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LETTER

Detection of HIV-1 DNA/RNA in Peripheral Blood, Bone Marrow and Femoral Head of Patients with Osteonecrosis of the Femoral Head [Letter]

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Dear editor

We have read the paper by Kang Peng Li et al on Detection of HIV-1 DNA/RNA in Peripheral Blood, Bone Marrow and Femoral Head of Patients with Osteonecrosis of the Femoral Head.[1] We congratulate the authors for providing new information regarding The profile of necrotic viral infection in the bone marrow and femur in people living with HIV (PLWH) has not been characterized to date. Cases of osteonecrosis of the femoral head are often found in patients treated with excessive corticosteroids, so it is important to investigate impaired immune responses in osteonecrosis because excessive corticosteroid therapy is one of the therapies that can induce osteonecrosis of the femoral head and also interfere with the immune response which plays a role in the pathogenesis of osteonecrosis.[2]

A study conducted by Kang Peng Li et al showed that HIV RNA in the blood decreased significantly in 8 patients and HIV DNA in necrotic areas amounted to about half of the DNA in sclerotic areas and HIV RNA was about twice the normal value.[1] However, it should be noted that patients who have received DNA immunization can induce a cytolytic immune response that recognizes single amino acids including drug-resistant (DR) mutations, thereby encouraging the application of therapeutic DNA vaccines to DR HIV-1 patients. In addition, DNA immunization with HIV-1 protease (PR) is an advancement in immunotherapy of HIV-1 infection to reduce the number of infected cells that produce drug-resistant viruses.[3] Bone marrow is a complex multicellular environment that functions in haematopoietic maintenance stem/progenitor cells (HSPC). HSPCs help regulate chemical and molecular signals as well as cell-cell interactions where HIV proteins have a direct suppressive effect on HSPC function.[4]

A study conducted by Kang Peng Li et al identified the femoral head and bone marrow taken from 15 PLWH who underwent total hip arthroplasty. Each femoral head was obtained from subchondral, necrotic, sclerotic, and normal areas.[1] The method used is appropriate, however the method used to detect HIV is also another important factor that must be considered when conducting this research. Proviral DNA, viral transcripts, or viral proteins are the main targets in every detection method.[4]

In conclusion we agree that despite the use of antiretroviral therapy, there is still a large and potentially active HIV reservoir in the bone marrow. Viral transcription is most active in the necrotic area of the femoral head which is directly involved in osteonecrosis of the femoral head.[1] We therefore recommend a deeper investigation of the bone marrow of chronically HIV-infected individuals who are not receiving antiretroviral therapy because of bone marrow plasma cells are the main source of HIV-1 serum specific antibodies in chronically infected individuals. There is a strong correlation between specific HIV-1 serum antibodies and specific bone marrow-derived plasma cells, but not circulating plasmablasts or memory B cells.[5]

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Disclosure

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