

Abo Blood Groups and Their Relationship to Periodontitis

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Abstract

Oral cavity contains many different surfaces colonized by prokaryotic and identified more than 700 species, the tooth decay and gum disease diseases affecting patients and represent the main problem is the most important public health (MacDonald,2015), Periodontitis is a chronic inflammatory disease, in which imbalances occur between host and microbial interactions. This is the key to the onset and development of the disease (Alvarez et al., 2018). Diabetes is one of the most common chronic diseases and in a continuous numerical increase. Diabetes has been defined as a group of metabolic disorders characterized by hyperglycemia caused by defects in insulin secretion, insulin function or both, hyperglycemia leads to The prevalence of multi-system damage, including affecting oral tissues (Cicmil et al., 2018) , In the cases of diabetic patients, the functions of immune cells, including neutrophils, monocytes, macrophages, alteration of commitment, chemical attraction and phlegm, often inhibit sufficient defense against bacteria in the gingival sinus and greatly increase the destruction of the gingival membrane . In diabetics, although neutrophil function is reduced, there may be an excellent response to the cell line of the monocytes / phagocytes when confronted with any bacterial antigens (Kripal, 2017).

Gingivitis occurs in the oral cavity that affects the supporting tissues of the teeth and alveolar bones, gradually leading to tooth loss and can affect the individual's quality of life related to oral health (Kobayashi et al., 2016). One of the most common bacterial infections of gingivitis and tooth decay is Streptococcus sp. (Fazza, 2013). One of the most responsible types of gingivitis is Viridanc group Streptococci (VGS). The causes of gingivitis and cellular motility increase insulin resistance by inhibiting the inclusion of glucose in smooth muscle cells (Makiura et al., 2008 and also plays an important role in tissue breakdown / repair (Zhang et al., 2017). The cause of chronic gingivitis is multivariate, resulting from the interaction complex between pathogenic microbes, host immune responses, and genetic and environmental factors (Satpathy et al.2015 , Banjar and Alshammari, 2014).

2. Patients and Methods

2.1 Sample collection

A total of 100 swabs of patients were divided into two groups, the first group of patients with periodontitis and the second group of patients with periodontitis with diabetes. Where the samples were collected from the auditors of the dental center and the specialist clinics in the Baghdad Road in Kirkuk governorate at the rate of (50) patients from the first group, and (50) patients from the second group for the period from 1 September 2017 to 30 January 2018. The infection included both sexes and With different ages.

The samples were taken with a Swab sterile cotton scanner from the infected gum area. The samples were then transferred to the laboratory of the Faculty of Science within a period not exceeding two hours for the purpose of transplantation, purification and diagnosis. Some biochemical tests were carried out at the Public Health Laboratory in Kirkuk.

2.2 Hematological parameters

Blood group test & Rh factor where three drops of patient blood were placed on a glass slide. A drop of anti-A antibody was added to the first droplet, as well as a second droplet of anti-B antibody and a third drop of anti- D antibody. The drops were mixed with wooden chopsticks, and after 1-2 minutes the result was read through the dribbling or non-emergence.

Count Blood Counting (CBC), where total white blood cells (WBC), percentage of blood cells (P.V.C), hemoglobin (Hb), and platelets (pletetes) were counted. This is done by the auto-analyzer hematology, where 300 microliters of blood drawn in the EDTA tubes pre-placed on the mixing device are withdrawn. This blood is withdrawn by the needle of the device, after which the result is read in a form by the device.

3. Result

3.1 microbial diagnostic

94 gram positive bacterial isolates were diagnosed with 55 isolates of gingivitis and diabetes and 39 bacterial isolates of gingivitis only, including Streptococcus sp. And Staphylococcus sp. And Enterococcus sp. , And 14 gram negative bacterial isolates were diagnosed with 10 isolates of gingivitis and diabetes group and 4 isolates from gingivitis group only.

3.2 Evaluation of ABO Blood group

The study samples	Total	ABO Blood group															
		O				AB				B				A			
		-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Periodontitis with diabetes	50	1	2	20	40	2	4	4	8	4	8	10	20	2	4	7	14
Periodontitis without diabetes	50	1	2	18	36	3	6	4	8	5	10	7	14	1	2	11	22

Table 1.

3.3 Evaluation of Hematological parameters

Table 2.

parameters	Periodontitis with diabetes		Periodontitis without diabetes		Control		P value**
	Mean	95%CI*	Mean	95%CI*	Mean	95%CI*	
WBC 10 ³ ×(ملم ³ دم) (خلية)	8.507a±1.769	7.808-9.205	7.407b±1.069	6.708-8.105	5.037c±0.588	4.081-5.994	
HB g/dl	13.200 a±2.839	11.895-14.505	12.967a±2.218	11.662-14.271	14.250 a±2.240	12.463-16.037	
PCV %	40.27a±5.09	36.42-44.11	40.293a±2.987	36.447-44.140	45.26 a±14.13	40.00-50.53	
Platelates 10 ³ ×(ملم ³ دم) (صفائح)	238.7a±59.6	201.3-276.2	236.7a±53.7	199.2-274.1	264.5a±112.4	213.2-315.8	

Discussion

The results show that Streptococci is one of the most isolated and common types of gingivitis, which is common and plays an important role in dental necrosis and some oral infections. The results are consistent with Abd (2013) and Hadi et al. (2012), And this contradicts the findings of Al-Abdul & Hussein (2017) and Jalal et al. (2017) that Staphylococcus bacteria are the most common in gingivitis. S. mutans is the highest percentage of greenish nodules that cause gingivitis in many previous studies (Abd, 2013). This contrasts with (Al-Abdul & Hussein, 2017) where S. anginosus is the

highest percentage of *S. mutans*, Streptococci is a species that creates opportunistic infection by other groups of the genus Streptococci that are present on the nose, skin and the gut (Whary et al., 2015). It is also the main cause of acute hospital infections (Hetem et al., 2017). The reason for this spread in non-native countries is that they possess fast resistance mechanisms, Of plasmids through conjugation and transformation, as well as having surface antigens and enzyme enzymes that help them penetrate different body tissues as well as in cluster bacteria (Von et al., 2016; Rogers, 2008)

In Table 1, the highest incidence was found in the first group (gingivitis group with diabetes) of the blood group O (21%) followed by the blood group B (14%) compared to the blood group A (9% 6%). Followed by group A (12%), group B (12%), and AB group (7%). The results were similar to those found in Habeeb et al. (2014), where 41.86% of the patients were from group O, and only a few studies have shown the relationship between ABO and gum disease. Gawrzewska (1975) found that individuals with blood group O have greater susceptibility to gingivitis.

Table 2 shows that there are no significant differences in the measurement of hemoglobin level, CFR and platelet count, which are consistent with previous studies (Prakash et al., 2012) (Anumolu et al., 2016) (Kumar et al. al., 2014) suggesting that hemoglobin, the rate of plasma blood cells and platelets have no significant role in gingivitis. The total number of white blood cells showed a significant increase in diabetic patients with gingivitis and the group of patients with gingivitis only. These results are consistent with Kumar et al. (2014) (Al-Rasheed, 2012). The total count of white blood cells is due to the increase in polymorphonuclear cells, which contributes significantly to gingivitis (Sambashivaiah et al., 2010). It has been assumed that white blood cells may be more sensitive to stimulation by gingivitis This may help activate white blood cells (Al-Rasheed, 2012) which are considered to be dangerous factors Vascular disease, injury (Kumar et al., 2014).

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