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Effects of antiretroviral drugs on estradiol and progesterone in HIV infected pregnant women

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Background: Prevalence of human immunodeficiency virus (HIV) among pregnant women is on the increase in sub-sahara Africa. The use of antiretroviral drugs has ameliorated the adverse effect of HIV on pregnancy. The study was to investigate the effect of the antiretroviral drugs on estradiol and progesterone among HIV-infected pregnant women.

Materials & Methods: 120 pregnant women participated in this study which comprised of 60 HIV seropositive at 2nd trimester, and 60 HIV seronegative throughout the gestation period. The HIV-infected group commenced antiretroviral treatment (Nevirapine, Zidovudine, and Lamivudine) at 2nd trimester through full term. The serum estradiol/ progesterone levels were estimated at 2nd and 3rd trimester of pregnancy of these subjects by ELISA method.

Result: It was observed that there was progressive increase in progesterone and estradiol levels in 2nd through 3rd trimester in both groups of women, irrespective of their HIV status. There was no significant difference ($p > 0.05$) in progesterone levels between HIV-infected and non-infected groups at 2nd trimester (210.94 ± 7.04 ng/ml and 222.27 ± 6.81 ng/ml respectively). There was also no significant difference ($p > 0.05$) in progesterone level in 3rd trimester between the two groups (HIV-infected group 253.05 ± 6.81 ng/ml, and non-infected group 241.09 ± 5.72 ng/ml). It was observed that the estradiol levels in non-infected group ($8,812.85 \pm 415.93$ pg/ml) was significantly higher ($p < 0.05$) than HIV -infected group ($5,359.82 \pm 260.79$ pg/ml) at 2nd trimester. This significant difference in estradiol levels was also observed in 3rd trimester between the two groups (non-infected $10,212.50 \pm 566.76$ pg/ml and HIV -infected $7,664.23 \pm 268.72$ pg/ml).

Conclusion: The significant decline in estradiol level among HIV-infected pregnant women at 2nd trimester shows that HIV infection significantly reduces the secretion of estradiol. It does not have significant effect on progesterone secretion among these women in second trimester. This indicates that untreated HIV infection can affect development and maintenance of pregnancy in women. The progressive increase in estradiol from 2nd trimester through 3rd trimester showed that antiretroviral drugs significantly ameliorate the possible effects of HIV on estradiol, thereby prevent some adverse HIV effects on the pregnancy outcome.

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