Volume 1 • Issue 4 • 2017

Editorial

Oral Health and Dentistry

ISSN: 2573-4989

PERIODONTAL DISEASE AND DIABETES MELLITUS : A LONG WAY TO UNDERSTAND THE BI-DIRECTIONAL WAY

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Received: August 15, 2017; **Published:** August 19, 2017

Volume 1 Issue 4 August 2017

Periodontal disease (PD) is an infection caused by bacteria present in the dental biofilm and it's responsible on pocket formation. It is characterized by an intense inflammatory infiltrate with presence of intense bleeding on acute and early stages. The prevalence of severe periodontitis is 10-15% in most populations [1]. In 1992, periodontal disease was identified as the sixth complications of diabetes mellitus (DM) by The American Academy of Periodontology & American Dental Association in 1992 and in the 1997 report of The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, periodontal disease was referred to as one of the pathologic conditions often found in adults with diabetes. [2,3]

The mechanisms of interaction between DM and PD disease remain unclear [4-6]. Many factors may contribute to this interaction, including age, DM duration, complications associated with DM, environment, genetic factors, and lifestyle. Metabolic parameters such as imbalances on glycemic control are directly related to bacteremia; inflammatory mediators, antigens and immunoglobulin in the serum are also involved. Bacteremia provokes alterations in the crevicular fluid and microvascular responses in the periodontal ligament that modify the host's collagen metabolism [7,8]. These alterations directly affect the perivascular *vasa vasorum*, possibly in a manner similar to microangiopathy of the kidney and retina in response to a hyperglycemic state. However, the importance of DM as risk factor on development of periodontal disease has been contested and found controversies in the literature, likely because some have grouped type1 and type2 diabetes patients and/or different age groups in the same study subjects. [9-13]

Gingivitis and periodontitis as inflammatory entities in diabetes mellitus are strongly studied, but the real mechanisms that elucidated this two-way condition are still unclear and a controversial topic. The literature supported that many parameters on inflammation responses are involved as hyperglycemia imbalances that provokes systematically alteration on polymorphous nuclear chemotaxis and tumoral necrosis factors liberation that affects directly on vasa vasorum metabolism in peripheral vessels of periodontium with AGes and RAGEs. The exposure timeline represented by association with age and time of diabetes duration, and association with poor metabolic control can lead this process in patients with type2 DM and a major teeth loss and higher prevalence of retinopathy. In summary, association between age, poor metabolic control and long time duration of diabetes in association with poor oral hygiene since young ages could lead from early stages of gingival inflammation to a possible irreversible aggressive status of periodontitis and establish a two-way relationship between diabetes mellitus and periodontal diseases. Further rigorous study is necessary to establish unequivocally that treating periodontal infections can contribute to glycemic control management as a target to reduction of burden of diabetes complication.

Citation: Marcello Gaieta Vannucci. "Periodontal Disease And Diabetes Mellitus : A Long Way To Understand The Bi-Directional Way". *Oral Health and Dentistry* 1.4 (2017): 185-186.

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