

Database of Pharmacogenetics HLA-A*31:01 Allele in Thai Population and Carbamazepine-Induced SCARs

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Abstract : Introduction: Carbamazepine (CBZ) is one of the most prescribed antiepileptic drugs (AEDs) by neurologists and non-neurologist worldwide. CBZ is usually prescribed along with other drugs, leading to the possibility of severe cutaneous adverse drug reactions (SCARs). The HLA-B*15:02 is strongly associated with CBZ-induced Stevens-Johnson syndrome and toxic epidermal necrolysis (SJS-TEN) in the Han Chinese and other Asian populations but not in European populations, while HLA-A*31:01 allele has been reported to be associated with CBZ-induced SCARs in European population and Japanese. Objective: The aim of this study is to investigate the distribution of pharmacogenetics HLA-A*31:01 marker in a healthy Thai population associated with Carbamazepine-induced SCARs. Materials and Methods: Prospective study, 350 unrelated healthy Thais were recruited in this study. Human leukocyte antigen-A alleles were genotyped using PCR-sequence specific oligonucleotides (PCR-SSOs). Results: The frequency of HLA-A alleles were HLA-A*11:01 (190 alleles, 27.14%), HLA-A*24:02 (82 alleles, 11.71%), HLA-A*02:03 (80 alleles, 11.43%), HLA-A*33:03 (76 alleles, 10.86%), HLA-A*02:07 (58 alleles, 8.29%), HLA-A*02:01 (35 alleles, 5.00%), HLA-A*24:07 (29 alleles, 4.14%), HLA-A*02:06 - HLA-A*30:01 (15 alleles, 2.14%), and HLA-A*01:01 (14 alleles, 2.00%). Particularly, the number of HLA-A*31:01 alleles was 6 of 700 (0.86%) in the healthy Thai population. Many research presented varying distributions of HLA-A*31:01 in Asians, including 2% of Han Chinese, 9% of Japanese and 5% of Koreans. In addition, this allele was found approximately 2-5% in the Caucasian population. Conclusions: Thus, the pharmacogenetics database is vital to support in many populations, especially in Thais, for screening HLA-A*31:01 allele to avoid CBZ-induced SCARs before initiating treatments in each population.

Keywords : Carbamazepine, HLA-A*31:01, Thai population, pharmacogenetics

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