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Factors affecting clopidogrel response in the Montenegrin population

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Abstract

Background: This study addresses the genetic and nongenetic factors associated with increased risk of having major adverse cardiac events in Montenegrians treated with clopidogrel.The aim of this study was to provide the analysis of genetic and non-genetic factors that influence clopidogrel efficacy in cardiology patients.

Methods: We have conducted a prospective study in 200 hospitalized patients. 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: In univariate logistic regression model, statistically significant predictors of the outcome of interest are: the PREDICT score ($p < 0.001$), enzymatic activity [slow metabolizers ($p<0.001$) compared to the rapid, extensive and intermediate metabolizers as a reference category] and concomitant use of other drugs that are also metabolized through CYP2C19 ($p = 0.030$). In multivariate logistic regression model, predictors from the model of univariate logistic regression which were statistically significant at the significance level of 0.05 were included. The model contains three predictors - PREDICT score, enzymatic activity and concomitant administration of other drugs that are metabolized via the same CYP enzyme. The whole model was statistically significant ($p < 0.001$). There is no significant multicollinearity or interaction between the predictors ($p = 0.002$ and 0.009, respectively).

Conclusions: In assessing the clopidogrel resistance in cardiology patients the stepwise approach could be used, combining the PREDICT score, platelet aggregation test, and genetic testing for CYP2C19 polymorphism.

Biography:

Snezana Mugosa has completed his PhD in 2015 at the age of 35 years. In 2011 she passed the Internal Medicine Certification Exam at the Faculty of Medicine of the

University of Belgrade. Since 2012 has been working as the the Head of the Department for clinical trials of medicines for human and veterinary use and assessment of preclinical and clinical documentation for marketing authorization in the Agency for Medicines and Medical Devices of Montenegro. Since 2004 she has been engaged at the Faculty of Medicine, Podgorica on the group of pharmacological subjects, initially as an assistant, and then, since 2015, as a lecturer in Pharmacology II, Pharmacology I and II and Pharmacokinetics. She has published more than 25 papers in reputed journals.

Speaker Publications:

1.Snežana Mugoša (2015) Adverse drug reactions in hospitalized cardiac patients: characteristics and risk factors. Vojnosanitetski pregled 72 (11), 975-981.
2.Snežana Mugoša (2016) Factors affecting the development of adverse drug reactions to β-blockers in hospitalized cardiac patient population. atient preference and adherence 10, 1461.
3.Snežana Mugoša (2012) Potentially inappropriate medication use in the elderly in Montenegro. BMC Pharmacology and Toxicology 13 (1), 1-1.

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