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Prevalence of osteoporosis in HIV infected patients initiating antiretroviral drugs living in Johannesburg

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Title of Project: Prevalence of osteoporosis in HIV-infected patients initiating anti-retroviral drugs living in Johannesburg.

Abstract

Background: Low-energy fractures complications are a major public health issue that make osteoporosis even worse. In sub-Saharan Africa, the prevalence of osteoporosis varies from 18.2% to 65.8%. In wealthy nations, it affects one-third of white women over 50. There was no change in bone mineral density (BMD) between HIV-infected and non-HIV-infected women in Sub-Saharan Africa, where human immunodeficiency virus (HIV) is widespread. Other investigations that demonstrated that HIV-infected people had poor BMD both before and after starting anti-retroviral treatment did not consistently show a low BMD finding. Inflammation-mediated bone remodelling has been associated with low BMD in HIV-infected patients. Antiretroviral Therapy (ART) has been demonstrated to exacerbate bone loss in addition to the pre-existing intrinsic risk of developing osteoporosis. Nucleoside reverse transcriptase (Tenofovir) has been shown to cause the most significant bone loss, followed by protease inhibitors (Lopinavir/Ritonavir). On the other hand, integrase inhibitor (Raltegravir) has the least noticeable effects on BMD, despite its pathophysiological causes of decreased BMD in patients on ART being poorly understood.

Research question: Is there loss of bone in HIV-infected patients before initiating ART?

Methodology: The case files of patients who were HIV-positive and enrolled in the ADVANCE research were retrospectively reviewed on a desk. All of the 1053 individuals in the ADVANCE research had a DXA scan performed to evaluate BMD as part of the initial screening and recruitment approach. The ADVANCE research enrolled HIV-positive people and randomly assigned them to three ART arms. The original pre-treatment data points on bone mineral density were used in this study to respond to the research question.

Results: A total of 400 black patients were reviewed. Of these 400 records reviewed, 62.3% were female. The female to male ratio was 1.6:1. Eighty percent of the participants were younger than 40 years old, and only 3% were older than 50 years. Eighty two percent were virally suppressed with less than 50 viral copies. The prevalence of osteopenia was 25.5% and osteoporosis was 2.8%, observed in predominantly African female participants aged between 30 and 39 years.

Conclusion: The findings of this study confirm that there is pre-existing bone loss among HIV-infected ART naïve individuals. Approximately twenty eight percent (28.3%) in our study

had clinically confirmed evidence of bone loss and of these, 2.8% of the entire cohort had osteoporosis. Bone loss was most prevalent in black females who are virologically suppressed.