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Perspective

Professional Testing Protocols for Bone Fracture Risk Analysis in AIDS Patients

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DESCRIPTION

Low bone mineral density is reported to be more common in HIV-positive individuals than HIV-negative ones. There are numerous contributing factors to this difference. The Infectious Diseases Society of America (IDSA) published fracture risk screening recommendations to address this heightened risk; these recommendations are very different from those that are applicable to the general population. At the University of Connecticut, a research was done to determine if providers were aware of and following these suggestions. Patients were assessed for risk factors and the prevalence of low bone mineral density in addition to sending electronic surveys to healthcare professionals. Low rates of knowledge of the IDSA screening recommendations were found in the provider survey data.

Many of the individuals who were surveyed fit the requirements for low BMD screening but their doctor did not request dual-energy X-ray absorptiometry (DXA). As an intervention, clinicians were informed *via* email of the most recent screening recommendations and alerted if a patient satisfied the requirements for DXA screening. A twelve-month follow-up survey revealed improved screening procedures and more provider knowledge of screening guidelines. Additionally, the outcomes of a logistic regression analysis of patient characteristics revealed that male sex and advancing age were both favourably related to the likelihood of fragility fracture. Fragility fracture risk was found to be decreased with longer antiretroviral treatment use.

People living with HIV (PLWH) have a much higher risk of low bone mineral density (BMD) and its related consequences, including fracture, than the general population. The causes of this difference are multifaceted; some may be connected to viral factors while others may be brought on by antiretroviral medication (ART). Malnutrition, concurrent hepatitis C infection, substance misuse, including tobacco use, and alcohol dependency are additional secondary osteoporosis risk factors that are more prevalent in the HIV + population. As they age, HIV-infected men commonly experience decreased serum testosterone levels, which makes them more susceptible to bone loss. More than 90% of PLWH have 25-hydroxy vitamin D insufficiency, according to many studies.

The Infectious Diseases Society of America (IDSA) published recommendations for fracture risk screening in order to address the increased risk of poor BMD in HIV patients. Although they are in line with more recent recommendations from the European AIDS Clinical Society, these screening techniques differ dramatically from those advised for the general population. Specifically, the Fracture Risk Assessment Tool should be used to screen all HIV patients older than 40 for a fracture risk (FRAX). In addition to FRAX scores, dual-energy X-ray absorptiometry (DXA) should be employed in men under 50, postmenopausal women, patients with a history of fragility fracture, patients taking chronic glucocorticoid therapy, and patients who are at high risk of falling. Additionally, according to current recommendations, HIV infection should be listed in the FRAX as a cause of secondary osteoporosis.

Although provider compliance with the IDSA screening recommendations is not known, it is likely that many PLWH who would qualify for screening are overlooked. Primary Care Practitioners (PCPs) are less likely to be aware of HIV-specific guidelines and may instead rely on the infectious disease (ID) provider for their patient to handle this. At the same time, ID providers might believe that the PCP would do screening just like they would for the broader population. Additionally, ID clinicians might feel less confident diagnosing and treating any underlying bone diseases they may find. Therefore, bone health screening in HIV patients is a care area that runs the risk of being overlooked by both general and specialist care for PLWH.

This study sought to assess provider understanding and adherence to current international society recommendations as well as the effectiveness of an intervention intended to enhance provider understanding and adherence at an academic medical centre. Additionally, we looked at our patient cohort to independently determine the frequency of risk variables for fragility fracture in PLWH. PCPs and ID specialists at the University of Connecticut Health Center (UCHC) were given an electronic survey to gauge their knowledge of the recommendations for bone health screening that are particular to

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PLWH. An intervention was created to try and increase provider awareness and adherence to IDSA screening standards after measuring baseline knowledge.

Patients who had appointments at UCHC during the study period and were HIV positive and being treated by PCPs and ID doctors gave their agreement to be included and interviewed. According to IDSA recommendations, a screening was performed on all enrolled patients. They were also questioned regarding their medical history, history of fragility fractures, and any secondary risk factors. Electronic medical records were examined to gather pertinent laboratory data, such as CD4 counts and quantified HIV RNA (viral load), details on exposure to certain antiretroviral drugs, and information on whether past FRAX or DXA examinations had been requested or carried out. As indicators of baseline provider adherence to IDSA recommendations, prior FRAX screens or DXA scans were used.

Patients' PCPs and ID providers were contacted *via* email if they satisfied the requirements for a DXA scan but one had not yet been requested. Additionally, information about the most recent guidelines for DXA screening in PLWH was included in this email. To determine if the intervention had increased provider knowledge, a postintervention survey was distributed to the same providers who had taken part in the preintervention survey after a year. In order to determine if patient adherence has improved in the form of more frequently performed DXA scans, medical records of the participation patients were reviewed.

CONCLUSION

Data from patient interviews were utilized to assess the association between adult fragility fractures and other covariate risk variables in this cohort, in addition to the provider intervention mentioned above t-tests or Wilcoxon rank sum tests were used to compare demographic data between those who had and did not have fragility fractures, and chi-square analysis or Fisher's exact tests were used to compare categorical data.

The association between patient characteristics and adult fragility fracture risk (FFX) (dependent variable) was studied using a logistic regression model. Age, sex, the length of ART therapy, and exposure to protease inhibitors were covariates.