs related to drug response with the highest level of evidence, available in the Dutch Pharmacogenomics Working Group (DPWG) and Clinical Pharmacogenetics Implementation Consortium (CPIC) dosing guidelines with a minor allele frequency higher than 0,1% in our population have been included. We have considered all the different genotypes according to the SNPs included and linked them to a phenotype and dossing recommendation according to CPIC/DPWG guidelines.

What was achieved:

Our CDSS connects different drugs with available PGx test in our unit, showing which gene should be genotyped before prescription. It translates genotypes into phenotypes and also provides dosing recommendations once PGx results are received, according to the CPIC and/or DPWG guidelines. Nowadays, this system facilitates the workflow for the implementation of pharmacogenetics tests in our hospital.



What is next: We have developed a CDSS that manages PGx information facilitating the implementation of pharmacogenetics in daily clinical routine. It will also allow us to expand our services to other medical departments within our hospital.

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