Genetic and Non-Genetic Factors Affecting the Response to Clopidogrel Therapy

Authors : Snezana Mugosa, Zoran Todorovic, Zoran Bukumiric, Ivan Radosavljevic, Natasa Djordjevic

Abstract : Introduction: Various studies have shown that the frequency of clopidogrel resistance ranges from 4-40%. The aim of this study was to provide in depth analysis of genetic and non-genetic factors that influence clopidogrel resistance in cardiology patients. Methods: We have conducted a prospective study in 200 hospitalized patients hospitalized at Cardiology Centre of the Clinical Centre of Montenegro. CYP2C19 genetic testing was conducted, and the PREDICT score was calculated in 102 out of 200 patients treated with clopidogrel in order to determine the influence of genetic and non-genetic factors on outcomes of interest. Adverse cardiovascular events and adverse reactions to clopidogrel were assessed during 12 months follow up period. Results: PREDICT score and CYP2C19 enzymatic activity were found to be statistically significant predictors of expressing lack of therapeutic efficacy of clopidogrel by multivariate logistic regression, without multicollinearity or interaction between the predictors ($p = 0.002$ and 0.009, respectively). Conclusions: Pharmacogenetics analyses that were done in the Montenegrin population of patients for the first time suggest that these analyses can predict patient response to the certain therapy. Stepwise approach could be used in assessing the clopidogrel resistance in cardiology patients, combining the PREDICT score, platelet aggregation test, and genetic testing for CYP2C19 polymorphism.
Keywords : clopidogrel, pharmacogenetics, pharmacotherapy, PREDICT score

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