

## Abstract

Genetic polymorphisms in interleukin-1 (IL-1A and IL-1B) isoforms have been associated with Chronic Periodontitis (CP) in Caucasians, Asians and Arabs but little is known about their role in Africans. Therefore, this study was to resolve the association between genetic polymorphisms in IL-1A and IL-1B isoforms and chronic periodontitis in a Kenyan community. Methods: This was a case-control study. After informed consent, a clinical examination was conducted. Buccal swab samples were then obtained. Deoxyribonucleic acid was isolated from the swabs using QIAamp DNA purification protocol followed by polymerase chain reaction amplification using specific primers to IL-1A (loci -889 & +4845) and IL-1B (loci -511 & +3954). The amplicons were digested using Nco1, Fnu4H1, Ava1 and Taq1 respectively. Restriction fragment length polymorphisms (RFLP) were recorded. Association analyses of the RFLP and clinical data were carried out. Results: After screening 523 Swahili participants from old town Mombasa, 100 cases and 100 controls were included in the study. There was more plaque present in cases than controls with OR = 9.2 (95%CI = 3.7-23.1),  $p < 0.001$ . Mild Chronic Periodontitis was present in 9(9%) participants, moderate CP in 35(35%) and the severe form of CP in 56(56%). Carriage of allele 1 at IL-1A-889 amongst the Swahili participants was associated with Chronic Periodontitis (OR = 3.16, 95%CI=1.644-6.083,  $p < 0.001$ ). Allele 1 at locus IL-1A-889 was associated with mild, (OR=5.2, 95%CI=1.445-18.71,  $p = 0.005$ ), moderate (OR=4.51, 95%CI = 2.08-9.79,  $p < 0.001$ ) and severe disease (OR=2.19, 95%CI=1.013-4.738,  $p = 0.042$ ). Furthermore, plaque level was an effect modifier in the association between IL-1B-511 polymorphism and CP. Conclusions: Increased susceptibility to Chronic Periodontitis was found in Swahili participants with allele 1 at IL-1A-889