



Diversity of platelet function and genetic polymorphism in clopidogrel-treated Chinese patients

B. Sun¹, J. Li², M. Dong¹, L. Yang², C. Wu¹, L. Zhu¹ and Y.L. Cong²

¹Clinical Laboratory, The 309th Hospital of People's Liberation Army, Beijing, China

²Clinical Laboratory, General Hospital of People's Liberation Army, Beijing, China

Corresponding author: Y.L. Cong

E-mail: ylc301@126.com

Genet. Mol. Res. 14 (1): 1434-1442 (2015)

Received February 3, 2014

Accepted June 10, 2014

Published February 13, 2015

DOI <http://dx.doi.org/10.4238/2015.February.13.22>

ABSTRACT. We investigated the correlation between genetic polymorphisms of cytochrome P450 enzyme genes and the outcome of clopidogrel treatment in 118 coronary disease patients after percutaneous coronary intervention at the Chinese PLA General Hospital. Patients were divided into an ischemia event relapse group (IERG) and a non-IERG group (NIERG) based on relapse of ischemia events within 6 months after percutaneous coronary intervention. Ischemia occurred in 26.27% of patients. Thromboelastogram platelet mapping results showed that compared with the NIERG, the ADP-induced platelet inhibition ratio in the IERG was significantly lower ($31.33 \pm 24.91\%$ vs $54.68 \pm 26.63\%$, $P < 0.05$). The platelet inhibition ratio of patients carrying mutant alleles *CYP3A5*3* ($41.98 \pm 29.33\%$ vs $52.89 \pm 26.49\%$), *CYP2C19*2* ($43.15 \pm 27.97\%$ vs $55.89 \pm 26.71\%$), and *P2Y12*1* ($38.74 \pm 24.36\%$ vs $52.19 \pm 28.58\%$) was lower than patients with the wild-type alleles. The frequency of ischemia event relapse in patients

with the mutant alleles *CYP3A5*3* and *CYP2C19*2* was significantly higher than patients carrying the G/G genotype; however, there was no significant difference between patients carrying the T/T genotype and C allele of *P2Y12*1*. Thus, coexisting polymorphisms of *CYP3A5*3* and *2C19*2*, but not *P2Y12*1*, play an important role in the variability of clopidogrel's curative effect.

Key words: Coronary heart disease; Genetic polymorphisms; Clopidogrel; Percutaneous coronary intervention; Platelet mapping