

Can periodontal disease act as a risk factor for HIV-1?

3 April 2009

Today, during the 87th General Session of the International Association for Dental Research, convening at the Miami Beach Convention Center, a group of scientists from Nihon University (Tokyo, Japan) will present findings suggesting that periodontal disease could act as a risk factor for reactivating latent HIV-1 in affected individuals.

Latently infected cells harbor HIV-1 proviral DNA genomes integrated with heterochromatins, allowing for the persistence of transcriptionally silent proviruses. Hypoacetylation of histone proteins by histone deacetylases (HDACs) is primarily involved in the maintenance of HIV-1 latency by repressing transcription from HIV-1 provirus. On the other hand, periodontal diseases, caused by infection with the bacterium *Porphyromonas gingivalis* (*P. gingivalis*), are found worldwide and are among the most prevalent microbial diseases of mankind.

The investigators demonstrated the effects of such periodontopathic bacteria on HIV-1 replication. They found that *P. gingivalis* could strongly facilitate HIV-1 reactivation via chromatin modification. The bacteria produced high concentrations of butyric acid, a potent inhibitor of HDACs, and induced acetylation of histones, leading to reactivation of HIV-1 in latently infected cells. These results suggest that periodontal disease could act as a risk-factor for HIV-1 reactivation in latently infected individuals, and might contribute to the systemic dissemination of the virus causing clinical progression of acquired immunodeficiency syndrome (AIDS). The findings emphasize the essential role of maintaining oral hygiene and controlling oral diseases for the prevention of AIDS.

Source: International & American Association for Dental Research

APA citation: Can periodontal disease act as a risk factor for HIV-1? (2009, April 3) retrieved 4

December 2021 from <https://medicalxpress.com/news/2009-04-periodontal-disease-factor-hiv-.html>

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