

*Original Research Article*

**Study of IgA Concentration in Gingivitis Patients**

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**Abstract**

Fifty gingivitis patients were diagnosed by dentist and ten normal subjects were elected as controls. Gingivitis patients and controls were investigated for serum and salivary IgA determinations. In which, blood and salivary samples were collected from both of patients and controls. Sera, saliva and salivary proteins in five microliter amounts per each of which were applied into low and high level anti IgA partigens. The patients sera have shown elevated IgA concentration means which approximate one fold increase than that of controls. Male and female patients were of comparable serum IgA concentration levels. Individual variation plot were found of multipeak type. The age group 30– 34 and 35 – 39 years were showing optimum concentration means . Saliva and salivary concentration means were showing nullified IgA concentrations in both patients and controls. IgA may interacts with are oral available antigens (microbial ) and fix complement thus forming complex giving nullified IgA concentrations.

**Key Words:** gingivitis, serum, saliva.

**الخلاصة:**

شخصت خمسون حالة اصابه بالتهاب اللثة ودرست مصول ولعاب المرضى لقياس تركيز الضد وكذلك لعشره عينات من الاصحاء في الدراسه حيث اخذت عينات الدم واللغاب منهم ووضعت بحجم 5مايكروليتر في العده المستخدمه لقياس تراكيز الاجسام المضادة من النوع. اظهرت الدراسه زياده في انتاج الضد في امصال المرضى ولكلا الجنسين مقارنة IgA بالاصحاء وتبين ان هناك فروقات فرديه لانتاج الضد في امصال المرضى بالتهاب اللثة حيث سجلت زياده عاليه في تراكيز للضد المذكور للاعمار 30-35 سنة والاعمار 35-40 سنة عن باقي التراكيز لبقية الاعمار لم تظهر الدراسه لعينات اللغاب المرضى والاصحاء للضد النوع ولتكوينه المعقد المناعي مع المتهم والمنتج لمهاجمته الميكروبات المسببه للتهاب IgA في نسيج اللثة.

**الكلمات المفتاحية :** التهاب اللثة, الامصال, اللغاب.

**Introduction**

Stomium is the solitary site for the food and drink intake and reservoir for variety of endogenous bacterial antigens and the port of entry for several exogenous bacterial antigens into the elementary. Respiratory system being also considered as the compartments of the common mucosal immune system [1,2]. This stomial compartment is supported by efficient elements like mucous membrane, tonsils, salivary glands, gingiva and periodontium [3]. Such structural supports

are being the corner stone for the local stomial immune responses [4]. Researcher have been report for the role of mucosal and systemic immune responses in dental and gingivites disease, in normal state oral microbes do not cause disease and swallowed away with saliva into the distal part of the gut but when infections they are forming the source of antigens that stimulate both mucosal and immune responses with characteristic secretion IgM as primary immune response then class switched to IgA or IgG [5,6]. The

objective of the present work was aimed to determination serum and salivary IgA concentrations among gingivitis patients.

### **Materials and Methods**

#### **Patients and sample collection**

Periodontitis patients were diagnosed by specialized dentists in periodontal clinic unit of Dentistry college in Babylon University.

Fifty gingivitis patients from both males (24:50%) and females (26:50%) were diagnosed by the specialized dentist [7]. Ten apparently normal mouth hygiene subjects were elected as control.

Blood samples with ant anticoagulants in a rate of 5 ml in plane tubes were collected from both of patents and controls [8].

Salivary samples were collected from both the gingivitis patients and controls as recommended Salimetrics [9]. Salivary protein was separated using poly ethylene glycol as protein precipitant [10,11].

Partigens diffusion plate containing low level and high level anti IgA ready-made, were used in sera, saliva and salivary proteins [8].

Mean, median, range as well as, stand errors were calculate as in steel [12].

### **Results**

#### **1. Age-Group Distribution:**

The age group distribution have showing dominance of gingivitivitis patients for the age groups 30-44 years [Tabe-1]

#### **2. Serum IgA :**

The serum IgA concentration means were 507.465, 477.531 and 492.498 mg/dl for male, female and total for gingivitis respectively. As compared to 233.8, 187.33 and 210.65mg/dl for male female and total for controls respectively . Gingivits were showing higher levels than controls. There were comparable male/female patients for serum IgA concentrators [Table- 2]. It was evident that both of saliva and salivary proteins were showing negative IgA responses

#### **3. Age – Group Wise Variations**

On, passing from the age group 25-29 at 40-44 y, there were mild variations in the

concentration means of serum IgA. However the age groups 30-44 and 25-39 were showing higher concentration means there others [Table-3].

#### **4. Individual Variations**

The individual variation graph plot of serum IgA concentration levels were of multipeak type. Such finding may inflects heterogeneity of immune responses among gengivitis patients [Figure-1].

### **Discussion**

Exogenous and /or endogenous potential oral pathogens which drained via lymph after their antigens processed and trigger mucosal and systemic immune responses [1,13,14,15]. The local infections of gingival mucosal surfaces may mediate continual chronic exposure to the various grades of antigen derive from the dental pathogens [3,4] such antigens may induce local and systemic immune responses with an early response of IgM type then class switched to; via two mechanisms first the gene rearrangement, gene exclusion, gene arrangement and the second via cytokine influences [4,5,6]. Rise up of an IgA serum concentration to level higher as a responses than those of normal control subject may bear and indication to a chronic infection state [2,3, 4,13]. Such IgA responses were with marked individual variation as seen from the multi peak plot due immune response heterogeneity [16]. So far the salivary IgA is concerned the mullified mucosal IgA concentration may be due to either one or more of the followings: 1-antigen – antibody – complement complex deposition in soft gum tissue [17] 2-and / or residual daily output of mucosal IgA [15] . 3-oral tolerance [18].

Thus on conclusion; the investigated patient have marked circulatory IgA which might be attributed to chronicity state of the tested patients. Negative mucosal IgA in the oral cavity can be in the oral cavity can be interrupted due to immune complex forming and deposition in the gum.

**Table 1 :** Age –Group distribution of gingivitis Patients

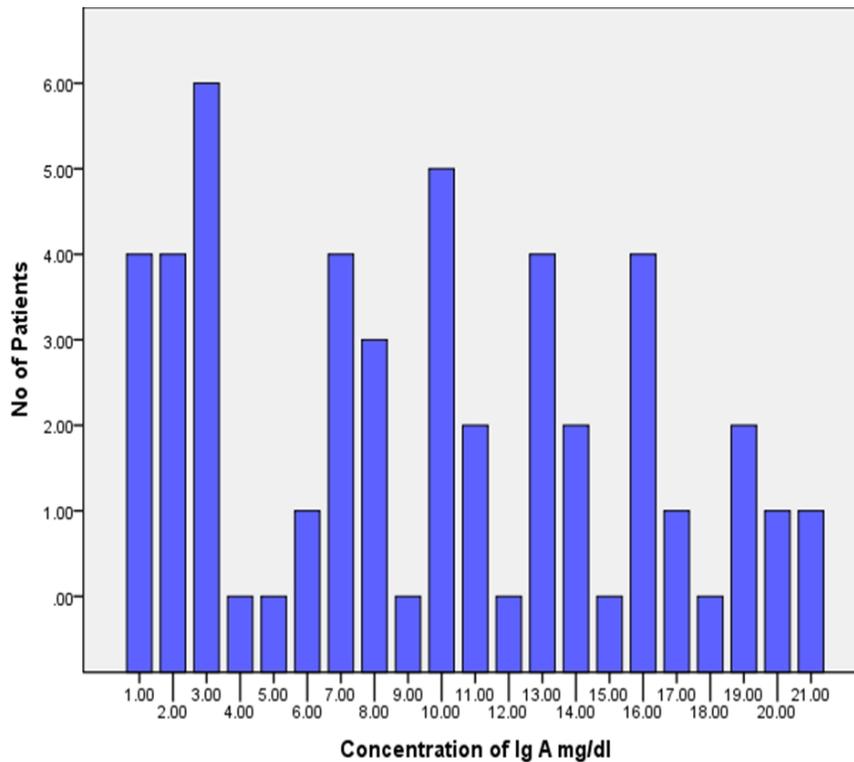
Age Group	Gender		
	Male	Female	Total
20-24	5	3	08
25-29	4	3	07
30-34	5	7	12
35-39	5	7	12
40-44	5	5	10
45-49	-	1	1.0
<b>Total</b>	<b>24</b>	<b>26</b>	<b>50</b>

**Table 2 :** Serum IgA conc. Means, median ranges among gingivitis patients

Entity / Gender		Serum Concentration mg/dl		
		Mean	Median	Rang
Patients	Male	501.465	413.3	3.99.8-574.2
	Female	477.531	498.3	399.8-589.6
	Total	492.498	427.1	399.8-589.6
Control	Male	233.8		
	Female	187.33		
	Total	<b>210.65</b>		

**Table 3 :** The age Group Wise effect on serum IgA among gingivitis patients

IgA mean concentration mg /dl			
Age group	Male	Female	Total
25-29	455.01	408.9	441.97
30-34	513.65	476.1	499.9
35-39	492.65	512.25	494.6
40-44	493.2	446.805	470.002
Control	233.8	187.33	210.65



**Figure 1:** Individual variation effects

1=340-399	6=440-449	11=490-499	16=540-549
2=400-409	7=450-459	12=500-509	17=550-559
3=410-419	8=460-469	13=510-519	18=560-569
4=420-429	9=470-479	14=520- 529	19=570-579
5=430-439	10=480-489	15=530-539	20= 580-589
			21=590- 599

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