C-TERMINAL POLYMORPHISM OF PLASMODIUM FALCIPARUM MEROZOITE SURFACE PROTEIN-1 (MSP-1) FROM TAK PROVINCE, THAILAND

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Abstract. This study was undertaken to ascertain the extent of polymorphism in the C-terminal region of Plasmodium falciparum merozoite surface protein (MSP-1) from 119 malaria patients in Tak Province on the western border of Thailand, who were admitted to the Bangkok Hospital for Tropical Diseases, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand. P. falciparum infection was confirmed by microscopic examination of peripheral blood smears. Clinical manifestations were categorized into 2 groups: uncomplicated (94 cases) and complicated/severe (25 cases). A 1,040 basepair fragment of P. falciparum MSP-1 gene was compared with MSP-1 of reference strains retrieved from GenBank. The consensus sequences of MSP-1 block 16 showed it belonged to MAD20 genotype, which is the major allele of falciparum malaria from the western border of Thailand. MSP-1 block 16 amino acid fragment could be separated into 2 groups: similar and dissimilar to reference sequence. Four variations in MSP-1 block 16 were -1494K, D1510G, D1556N, and K1696I. MSP-1 block 16 diversity is not significantly associated with clinical manifestation although MAD 20 genotype is the predominant genotype in this area. The genetic data of MSP1 gene of falciparum malaria isolated from western Thai border contribute to the existing genetic database of Thai P. falciparum strain.

Keywords: Plasmodium falciparum, merzoite surface protein-1, polymorphism