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Title: Mutant DHFR Prevalence and Pyrimethamine Resistance among Asymptomatic Adolescents in Kwara State.
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Abstract: Plasmodium falciparum malaria remains a leading public health problem in sub-Saharan Africa and its control is seriously challenged by drug resistance. Resistance to sulfadoxine-pyrimethamine is mediated by point mutations in genes encoding the target enzymes dihydrofolate reductase (pfdhfr) and dihydropteroate synthase (pfdhps). Blood from a total of 176 subjects aged 11-19 years from Ilorin East and Irepodun Local Government areas (LGAs) was examined for mutant alleles of the Plasmodium falciparum dihydrofolate reductase gene by polymerase chain reaction (PCR) at codon 51 and 108 respectively. Rapid Diagnostic Test kits were used for the malaria test. Of the 176 participants, 73 (41.5%) subjects tested positive for malaria parasite while 95 (54.0%) tested negative. For both N51I and S108N SNP screening, mutant alleles were dominant over the wild type. The Iponrin community (Ilorin East LGA) recorded the highest percentage of mutant alleles 14 (33.33%) of the N51I SNP, while the Igbonla community (Irepodun LGA) had the least number of mutant alleles 8 (19.04%). On the other hand, the Alakuko community recorded the highest number of alleles 14 (31.80%) for S108N mutant while the Igbonla community (Irepodun LGA) had the least number of mutant alleles 8 (18.18%). There was widespread pyrimethamine resistance among the studied population and the malaria parasite remains persistent among the studied population. Therefore, there is a need for monitoring antimalarial drug resistance in Nigeria for prompt management of the antimalarial drug resistance menace.
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