INFLUENCE OF *ABCB-1* C3435T POLYMORPHISMS ON PLASMA NEVIRAPINE AND EFAVIRENZ LEVELS AND THEIR EFFECTS ON VIROLOGIC AND IMMUNOLOGICAL OUTCOMES IN HIV/TB CO-INFECTED THAI ADULTS UNDER ANTI-RETROVIRAL THERAPY

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Abstract. ATP-binding cassette, sub-family B (encoded by *ABCB-1*or *MDR-1*) has an important role in cellular export of antiretroviral agents. A previous study showed that *ABCB-1* C3435T polymorphism affects plasma efavirenz and nelfinavir concentrations and rate of CD4+ T cell recovery after starting anti-retroviral treatment (ART). The present study examined the influence of *ABCB-1* polymorphisms on plasma nevirapine and efavirenz levels when co-administered with rifampicin in 124 HIV/TB patients who received nevirapine- (400 mg/day) (n = 59) and efavirenz- (600 mg/day) (n = 65) based ART. *ABCB-1* C3435T polymorphisms were genotyped using real-time PCR. CD4 T cell counts and HIV-1 viral RNA were evaluated in response to ART. The frequencies of CC, CT and TT genotypes of *ABCB-1* C3435T polymorphism were 34% (n = 42), 55% (n = 68) and 12% (n = 14), respectively. Contrary to the previous report, no association was found among these genotypes and plasma drug concentrations at weeks 6 and 12 of ART and after rifampicin discontinuation. We also observed no differences in CD4+ T cell recovery rate among different *ABCB-1* C3435T genotypes. In nevirapine group, however, all the patients with CT genotype achieved HIV-1 RNA levels of < 50 copies/ml, while 67% of those with TT and 95% with CC genotypes achieved < 50 copies/ml (p = 0.040). These data suggested that *ABCB-1* C3435T polymorphisms do not affect plasma nevirapine and efavirenz concentrations in HIV/TB co-infected Thai patients or their immunological outcome, but had an effect on virologic outcome in the nevirapine-treated group.

Keywords: *MDR-1 (ABCB-1*), HIV, tuberculosis, nevirapine, efavirenz

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