ABSTRACT

CITA, R. F. ***HLA-A, -B -DRB1*** **allele and haplotype frequencies in Brazilian Bone Marrow Donor Volunteers from the North and Southeastern regions.**

The knowledge of HLA allele and haplotype frequencies has a remarkable role in the context of solid organ, tissue and cell transplantaion. The search for an ideal donor may be more precise when the frequency of HLA alleles is more accurate in several populations of distinct ethnicity. Moreover, the knowledge of these frequencies allows to estimate the real chances of a patient on the waiting list to find a donor who is at higher HLA compatibility. Knowledge of the frequency and prevalence of HLA genes allow the understanding of the biology of the distribution of these alleles in our population, and enable comparison with other population groups. Genetic variation in the HLA system is useful in immunological research for transplantation to minimize rejection, to provide information on genetic susceptibility or resistance to diseases, to and anthropological and population genetics studies. This work aims to evaluate the frequency of allele groups and haplotypes of *HLA-A*, *HLA-B* and *HLA-DRB1* loci in population samples from the states of São Paulo and Rondônia. Data were obtained from the analysis performed by software Arlequin v3.15, SPSS v20, Genepop v4.2, Graphpad v5, and manual inferences. A total of 48,899 unrelated healthy individuals were selected, of whom 20.810 were from the state of São Paulo and 28.089 from the state of Rondônia. The composition of the allele group in Rondônia were 21 *HLA-A* allele groupe, 35 *HLA-B* allele groups and 13 *HLA-DRB1* allele groups; and in São Paulo: 21 *HLA-A* allele groups, 36 *HLA-B* allele groups and 13 *HLA-DRB1* allele groups. The *HLA-B**83 allele group is absent in the population of Rondônia. The percentage of heterozygotes in both populations was similar for the combinations *HLA-A,HLA-B* and *HLA-DRB1*. Non-adherence to Hardy-Weinberg equilibrium wasm observed for *HLA-A*, *HLA-B* and *HLA-DRB1* loci in the two populations. The most common alleles were: RO and SP = *HLA-A**02, *HLA-A**24, *HLA-A**03 and *HLA-A**01, *HLA-B**35, *HLA-B**44, *HLA-B**15 and *HLA-B**51, *HLA-DRB1**13, *HLA-DRB1**04, *HLA-DRB1**07 and *HLA-DRB1**11. In both populations, linkage disequilibrium between HLA-A/B, A/DRB1, and B/DRB1 loci was observed. The most common haplotype found in both groups were: *HLA-A**02*/-B**15, *HLA-A**02*/-B**35, *HLA-A**01/-*B**08 and *HLA-A**02/-*B**07; *HLA-A**02/-*DRB1**04; *HLA-A**02/-*DRB1**01 and *HLA-A**02/-*DRB1**07; *HLA-B**08/-*DRB1**03, *HLA-B**44/-*DRB1**07 and *HLA-B**14/-*DRB1**01; *HLA-A**01/-*B**08/-*DRB1**03, *HLA-A**02/-*B**15/-*DRB1**04, *HLA-A**02 /-*B**14/-*DRB1**01 and *HLA-A**02/-*B**44/-*DRB1**07. Although we observed a similarity in allele frequencies and haplotype, many alleles exhibit differential frequency by region and population group, highlighting the need to increase the number of donors in donor banks, as in REDOME.

Keywords: Histocompatibility, HLA haplotypes, HLA alelles, Immunogenetics and population analysis.