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Tumor necrosis factor alpha-308 gene polymorphism and risk of *Plasmodium falciparum* malaria infection among people living in Dembiya Woreda, North West Ethiopia

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Background & Aim: *Plasmodium falciparum* is the most dangerous species of *plasmodium* parasites in terms of lethality and morbidity. In different studies, polymorphisms in the tumor necrosis factor alpha (TNF-α) gene have been associated with increased susceptibility to mild malaria infection and severe malaria. The aim of this study was to determine the frequency of TNF-α-308 G > A gene polymorphism in *P. falciparum* malaria infected patients living in Dembiya Woreda, North Gondar, North West Ethiopia and to assess the effect of TNF-α-308 gene polymorphism and different demographic factors on the risk of malaria infection.

Methods & Results: Two hundred blood samples were collected from November to December 2014 from clinically confirmed *P. falciparum* malaria patients (n=100) and from *P. falciparum* seronegative individuals (n=100) who live in the study area. TNF-α-308 G > A polymorphism was detected using PCR- RFLP techniques. The mean age of *P. falciparum* malaria patient study subjects was 23.2±8.36 years old. Age (P=0.000) and occupation (P=0.046) were associated risk factors for malaria infection at 95% CI. The allele frequency in malaria patient study subjects was 0.92 for TNF-α-308G (TNF-1) and 0.08 for TNF-α-308A (TNF-2). The distribution of TNF-α-308 genotypes in cases (P=0.065) and controls (P=0.677) were consistent with the Hardy-Weinberg equilibrium.

Conclusion: There was no statistically significant association between TNF-α-308 genotypes and malaria infection (P=0.616). Further studies with large number of sample size and assessment in different malaria endemic areas of the country are warranted for generalization.

Biography

Nega Berhane has research expertise in Biotechnology, Cancer Research, Cell Biology. He had completed his Ph.D. in Biotechnology from University of Gondar, Ethiopia; He has published many papers in reputed journals and attended in many national conferences

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