Genetic polymorphisms and drug interactions leading to clopidogrel resistance: why the Asian population requires special attention

ABSTRACT

Ischemic heart disease and stroke are the two leading causes of death worldwide. Antiplatelet therapy plays the most significant role in the management of these cardiovascular and cerebrovascular occlusive events to prevent recurrent ischemic attack. Clopidogrel, an antiplatelet drug, is widely prescribed either alone or in combination with aspirin as dual antiplatelet therapy for the prevention of vascular occlusive events. The antiplatelet response to clopidogrel varies widely. Hyporesponders and nonresponders are likely to have adverse cardiovascular events during follow-up. Some drugs, such as proton pump inhibitors (omeprazole), calcium channel blockers, selective serotonin reuptake inhibitors (nefazadone), coumarin derivatives (phenprocoumon), benzodiazepines, sulfonylurea, erythromycin, and itraconazole, decrease the antiplatelet effect of clopidogrel when administered concomitantly. Decreased response to clopidogrel is common among Asians due to genetic polymorphisms associated with clopidogrel resistance, and it is nearly 70% in some of the Asian communities. It is necessary to study Asian populations, because there are a large number of Asians throughout the world due to increased migration. Current guidelines do not make genetic testing or platelet response testing mandatory prior to clopidogrel prescription. Therefore, it is important for clinicians treating Asian patients to keep in mind the interindividual variability in response to clopidogrel when prescribing the drug.

Keyword: Asian; Clopidogrel resistance; Interindividual variability; Pharmacogenomics