

Update on Genetic Diversity for Lamotrigine Induced Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis

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Abstract : Introduction: Lamotrigine is widely used in the treatment of epilepsy and bipolar disorder. However, lamotrigine leads to adverse drug reactions (ADRs) consist of severe cutaneous adverse reactions (SCARs) include Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN) and drug rash with eosinophilia and systemic symptoms (DRESS). Moreover, lamotrigine-induced SCARs are usually manifested between 2 and 8 weeks after treatment initiation. According to a previous study, the association between HLA-B*15:02 and lamotrigine-induced cutaneous adverse drug reactions in the Thai population (odds ratio 4.89; 95% CI 1.28-18.66; p-value = 0.014) was found. Therefore, the distribution of pharmacogenetics markers a major role in predicting the culprit drugs for SCARs in many populations. Objective: In this study, we want to investigate the prevalence of HLA-B allele, which correlates with lamotrigine-induced SCARs in the healthy Thai population. Materials and Methods: We enrolled 350 healthy Thai individuals and were approved by the ethics committee of Rangsit University. HLA-B alleles were genotyped by the Lifecodes HLA SSO typing kits (Immucor, West Avenue, Stamford, USA). Results: The results presented HLA-B allele frequency in healthy Thai population were 14.71% (HLA-B*46:01), 8.57% (HLA-B*15:02), 6.71% (HLA-B*40:01), 5.86% (HLA-B*13:01), 5.71% (HLA-B*58:01), 5.14% (HLA-B*38:02), 4.86% (HLA-B*18:01), 4.86% (HLA-B*51:01), 3.86% (HLA-B*44:03) and 2.71% (HLA-B*07:05). Especially, HLA-B*15:02 allele was the high frequency in the Thais (8.57%), Han Chinese (7.30%), Vietnamese (13.50%), Malaysian (6.06%) and Indonesian (11.60%). Nevertheless, this allele was much lower in other populations, namely, Africans, Caucasians, and Japanese. Conclusions: Although the sample size of the healthy Thai population in this research was limited, there were found the frequency of the HLA-B*15:02 allele could predispose them toward to lamotrigine-induced SCARs in Thailand.

Keywords : lamotrigine, cutaneous adverse drug reactions, HLA-B, Thai population

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