

Human Herpes Viruses in Patients with Chronic Periodontitis and Aggressive Periodontitis

Mona Z Zaghloul*

Microbiology Unit, Department of Clinical Pathology, Ain Shams University Hospitals, Cairo, Egypt

*Corresponding author: Mona Z Zaghloul, Microbiology Unit, Department of Clinical Pathology, Ain Shams University Hospitals, Cairo, Egypt, Tel: 02-24023494; E-mail: monazaki_810@hotmail.com

Rec date: June 16, 2014; Acc date: June 17, 2014; Pub date: June 23, 2014

Copyright: © 2014 Zaghloul MZ. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Zaghloul MZ (2014) Human Herpes Viruses in Patients with Chronic Periodontitis and Aggressive Periodontitis. Air Water Borne Diseases 3: e131. doi: 10.4172/2167-7719.1000e131

Editorial

The pathogenesis of periodontal disease is a multifactorial process characterized by a complex interaction between the microbial and host factors and a variety of disease- modulatory environmental factors [1]. Recent microbiological researches on periodontal disease are focused on the possible involvement of human viruses in the etiology and pathogenesis of destructive periodontal diseases [2-5]. Herpes viruses are frequently found in periodontal pockets and may initiate or accelerate periodontal tissue destruction because of a virally mediated release of cytokines or even an impairment of the periodontal tissue defense mechanism, resulting in a heightened virulence of resident pathogenic bacteria [6-8]. Human herpes viruses are classified into eight distinct species: Herpes simplex virus (HSV) 1 and 2, Varicella zoster virus (VZV), Human Cytomegalovirus (HCMV), Epstein - Barr Virus (EBV) and human Herpes virus 6, human Herpes virus 7, and human Herpes virus 8 or Kaposi's sarcoma-associated herpes virus [9]. Human cytomegalovirus (HCMV) and Epstein barr virus 1 (EBV-1) are involved in the pathogenesis of human periodontal disease. These viruses are capable of infecting and impairing Poly Morpho Nuclear Leukocytes (PMNs), macrophages and lymphocytes. Human cytomegalovirus may contribute to disease progression through the activation of *IL1β* gene transcription [10]. The reduced host defense by herpes virus-infected cells give rise to overgrowth of pathogenic bacteria that invade the periodontal tissue more efficiently [2].

Chronic periodontitis was defined when at least one of the four sites per tooth with Probing Pocket Depth (PPD) \geq 3 mm or clinical attachment level (CAL) \geq 2 mm [11]. While aggressive periodontitis was defined when the four sites per tooth with (PPD) \geq 6 mm or (CAL) \geq 5 mm with involvement of incisors and first molar teeth in subjects with age ranging from 18 to 35 years. HSV-1 is most commonly found in the oral cavity as a primary infection and establishes latency within the trigeminal ganglia [12]. Cultured epithelial cells and fibroblasts from clinically healthy human gingiva are susceptible to HSV infection [13] suggesting that those cells could be a reservoir for the latent virus. HSV-1 antigens could be detected in gingival biopsies from periodontally diseased patients using an indirect immunofluorescence assay [14]. Herpes viruses, including HCMV, EBV and HSV-1, can be reactivated from a latent infection either spontaneously or concurrent with another infection or with other stress factors affecting the host immune system [15,16].

References

1. Das S, Krithiga GS, Gopalakrishnan S (2012) Detection of human herpes viruses in patients with chronic and aggressive periodontitis and relationship between viruses and clinical parameters. J Oral Maxillofac Pathol 16: 203-209.
2. Contreras A, Umeda M, Chen C, Bakker I, Morrison JL, et al. (1999) Relationship between herpesviruses and adult periodontitis and periodontopathic bacteria. J Periodontol 70: 478-484.
3. Contreras A, Slots J (1996) Mammalian viruses in human periodontitis. Oral Microbiol Immunol 11: 381-386.
4. Kubar A, Saygun I, Ozdemir A, Yapar M (2005) Real-time polymerase chain reaction quantification of human cytomegalovirus and Epstein Barr virus in periodontal pockets and the adjacent gingiva of periodontitis lesions. J Periodontal Res 40:97-104.
5. Saygun I, Sahin S, Ozdemir A, Kurti B, Yapar M, et al. (2002) Detection of human viruses in patients with chronic periodontitis and the relationship between viruses and clinical parameters. J Periodontol 73: 1437-1443.
6. Saygun I, Kubar A, Ozdemir A, Yapar M, Slots J (2004) Herpesviral-bacterial interrelationships in aggressive periodontitis. J Periodontal Res 39: 207-212.
7. Saygun I, Yapar M, Ozdemir A, Kubar A, Slots J (2004) Human cytomegalovirus and Epstein-Barr virus type 1 in periodontal abscesses. Oral Microbiol Immunol 19: 83-87.
8. Kamma JJ, Contreras A, Slots J (2001) Herpes viruses and periodontopathic bacteria in early-onset periodontitis. J Clin Periodontol 28: 879-885.
9. Chen V, Chen Y, Li H, Kent K, Baumgartner JC, et al. (2009) Herpesviruses in abscesses and cellulitis of endodontic origin. J Endod 35: 182-188.
10. Wara-Aswapati N, Boch JA, Auron PE (2003) Activation of interleukin 1beta gene transcription by human cytomegalovirus: molecular mechanisms and relevance to periodontitis. Oral Microbiol Immunol 18: 67-71.
11. Loe H, Silness J (1963) Periodontal Disease in Pregnancy. I. Prevalence and severity. Acta Odontol Scand 21: 533-551.
12. Zakay-Rones Z, Hochman N, Rones Y (1982) Immunological response to herpes simplex virus in human gingival fluid. J Periodontol 53: 42-45.
13. Ehrlich J, Cohen GH, Hochman N (1983) Specific herpes simplex virus antigen in human gingiva. J Periodontol 54: 357-360.
14. Heling I, Morag-Hezroni M, Marva E, Hochman N, Zakay-Rones Z, et al. (2001) Is herpes simplex virus associated with pulp/periapical inflammation? Oral Surg Oral Med Oral Pathol Oral Radiol Endod 91: 359-361.
15. Saboia-Dantas CJ, Coutrin de Toledo LF, Sampaio-Filho HR, Siqueira JF Jr (2007) Herpesviruses in asymptomatic apical periodontitis lesions: an immunohistochemical approach. Oral Microbiol Immunol 22: 320-325.
16. Slots J, Contreras A (2000) Herpesviruses: a unifying causative factor in periodontitis? Oral Microbiol Immunol 15: 277-280.