PRELIMINARY STUDY OF GENETIC DIVERSITY OF PNEUMOCYSTIS CARINII F. SP. HOMINIS IN THAILAND

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Preliminary study of genetic diversity of Pneumocystis carinii in Thailand

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ABSTRACT

The opportunistic fungal pathogen Pneumocystis carinii f. sp. hominis is the second most common opportunistic infection in HIV-infected patients in Thailand. However, the information regarding genotypic and epidemiological data of this organism in Thai patients is not available. The objective of this study is to identify the genotypes of this organism in HIV-infected Thai patients by sequence analysis of internal transcribed spacers (ITSs) regions 1 and 2. The bronchoalveolar lavage (BAL) and sputum specimens from 28 HIV-infected Thai patients with PCP were used to analyze the genotypes. The criteria of type classification were based on a typing score described by Lee et al. and a scoring system that counts the frequency of novel alleles found by this study.

From 28 specimens, a total of 23 different ITS genotypes were detected: 13 were previously reported in immunocompromised patients with PCP, another 10 were newly identified in this study. The most frequent type observed was type Io, a newly described type. Thirteen of 28 specimens (46.43%) were apparently infected with a single P. carinii f. sp. hominis type. Fifteen specimens (53.57%) were shown to have mixed infections. Among 10 new types, a number of nucleotides of ITS2 consensus sequence have been changed from 192 to 194 bp and the number of both ITS1 and ITS2 alleles have increased.

The results clearly show that unique and different dominant types of P. carinii f. sp. hominis can be observed in HIV-infected Thai patients. These differences may be used as genotypic markers for studying the epidemiology and transmission of this organism in the Thai population.

KEY WORDS: PNEUMOCYSTIS CARINII F. SP. HOMINIS / HIV-INFECTED THAI PATIENTS / GENOTYPIC STUDY