Is A Chronic Periodontitis Patient Likely To Be An ABO Secretor?

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Key words
Secretary ABO blood group, chronic periodontitis, saliva.

Abstract
Chronic periodontitis is the most prevalent oral inflammatory disease that affect teeth supporting tissues in response to microbial infection. A secretor is aterm applied to anyone who secret his/her blood type antigen into their body fluids as saliva in the oral cavity. Forty eight males were participated in the present research. Their age ranging from 35 to 55 years. The clinical periodontal parameters included Plaque index (PLI), Gingival index (GI), bleeding on probing (BOP) and Probing pocket depth (PPD) were examined also. The secretory ABO blood groups from saliva by using Blood Typing Kit # 11 were assessed. After that the patients were divided into secretors and non-secretors and the comparisons were done between them. There was highly significance difference between secretory and non-secretory chronic periodontitis patients in all periodontal parameters (PI, GI and PPD)**,** from the total sample the Proportional ratio for secretory chronic periodontitis group was 58.33% while the proportional ratio for the non-secretary chronic periodontitis was 41.66%. Group O is the predominant type of ABO for both groups. Chronic periodontitis is more likely to occur in secretor ABO more than non-secretor ABO.

Introduction

Periodontal disease (PD) is the most prevalent inflammatory oral disease, affecting tissue supporting structures and in response to microbial infections relies within dental biofilms. [1] In general, PD begins with gingivitis, which is an inflammation of the marginal periodontal tissues without loss of the clinical attachment. However gingivitis may and may not develop further into PD. this depends on the bacterial virulence factors together with the immune response for the host. [2]

The severity of periodontitis could be diagnosed on the basis of its typical clinical parameters. These include periodontal probing pocket depth, of many salivary conditions, including periodontitis,

Clinical attachment level and amount of gingival bleeding. Analysis of saliva as an important laboratory test for the evaluation of many salivary conditions, including periodontitis, has attracted periodontists'attention during the last few decades [3] The secretion of ABO antigens into saliva may interfere with the attachment ability of bacteria to the tooth surface; this is because the surface lectins found on bacterial cell surface and used for bacterial bindings are ABO spesific.Also, non-secretors tend to have lower levels of the immunoglobulin A (IgA) antibodies in their saliva, which may compromise their ability to keep bacterial counts low [4].

The secretor status is determined by detecting the salivary level of H antigen. In secretors, the H antigen can be detected from saliva while in non-secretors H antigen will be absent in saliva. The

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advantages of detecting the blood groups from saliva, as well as the secretor status, are plentiful[5].

The aime of this research to answer the question: is a chronic periodontitis patient likely to be an ABO secretor? Although one can't chang the inherent status of the body but the findings may help in the treatment plan for periodontitis.

Materials and method:

Study samples:

Forty eight males were participated in the present study their age ranging (35-55) years. They were from attendants to department of periodontics, College of Dentistry University of Baghdad. All subjects with no history of systemic disease and had not received previous periodontal therapy or taken antibiotics, immunemodulatory or anti-inflammatory medications within the last 3 months. Consent was taken from each subject.

Collection the saliva

2-3 hours after breakfast, five ml UN stimulated saliva samples of the two groups were collected by drooling method. Collection of saliva was including their agreement to enroll the study and after thoroughly rinsing the mouth with water. then saliva collected in a plane tube, centrifuged 5 minutes at 4000 rpm, The clear supernatant was separated by micropipette to be stored in plane tubes at (-20 C̊) till being assessed.

Periodontal assessment

The periodontal examinations were performed and recorded on four sites (mesial, distal, buccal/labial and lingual/palatal) for all teeth except the third molar, The periodontal parameters included Plaque index (PLI) [6,] Gingival index (GI) [7,] Bleeding on probing (BOP) [8] and Probing pocket depth (PPD)[9,].

Detection of ABO salivary secretors

Blood Typing Kit # 11: Blood Typing Using Saliva Student Manual .the procedure was according to the method used by "Suha T. Abd (2015)" [10,]

1-Following addition of tubes containing saliva into the beaker and in upright position in the rack in boiling water bath this step help to denature both bacterial and salivary enzymes .After that the saliva will be diluted with saline .for each tube containing diluted saliva , one drop of anti-A serum will be added and shacked and left for 15 min.then add group A red blood cell to each tube, stand for 5 min.then centrifuged at 3500rpm/20 sec.after that check the presence or absence for the clumping RED BLOOD CELLS

2-These steps will be repeated for anti-B and anti-H serum and group B and group O red blood cell

Statistical Analyses

All statistical analysis of the data performed using (SPSS. Inc, version 14) descriptive statistics include (mean, standard deviation and median. the following levels of significance were applied for statistical evaluations

Results:

Twenty eight of the total samples were secretary ABO blood group chronic periodontitis while Twenty were non-secretary ABO blood group chronic periodontitis for the secretory group the proportional ratio was 58.33% while the proportional ratio for the non-secretory was41.66% this results show in table 1

Table 2 show the descriptive statistics for clinical periodontal parameters (PLI, GI, and PPD) for two study groups (Secretory chronic periodontitis group) and (Non secretory chronic periodontitis group).This table revealed increase the mean and standard deviation in PLI and GI for the Non secretory chronic periodontitis group while decrease in PPD for the same group than the other group (secretory chronic periodontitis group).Statistical difference between secretory and non-secretory chronic periodontitis groups was obvious in table3 where highly significance difference between two studied groups in all periodontal parameters (PI, GI and PPD), that was measured in the two groups. Table 4 revealed distribution of ABO blood group for secretory and non – secretory chronic periodontitis groups where is the O blood group is the most predominant type of blood group for the two studied groups.

Discussion:

Only a few studies have investigated the relationship between ABO blood group and periodontal disease especially secretor ABO blood group.Many workers [11, 12 and13] have studied and confirmed the presence of ABO blood group agglutinins in saliva.

Haemagglutinins are more stable in blood stains than in stains of saliva because of the presence of higher concentrations of various salts and a much greater buffering capacity than saliva [14].The ability to secrete or the inability to secrete soluble ABO antigens has no known effect on the general health of the individual although it may be a useful tool in the hands of the forensic scientist. Determining the secretor status of a person,one can predispose certain conditions and can assess to introduce different preventive measures .

Frias and Lopez[15]concluded that there is no association between secretor status of ABO blood group and juvenile periodontitis. In this study the secret or chronic periodontitis ratio was 58.33% and the non-secretors chronic periodontitis ratio was 41.66% this results in contrast to the results of Sylvia Devi et al [15] in 2015 in which subjects (49.5%) were secretors and subjects were non-secretors (50.5%) and the difference is statistically significant this difference may be due to sample number of the study but the results is agree with this study in the blood groups, highest number of secretors was observed in 'O' group, whereas the least number of secretors were observed in group 'AB' for the non-secretor the most blood type was O blood group followed by B blood group then AB blood group and finally A blood group. This study is not compared with other study because this study may be the first study in this felid.

Table 1: numbers and proportional ratio for secretary and non –secretary chronic periodontitis groups

Secretary chronic periodontitis group	Non secretary chronic periodontitis group	Total number
n= 28	n = 20	n = 48
58.33%	41.66%	99.99%

Table 2: Descriptive statistics of the clinical Parameters for all studied groups

Variables	Secretory chronic periodontitis group		Non secretory chronic periodontitis group	
	Mean	±S.D.	Mean	±S.D.
PLI	1.16	0.33	1.56	0.57
GI	1.19	0.36	1.58	0.53
PPD	4.87	1.35	4.72	0.68

Table 3: Statistical difference between the clinical parameters for the two studied groups.

Clinical parameters	Secretory chronic periodontitis group	Non secretory chronic periodontitis group	t-test	Sig.
PLI	1.16 ± 0.33	1.56 ± 0.57	9.90	0.000
GI	1.19 ± 0.36	1.58 ± 0.53	7.76	0.000
PPD	4.87 ± 1.35	4.72 ± 0.68	-14.71	0.000

Table4: Distribution of ABO blood group for secretory and non –secretary chronic periodontitis groups

ABO Blood group	Secretory chronic periodontitis group	Non secretory chronic periodontitis group
Group O	n= 18	n= 8
Group A	n= 8	n= 1
Group B	n= 1	n= 7
Group AB	n= 1	n= 4

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