Archives of Pharmacy Practice
Abstract Conference Proceedings
2nd Asia Pacific Pharmacy Education (PharmED) Workshop
ISSN 2045-080X Vol. 3, Issue 1, 2012

DO-001

PK/PD OF WARFARIN ASSOCIATED WITH GENETIC POLYMORPHISMS OF VKORC1 AND CYP2C9 IN INDONESIAN PATIENTS.

Taofik Rusdiana[1,2], Takuya Araki[1], Tomonori Nakamura [1], Anas Subarnas[2], and Koujirou Yamamoto [1]

[1]Department of Clinical Pharmacology, Gunma University Graduate School of Medicine, 3-39-22 Showa-machi, Maebashi 371-8511, Japan

[2]Faculty of Pharmacy, Padjadjaran University, Jl. Raya Jatinangor km 21 Sumedang, Indonesia

Email: taofikr@med.gunma-u.ac.jp

ABSTRACT

Warfarin is an oral anticoagulant for treatment and prevention the thromboembolic disorder. VKORC1 and CYP2C9 are known as key enzymes that contribute to warfarin dose requirement. To decide appropriate dose of warfarin, we determined genotype variations of *VKORC1* and *CYP2C9* in Indonesian population and evaluated the association between genotype variations and warfarin response in Indonesian patients receiving very low-dose warfarin. Genotyping of gene variants in *VKORC1* and *CYP2C9* have carried out by PCR-RFLP in 206 Indonesian subjects. Concentrations of *R*-warfarin and *S*-warfarin in plasma and PT-INR were used as a pharmacokinetic and pharmacodynamic indices, respectively. The frequencies of mutant alleles of *VKORC1*-1639G>A and *CYP2C9* were 80.6 and 2.9%, respectively. PT-INR value was significantly higher in the patients with *VKORC1*-1639 AA compared to those with GA (p=0.0076) and GG (p=0.0079). On the other hand, *S*-warfarin concentration was significantly higher in the patients with *CYP2C9* hetero mutant (*1/*3) compared to those with wild type (*1/*1, p=0.0027). The genetic variation of *VKORC1*-1639G>A has affected the PT-INR as a pharmacodynamic indices and genetic variation of *CYP2C9* has affected the *S*-warfarin concentration as a pharmacokinetic indices.