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Pharmacogenetics Database of Lumiracoxib-induced DILI in healthy Thai population

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Lumiracoxib is a cyclooxygenase-2 inhibitor used mainly for symptomatic treatment of osteoarthritis and acute pain in patients. However, lumiracoxib is responsible for drug induced liver injury (DILI), an injury which has low incidence of occurrence but can cause serious life threatening outcomes. We found the genetic markers predictive of lumiracoxib-related hepatotoxicity in Europeans, consisting of *HLA-DRB1*15:01* ($P=6.8 \times 10^{-25}$, OR 7.5 and 95% CI = 5.0-11.3). Furthermore, *HLA-DQA1*01:02* is also found associated with lumiracoxib-related hepatocellular injury with a 99.0% NPV and the highest sensitivity of 73.6% from genome-wide studies. Therefore, the distribution of pharmacogenetics markers were explored in the healthy Thai population. The aim of this study was to investigate the frequency of *HLA-DRB1*15:01* and *HLA-DQA1*01:02* associated with pharmacogenetics markers of lumiracoxib-induced DILI in the healthy Thai population. 200 participants in this study were recruited from an unrelated healthy Thai population. *HLA* class II alleles were genotyped using sequence-specific oligonucleotides. Our data revealed 41 alleles of the *HLA-DRB1*15:01* (10.25%) and 98 alleles of the *HLA-DQA1*01:02* (24.50%) in the Thai population. We founded the most allele frequencies are *HLA-DRB1*15:02* (15.25%), *-12:02* (14.25%), *-15:01* (10.25%), *-09:01* (8.75%), and *-16:02* (7.50%). Furthermore, *HLA-DQA1*01:01* (27.75%), *-01:02* (24.50%), *-03:02* (13.00%), *-06:01* (10.25%), and *-02:01* (4.50%) in Thais. Similarly in Europeans, there was also a high frequency of *HLA-DRB1*15:01* (6.76%) and *HLA-DQA1*01:02* (15.77%). To conclude, instead of completely withdrawing lumiracoxib from treatments, it is advisory to screen for the pharmacogenetics markers of *HLA-DRB1*15:02* and *HLA-DQA1*01:02* alleles in Thai patients for the purpose of avoiding DILI.

Key Words: Pharmacogenetics database, DILI, Thai population, *HLA-DQA1*01:02*, *HLA-DRB1*15:01*

Biography

Pantapat Chokpitakul (Bob) is 17 years of age and studies at Shrewsbury International School, Bangkok. I am currently completing a literature review for publication and preparing an oral presentation for my preparations in applying to medicine in Thai and UK universities. I have an interest in precision medicine in particular, leading me to focus on this research.