

The Distribution of HLA-B*15:01 and HLA-B*51:01 Alleles in Thai Population: Clinical Implementation and Diagnostic Process of COVID-19 Severity

Authors : Aleena Rena Onozuka, Patompong Satapornpong

Abstract : Introduction: In a Human Leukocyte Antigen (HLA)'s immune response, HLA alleles (HLA class I and class II) play a crucial role in fighting against pathogens. HLA-B*15:01 allele had a significant association with asymptomatic COVID-19 infection (p-value = 5.67×10^{-5} ; OR = 2.40 and 95% CI = 1.54 - 3.64). There was also a notable linkage between HLA-B*51:01 allele and critically ill patients with COVID-19 (p-value = 0.007 and OR = 3.38). This study has described the distribution of HLA marker alleles in Thais and sub-groups. Objective: We want to investigate the prevalence of HLA-B*15:01 and HLA-B*51:01 alleles in the Thai population. Materials and Methods: 200 healthy Thai population were included in this study from the College of Pharmacy, Rangsit University. HLA-B alleles were genotyped using the sequence-specific oligonucleotides process (PCR-SSOs). Results: We found out that HLA-B*46:01 (12.00%), HLA-B*15:02 (9.25%), HLA-B*40:01 (6.50%), HLA-B*13:01 (6.25%), and HLA-B* 38:02 (5.50%) alleles were more common than other alleles in Thai population. HLA-B*46:01 and HLA-B*15:02 were the most common allele found across four regions. Moreover, the frequency of HLA-B*15:01 and HLA-B*51:01 alleles were similarly distributed in Thai population (0.50, 5.25 %) and (p-value > 0.05), respectively. The frequencies of HLA-B*15:01 and HLA-B*51:01 alleles were not significantly different from other populations compared to the Thai population. Conclusions: We can screen for HLA-B*15:01 and HLA-B*51:01 alleles to determine the symptoms of COVID-19 since they are universal HLA-B markers. Importantly, the database of HLA markers indicates the association between HLA frequency and populations. However, we need further research on larger numbers of COVID-19 patients and in different populations.

Keywords : HLA-B*15:01, HLA-B*51:01, COVID-19, HLA-B alleles

Conference Title : ICPP 2022 : International Conference on Pharmacoepidemiology and Pharmaceutics

Conference Location : Vancouver, Canada

Conference Dates : August 08-09, 2022