Osteo-Renal Impairment in HIV Infection

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Editor

"An HIV-free generation" was the main focus of the XIX International AIDS conference held in Washington DC, USA, in July 2012. In 2014, we are dealing with an aged HIV population worldwide, with all the problems correlated with long term HIV infection and long term antiretroviral treatment.

Looking closer at the Romanian HIV cohort "yesterday's children, today's adults", we considered it important to closely assess comorbidities, as our cohort is "young by age, old by treatment". An area of important focus was osteo-renal impairment. In the general population chronic kidney disease is thought to affect roughly 10% of people *(CDC, 2014 National Chronic Kidney Disease Fact Sheet, available at: http://www.cdc.gov/diabetes/pubs/factsheets/kidney.htm)*, while in the HIV-infected population the percentage appears to be higher, depending on ethnicity, ranging from 14.4% *(Franey et al. BMC Infect Dis 2009;9:143)* to 31.6% *(Ikpeme et al. Pan Afr Med J. 2012;11:13)* in African-Americans.

When talking about chronic kidney disease in patients with HIV infection, it is important to assess three main factors: the patient (genetic and behavioral characteristics), HIV infection (which in itself can cause renal impairment) and treatment (as antiretroviral therapy can influence renal function). When so many different characteristics come into play, assessing the full size of renal impairment in HIV-infected patients can prove to be a real challenge.

Once diagnosed, renal impairment also needs to be staged and then an algorithm is established, for further diagnosis and monitoring, as HIV infection is associated with ongoing chronic inflammation and there are multiple factors at play that can influence the progression of kidney disease.

Regarding bone involvement, we should take into consideration the physiological bone loss as we age differently: after the age of 50, women gradually lose bone mineral density (BMD), keeping roughly 70% of their cortical BMD, and 50% of their trabecular BMD by the age of 90. In males, the BMD is lost at a slower pace, reaching 70% of the initial cortical BMD and 65% of their trabecular BMD by the age of 90 *(Khosla et al. Endocrinol Metab Clin N Am 2005;34:1017)*. Adding this physiologic frailty syndrome to the chronic inflammation due to HIV infection and the potential impact of certain antiretrovirals on bone mineral density, we can see why the bone also needs close attention in the long run.

For all these reasons, the National Institute for Infectious Diseases "Prof. Dr. Matei Balș" has started implementing a project for screening and monitoring of osteo-renal impairment in patients with HIV infection.

As we get older we "collect" more comorbidities that require treatment, for which it's important to check for drug-drug interactions, to avoid further renal or bone impairment. As HIV comes with frailty, frailty comes with aging, aging comes with comorbidities, comorbidities come with medication, medication comes with drug-drug interactions, drug-drug interactions come with more intense patient care from the doctor side. In conclusion getting older is not easy, but aging in HIV-infected patients can be quite challenging to manage.

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