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Significance of hyperhomocysteinemia and B vitamin deficiency in HIV-infected individuals

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Background: HIV-infected patients are prone to nutritional problems and are at risk to inflammation-driven premature endothelial injury. Elevated homocysteine (Hc) levels are associated with an increased risk for cardiovascular events. Deficiency of the vitamins B6, B12 and folic acid may contribute to endothelial as well as neurocognitive and/or neuropathic complications.

Methods & Materials: The frequency of hyperhomocysteinemia and deficiencies in vitamin B6, B12 and folate levels were examined by measuring serum and plasma concentrations of the respective proteins. Additionally, concentrations of pathway metabolites (holo-transcobalamin [holo-TC] and methyl malonic acid [MMA] concentrations) were determined for examining vitamin function and then compared to results from neurocognitive (neuropathic deficit scale [NDS] and Syndrom-short-test [SKT]) testing.

Results: A cohort of 121 patients (19% female gender, median age 43 yrs, range 18–78 yrs) with proven HIV infection was assessed. 45/121 had AIDS, 84.3% were on antiretrovirals (ART). Hyperhomocysteinemia was present in 71/121 (58.7%), vitamin B6 deficiency was detected in 5 (4.1%), vitamin B12 deficiency in 59 (48.8%), folate deficiency in 2 (1.7%). Holo-Tc concentrations were decreased in 23/56 (41.1%), and elevated MMA was found in 10/47 (21.3%).

Homocysteine levels were inversely correlated with vitamin B12 and folate concentrations, but not with peripheral blood CD4+ T cells or HIV plasma viral load.

Elevated Hc levels were associated with a significant risk for having AIDS (OR 1.38, 95% confidence interval 1.03–1.85; $p=0.04$ [Chi² test]). No other associations were detectable.

Conclusion: In our study, hyperhomocysteinemia is not related to a distinct vitamin deficiency and is independently associated with a significant risk of having AIDS. The elevation may rather due to inflammatory events than to metabolic deficiencies.

If vitamin supplementation ameliorates hyperhomocysteinemia and its potential consequences has to be proven. The significance of vitamin deficiency itself in HIV-infected individuals remains to be determined.

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Case series of extreme treatment fatigue among HIV-infected adolescents on antiretroviral therapyI. Kasirye^{1,*}, J. Nakawesi², B.M. Naziwa², G.N. Kabunga³, E. Kawuma³, D. Mwehira³, B.N.M. Mukasa⁴

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Background: Survival among infected children and adolescents with HIV has been markedly improved since the advent of antiretroviral therapy (ART). Unfortunately adherence to ART among HIV-infected adolescents, which is critical for sustained suppression of viral replication, is frequently suboptimal. At Mildmay Uganda it has become increasingly common for some adolescents to choose to stop taking ART altogether, despite the psychosocial interventions provided to them including counselling, medical treatment of depression and spiritual guidance aimed at providing full knowledge of the implications of sub-optimal or non-adherence. Witnessing severe illness and death among their non-adherent peers does not seem to deter this group from sub-optimal ART adherence and appears not to significantly impact their motivation to take their ART.

Methods & Materials: A retrospective case series of adolescents who despite psychosocial and medical interventions refused to continue with ART.

Results: 32.5% of all fatalities on the in-patient ward at Mildmay between October 2012–September 2013 were adolescents. We present 3 cases of adolescents who following several years of ART were determined to have failed on their 2nd line ART regimens. The patients admitted to having terminated their ART medication. Intensive counselling, social interventions, peer interventions and management of clinical depression did not convince the patients to resume their ART. All 3 patients expressed total resignation and adamant refusal to continue treatment. In the terminal stages all 3 patients were diagnosed with Tuberculosis and other WHO Stage IV conditions but only 2 accepted treatment of the opportunistic conditions. Deteriorating health conditions did not deter them from their resolve.

Conclusion: Lifelong medication and adherence is challenging for most individuals who have to take it. HIV-infected adolescents have often been on ART from childhood, become fatigued and the prospect of lifelong treatment is daunting for them. Some adolescents, despite supportive efforts may remain fatalistic, completely losing motivation to continue living.

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