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Establishing a Bridge between Necrotizing Periodontitis and Novel Corona Virus

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ABSTRACT

Necrotizing ulcerative periodontitis (NUP) is a severe inflammatory periodontal disorder caused by bacterial plaque and usually follows an acute course. Poor oral hygiene is considered to be a major ecological pressure that steers complex microbial communities in the mouth into dysbiosis. This article introduces the possibility of patients suffering from Periodontitis at an increased risk of COVID-19 related adverse outcomes, possibly adding, after due clinical validation, to the existing list of conditions predisposing to developing severe forms of the disease.

Keywords: Necrotizing ulcerative gingivitis, Periodontitis, Ecosystem, Neutrophil Extracellular Trap

INTRODUCTION

Necrotizing ulcerative periodontitis (NUP) is a severe inflammatory periodontal disorder caused by bacterial plaque and usually follows an acute course. Poor oral hygiene is considered to be a major ecological pressure that steers complex microbial communities in the mouth into dysbiosis. Ecological shifts in a dysbiotic ecosystem favour an increased prevalence of pathogenic oral bacteria [1-3]. Daily activities such as mastication, flossing and tooth brushing can induce bacteraemia, which facilitate haematogenous dissemination of oral bacteria and inflammatory mediators, inducing systemic inflammation in some patients. Individuals with periodontal disease show microulcerated sulcular epithelia and damaged periodontal tissues, and thus seem more susceptible to bacteremia [4].

ORAL MICROBIOME AND COVID-19

Period ontopathic bacteria are involved in the pathogenesis of respiratory diseases, such as those implicated in COVID-19, and are associated with chronic inflammatory systemic diseases including type 2 diabetes, hypertension, and cardiovascular disease [5]. A mixed fusiform-spirochete bacterial flora plays a key role in the pathogenesis of NUP. The microbial composition of NUP lesions in HIV patients is similar to the microbial composition of NUG lesions. NUP is commonly associated with the diagnosis of AIDS or HIV-positive status [6]. Murray et al. [7] reported significantly higher numbers of opportunistic fungus Candida albicans and a higher prevalence of *Actinobacillus*, *Aggregatibacter actinomycetemcomitans*, *P. intermedia*, *Porphyromonas gingivalis*, *Fusobacterium nucleatum* and Campylobacter species. Role of oral bacteria in the pathogenesis of respiratory infections are via the aspiration of oral pathogens into respiratory organs, the alteration of the respiratory epithelium by periodontal-associated cytokines, and oral mucosal surfaces rendered to promote the adhesion of respiratory pathogens [6].

CONFECTIONS IN COVID-19

Poor oral hygiene is a modifiable risk factor for COVID-19 complications and if there is a place for the promotion of good oral hygiene as a preventive public health intervention during the pandemic. Neutrophil Extracellular Trap (NET) production is an alternative form of cell death, differing from the like of necrosis and apoptosis [8]. It is essentially the creation of extracellular neutrophil traps to contain and eliminate insult. NETs are nuclear chromatin in decondensed form in a web-like configuration these are associated with a number of antimicrobial factors such as peptides and histones [9]. NETosis or the process of NET production is accomplished by suitably primed neutrophils and their composition varies according to the insult in curred.

NETosis is a catastrophe at the cellular level in that it results

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in cell death and often causes bystander damage either directly or through autoimmune mechanisms. Candidiasis and oral hairy leukoplakia are the most common oral lesions seen in HIV-positive patients. According to EC-Clearinghouse on Oral Problems Related to HIV Infection and WHO Collaborating Centre on Oral Manifestations of the Immunodeficiency Virus (1993), periodontal diseases are classified under oral manifestations of HIV. The classification consists of linear gingival erythema, NUG and NUP [10].

CONCLUSION

This knowledge, with its translational implications would point to the possibility of an increased level of NETs in patients of both COVID-19 and Periodontal disease. This introduces the possibility of patients suffering from Periodontitis at an increased risk of COVID-19 related adverse outcomes, possibly adding, after due clinical validation, to the existing list of conditions predisposing to developing severe forms of the disease.

REFERENCES

1. Cox MJ, Loman N, Bogaert D, O'Grady J (2020) Co-infections: Potentially lethal and unexplored in COVID¬19. Lancet Microbe 1: e11.
2. Kilian M, Chapple I, Hannig M, Marshet P, Meuric V, et al. (2016) The oral microbiome - An update for oral healthcare professionals. Br Dent J 221: 657-666.
3. Chakraborty S. (2020) Metagenome of SARS¬Cov2 patients in Shenzhen with travel to Wuhan shows a wide range of species ¬ Lautropia, Cutibacterium, Haemophilus being most abundant ¬ and Campylobacter explaining diarrhea. OSF Preprints
4. Scannapieco FA. (1999) Role of oral bacteria in respiratory infection. JPeriodontol 70: 793–802.
5. Gnanasundaram N. (2010) Key to diagnose HIV/AIDS clinically through its oral manifestations. J Indian Acad Oral Med Radiol 22: 119-125.
6. Kroidl A, Schaeben A, Oette M, Wettstein M, Herfordt A, et al. (2005) Prevalence of oral lesions and periodontal diseases in HIV-infected patients on antiretroviral therapy. Eur J Med Res 10: 448-453.
7. Feller L, Lemmer J. (2008) Necrotizing periodontal diseases in HIV-seropositive subjects: Pathogenic mechanisms. J Int Acad Periodontol 10: 10-15.
8. Murray PA, Winkler JR, Sadowski L. (1988) Microbiology of HIV-Associated Gingivitis and Periodontitis. Littleton, MA: PSG Publishing.
9. Sjögren P, Nilsson E, Forsell M, Johansson O, Hoogstraate J (2008) A systematic review of the preventive effect of oral hygiene on pneumonia and respiratory tract infection in elderly people in hospitals and nursing homes: Effect estimates and methodological quality of randomized controlled trials. J Am Geriatr Soc 56: 2124-2130.
10. Mori H, Hirasawa H, Oda S, Shiga H, Matsuda K, et al. (2006) Oral care reduces incidence of ventilator-associated pneumonia in ICU populations. Intens Care Med 32: 230-236.