## Pharmacogenomics - the state of the art in drug prescription

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**Introduction**

The different response to various drugs by individuals has been increasingly debated, since it has been concluded that there are large differences in response and increasing occurrence of adverse reactions. This set of issues led to more and more research on the implementation of genetic testing in the very near future, leading to benefits for the patient. The purpose of pharmacogenetics is to analyse each individual's genetic variability in response to therapy, increasing efficiency and safety. On the other hand, pharmacogenomics studies how the expression of a set of genes interferes in individual's responses to drugs, taking into account pharmacokinetics and pharmacodynamics. This concept also seeks to reduce adverse reactions and toxicity, maximizing drug efficiency.

**Objectives**

The present work aims at gathering information on the proposed theme, making the survey of drugs available on the market elucidating how it allows the adjustment of the dose to be administered to the patient according to their genetic profile.

**Methodology**

Databases such as Pubmed, Science Direct and Google Scholar were consulted and data were collected from 2015 until 2019. Paper was selected first by abstract and after by full text reading of the article.

**Results**

On this review we will list the drugs associated with each biomarker and the respective therapeutic area to which they belong, compiled by the Food and Drug Administration (FDA). This list includes the main therapeutic area: oncology, haematology, anaesthesiology and psychology. Biomarkers allow us to identify phenotype-associated variations in drug response, making it possible to understand whether drugs will have a beneficial effect, no effect or if there is a risk of toxicity.

**Conclusion**

This question requires a risk-benefit assessment, since it involves social, ethical and economic problems.

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