

ETHNIC VARIATIONS IN PARAOXONASE1 POLYMORPHISM IN THE MALAYSIAN POPULATION

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Abstract. The role of high-density lipoprotein associated paraoxonase (PON) 1 in protection against oxidative stress associated with the development of complications in diabetes mellitus has been reported. Variations in the PON1 gene, 55LM and 192QR have been described in different populations. These variations are known to be risk factors for heart disease, especially the L and R alleles. We have investigated the prevalence of both polymorphisms in the Malaysian population comprising the three major ethnic groups: Malay, Chinese and Indian, using polymerase chain reaction followed by restriction endonuclease digestion. The results show the pooled frequencies of L and R alleles were 0.91 and 0.54, respectively, similar to those in the Asian region. The frequency of the M allele was higher in Indians ($p < 0.05$), whereas the R allele was higher in both the Chinese and Malays compared to Indians ($p < 0.05$), indicating ethnic group-dependent genetic differences. The most common genotypic combination was LL/QR, followed by LL/RR. The genotype frequencies for the total Malaysian population showed a significant departure from Hardy-Weinberg equilibrium for the 55LM ($p = 0.013$) but not the 192QR ($p = 0.056$) polymorphisms. A strong linkage disequilibrium between L/55 and R/192 alleles was also observed. In the Malaysian population as a whole, Malays and Chinese showed a higher frequency of the R allele which is a risk factor for cardiovascular diseases.

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