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RANKL and IL-6 plasma concentration among perinatally HIV-infected Thai adolescents receiving antiretroviral therapy

C. Brukesawan^{1,*}, T. Puthanakit², S. Ubolyam³, K. Chokephaibulkit⁴

¹ Siriraj medical school, Bangkok, Thailand

² HIV-NAT, TRC-ARC and the Chulalongkorn University, Bangkok, Thailand

³ HIV Netherlands Australia Thailand Research Collaboration, The Thai Red Cross AIDS Research Center, Bangkok, Thailand

⁴ Mahidol University, Bangkok, Thailand

Background: High prevalence of low bone mineral density (BMD) has been observed in HIV-infected adolescents. Osteoimmunopathology mediated by the proinflammatory cytokines involving in bone homeostasis, such as receptor activator for Nuclear Factor κ B Ligand (RANKL) and Interleukin 6 (IL)-6, may play an important role. This study aims to study the relationship of the RANKL and IL-6 plasma concentrations and bone mineral density (BMD) in HIV-infected Thai adolescents.

Methods: A cross-sectional study to measured the plasma concentrations of RANKL (by BioVendor Human s RANKL (total) ELIZA), and IL-6 (by BioLegend's ELIZA MAXTM Deluxe Set) in perinatal HIV-infected Thai adolescents aged 12-19.5 years was performed. The correlation of RANKL and IL-6 with bone mineral density (BMD) z-score was analyzed. The concentrations of RANKL and IL-6 were compared between the children who had BMD < 2.0 and > -2.0.

Results: 101 adolescents, 50% male, median age 14.3 (range, 12.0-19.5) years, were enrolled. The current median (IQR) CD4 was 646 (506-796) cell/mm³ and HIV-1 91(90.1%) adolescents had HIV RNA < 50 copies/ml. Median (IQR) RANKL and IL-6 were 424.3 (242.4-672.7) U/L and 17.5 (8.3-31.6) pg/ml, respectively. Median (IQR) RANKL were 493.6 (280.9-971.7) U/L in the children with BMD \leq -2.0 and 411.08 (240.0-666.2) U/L in those with BMD > -2.0 (p value=0.322). The corresponding values for IL-6 were 16.8 (8.2-27.6) pg/ml and 19.0 (8.3-31.9) pg/ml, respectively (P value=0.573). There was no correlation between RANKL (r= 0.053, p= 0.631) or IL-6 (r=-0.02, p=0.984) and BMD.

Conclusion: We did not find association of RANKL or IL-6 level and BMD in our adolescents who were mostly in stable condition with virologic suppression. Other factors may be more contributory to low bone mass in these adolescents.

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HIV situation in the Greater Mekong Sub-Region bordering Thailand

T. Apidechkul

Mae Fah Luang University, Chiang Rai Province, Thailand

Background: Greater Mekong Sub-region (GMS) is composing of the border of Thailand-Myanmar, Republic Lao, and China with various of geographic and cultures and more than 200 million people live there. The migration of population is simple scenario at these areas. Last few decades Thailand has been reported of the highest prevalent of HIV/AIDS particularly in the northern of Thailand. The main objective of this study aimed to investigate the effect of HIV/AIDS at the areas of GMS especially bordering of Thailand.

Methods: This retrospective cohort study design aimed to investigates the HIV situation among the people who immigrated into Thailand in GMS. The systemic data extraction from the medical records from 19 hospitals which located in the border of Thailand during 1990-2009 was analyzed. All the research instruments had been detected in validity and reliability before used. Chi-square test was used for identifying the statistical significant at the alpha=0.050.

Results: Totally 1,303 cases had been detected. Of 84.50% were still alive, 57.27% were male and 48.73% were female. Most of the subjects were Myanmar (56.52%), 26.44% were unknown, and 11.10% were Republic Lao, 5.24% were Chinese, and 1.00% was Cambodian. Of 37.53% were aged 21-30 years old, 33.15% were aged 31-40 years old, and 12.89% were aged 41-50 years old. Of 38.94% were agricultural, 34.56% were employee, 10.37% were unknown occupation, 4.15% were student, and 3.46% were young children. Of 51.65% were full bone AIDS, and 28.32 were symptomatic AIDS, and 20.03% were asymptomatic AIDS. Of 92.31% had infected by sexual intercourse, 6.06% were mother to child, and 1.63% were IDU. Distribution of age by sex was statistical difference (p-value < 0.001). Being female had a longer live than male (p-value = 0.002). The live status was different according to nationality (p-value < 0.001) and risk factor (p-value < 0.001).

Conclusion: The cooperation between countries to control the HIV spreading is immediately needed for the GMS region especially the free trade market in 2015.

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