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Immunotherapeutic treatment of HIV-1: review of safety and efficacy

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IMMUNOTHERAPEUTIC TREATMENT OF HIV-1: REVIEW OF SAFETY AND EFFICACY

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Abstract

Background: For over two decades, the treatment of HIV-1 patients has relied on antiretroviral (ART). These drugs have had a great deal of achievement in not only controlling the viral load but also partly reconstituting the immune system in HIV-1 infected persons. However, the misfortune is that ART is a lifelong treatment because it cannot achieve complete eradication of HIV-1 virus, yet with its side effects like many other drugs. Scientists have hence introduced immunotherapy in an effort toward complete eradication of HIV-1 in HIV/AIDS patients.

Objective: The aim of this paper was to determine the effectiveness and safety of the various immunotherapy formats used in the treatment of HIV-1 infection.

Method: We reviewed a number of peer-reviewed published articles to determine the effectiveness and safety of the different immunotherapy formats tested in randomized clinical trials and animal model experiments.

Results: Majority of immunotherapy regimens used in combination with ART to treat HIV-1 positive human or animals were found to be effective in boosting the cell-mediated immune responses in HIV-1 infection but achieved insignificant results in controlling the viral load in these experiments. Most of the immunotherapy formats were also well tolerated recording minimal to no adverse effects on HIV-1 patients.

Conclusion: Most immunotherapy agents are relatively effective and safe when used in combination with ART in modulating immune response to HIV-1. These immunotherapy agents do not significantly reduce the viral load and hence cannot eliminate HIV-1.

Key Words: Immunotherapy, HIV-1, ART, HIV/AIDS, Effectiveness, Efficacy, Safety