Pharmacology of the future intends to conduct individualized pharmaco-therapeutic treatment for the manifestation of a disease and the appropriate dose for the therapeutic effect in a given patient, minimizing the risk of adverse reactions. Therefore the main idea is the accomplishment of the five "R" for drug therapy "the Right dose of the Right drug for the Right indication in the Right patient at the Right time". For instance, nowadays the individualized treatments are a pressing need. The current formula of standard pharmacotherapy is not ideal according to the great variability among patients [25].

The rapidly evolving field of pharmacogenetics holds great promise for assisting the selection of patient-individualized treatment regimens and dosages. A vast number of single nucleotide polymo-rphisms have been discovered in genes thought to be involved in the regulation of drug metabolism; however, relatively few studies have been conducted that establish a link between genotype, efficacy and safety of drugs.

Another important feature is the importance of pharmacogenomic in the rescue of drug from the market serious adverse drug reactions represent one of the main causes of death in USA and other countries for postmarketing drug withdrawal and represent billions of US dollars in costs every year in all developed countries. Some of these serious adverse drug reactions might be avoided by systematically screening for pharmacogenomics risk factors [26].

Conclusion

In short, integration of pharmacogenomics in clinical practice needs training of healthcare professionals and citizens, moreover legal and regulatory guidelines and safeguards will be required. The answers to the question of which patient should receive which drug and dose will be not easy, but we believe that the approach offered by pharmacogenomics should be incorporated into the decision making process. A more rational use of expensive treatment drugs together with actions to minimize patient toxic events and its consequences, would dramatically reduce medical costs, as an added benefit.

The most relevant group of barriers was related to the need for clear guidelines for the use of pharmacogenomics in clinical practice, followed by insufficient awareness about pharmacogenomics among clinicians and the absence of regulatory institutions that facilitate the use of pharmacogenetic tests will be presented.

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