Pharmacogenetics in Bot PLUS: boosting individualized pharmaceutical care.

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Background Pharmacogenetics - the study of inter-individual variability in response to medicines - is a fundamental pillar of precision personalized medicine, and its application to clinical practice will allow medicines selection and posological adjustments that optimize efficacy and safety according to the genotype of the patient. Up to now, information on this matter had not been integrated in any health database in Spain.

Purpose In order to anticipate and adapt to the growing healthcare needs of pharmacists, the aim is to integrate all available information on pharmacogenetics in the Bot PLUS database, prepared by the General Pharmaceutical Council of Spain (CGCOF, Spain), which represents the fundamental source of information for the daily practice of pharmaceutical professionals.

Method During 2017, CGCOF technical staff carried out a systematic review, with criteria of extent and scientific rigour, of all data disclosed on the influence of individual genetic biomarkers on the efficacy and safety of medicines. At the same time, the tool's computer evolution was developed to show this new information and increase its interoperability with other health care programs.

Findings Once the information is processed, it is lately integrated (tabular format) in Bot PLUS records concerning to the 237 active substances (more than 10% of those marketed in Spain) and the almost 7000 medicines that contain them. These data sheets integrate a specific pictogram for better identification and include data from up to 78 biomarkers, as well as their various genetic polymorphisms and corresponding pharmacological effects, specifying, where appropriate, therapeutic recommendations and observations detailing the gene-medicine interaction. Information coding allow searches to be carried out on these concepts and cross them with others, enhancing Bot PLUS capacity as a technical support for personalized pharmaceutical care.

Conclusion This novel functionality further increases the healthcare potential of Bot PLUS and its interoperability with other information systems, and provides the pharmacist with the necessary tools to develop an efficient and effective personalized pharmaceutical care, in a likely future scenario in which pharmacogenetics is implemented in clinical practice and genotyping data are included in the patient's clinical history. As a result, the pharmacist will be able to detect possible negative medication outcomes in the development of professional care services (NRM - medicines negative side effects) and medicine-related problems (MRP) in order to optimize individualized pharmacological therapy.