Abstract

Objective: To study the NAT 2 gene polymorphisms 481T, 590A and 857A in the Chimila, Wiwa and Wayuu indigenous groups of the Colombian Caribbean to determine the frequencies of the alleles NAT2*4, NAT2*5, NAT2*6, and NAT2*7 and to determine the types of acetylators present in these populations. Methods: A total of 202 subjects were studied: 47 Chimila, 55 Wiwa, and 100 Wayuu. The polymorphisms were identified using a real-time PCR method for allelic discrimination designed using Taqman of Applied Biosystems. Results: The following alleles were found at the highest frequency in the following groups: the NAT2*4 allele (wild type) in the Wayuu group (55.3%), the NAT2*5 allele in the Wiwa group (34.5%), and the NAT2*7 allele in the Chimila group (24.2%). A higher frequency of the rapid acetylator status was found in the Wayuu group (31.3%) and Chimila group (29.5%) compared with the Wiwa group (12.7%). The intermediate acetylator status distribution was very similar in all three groups, and the frequency of the slow acetylator status was higher in the Wiwa group (32.7%) compared with the Chimila and Wayuu groups (20.5% and 21.2%, respectively). Conclusion: The results demonstrated the allelic distribution and pharmacogenetic differences of the three groups studied and revealed the most frequent acetylator status and phenotype. Because of the high prevalence of slow acetylators, a greater incidence of tuberculosis (TB) drug-induced hepatotoxicity is predicted in these populations, with a higher frequency in the Wiwa group.

Keywords

NAT2, single nucleotide polymorphism, genotyping, acetylation, Isoniazid, Chimila, Wiwa, Wayuu, Indigenous groups.