Abstract

Thiopurine methyltransferase (TPMT) degrades 6-mercaptopurine, azathioprine and 6-thioguanine which are commonly used in the treatment of autoimmune diseases, leukaemia and organ transplantation. TPMT activity is polymorphic as a result of gene mutations. Heterozygous individuals have an increased risk of haematological toxicity after thiopurine medication, while homozygous mutant individuals suffer life threatening complications. Previous population studies have identified ethnic variations in both phenotype and genotype, but limited information is available within African populations. This study determined the frequency of common TPMT variant alleles in 101 Kenyan individuals and 199 Caucasians. The frequency of mutant alleles was similar between the Caucasian (10.1%) and Kenyan (10.9%) populations. However, all mutant alleles in the Kenyan population were TPMT*3C compared with 4.8% in Caucasians. In contrast TPMT*3A was the most common mutant allele in the Caucasian individuals. This study confirms ethnic differences in the predominant mutant TPMT allele and the findings will be useful for the development of polymerase chain reaction-based strategies to prevent toxicity with thiopurine medications..