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THE CHANGE IN SOME IMMUNITY PARAMETER AS A RESULT OF GINGIVITIS INFECTION IN SMOKING PATIENTS

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Abstract

In the current study collect 18 samples from smoking patient with gingivitis and 7 samples from healthy people as control (age 20-25 years) to study parasites which found in mouth spatially in gingivitis and effected on IL-2 and IL-4, IgA and IgG we found parasite *Entamoeba gingivalis* and *Trichomonas tenax*. 10 samples have Trichomonas *tenax* and 8 samples have *Entamoeba gingivalis*. In other hand we found significant differences at 0. 05 in IL-2 (Mean =20.62727 infected with *Trichomonas tenax*, Mean =19.31818 infected with *Entamoeba gingivalis*, control =11.4), IL-4 (Mean =509.3636 infected with *Trichomonas tenax*, Mean=235.2727 infected with *Entamoeba gingivalis*, control=7), IgA (Mean =264.50 infected with *Trichomonas tenax*, Mean=243.50 infected with *Entamoeba gingivalis*, control = 7) and IgG (Mean =975.00 infected with *Trichomonas tenax*, Mean = 1024.00 infected with *Entamoeba gingivalis*, control = 7) which mean this parasitical infection increase periodontitis additional to smoking. Gingivitis may happened by parasites not by bacteria we found IgG level had been decreased in while IgA, IL-2 and IL-4 levels were increased in serum during infection with parasite.

Key words: *Entamoeba gingivalis*, *Trichomonas tenax*, IL-4 , IL-2, IgA and IgG.

Introduction

The mouth is the first member affected by smoking; especially that it is directly exposed to the chemical component of the cigar and the component of the tobacco. The affected tissues are those thin, laminated tissues of the tongue, the roof of the mouth, the floor, the cheeks, gums and lips, as well as the teeth (Karasneh and *et al*., 2017).

The consequences of smoking are tentative and troublesome and can be summed in the following: Oral cancer, surrounding tissues, chronic ulcers and microbial infections (bacteria, parasite & fungi), chronic gum disease, which is a major cause of tooth loss, decreased taste and smell sensation and lack of salivation rate, discoloration and change of color of teeth and tongue, the emission of odors odious from the mouth, lack of success rate of some dental treatments such as dental implants and evaluation and the possibility of complications such as osteomyelitis when the tooth is removed (Jasim *et al*., 2016).

Gingivitis, sometimes called gum disease or periodontal disease, describes cases of bacterial buildup in the oral cavity, which in the end, if untreated, can lead to loss of Teeth, as a result of damage to the layer that encapsulates the teeth (Jabuk *et al*., 2015).

The gingivitis cause by parasite infection the parasite such as *Entamoeba gingivalis* and *Trichomonas tenax* was responsible for oral infection. *Trichomonas tenax* is an anaerobic parasite contaminates oral depression of human. Number of studies demonstrates the connection between *T. tenax* and unending periodontitis (Hayawan *et al*., 1992). This parasite can Transmission through droplet spray and saliva *Entamoeba gingivalis* one of *Entamoeba* species (Hussien *et al*., 2017).

The aim of study was isolated and identification of parasite from periodontal smoking patients with gingivitis and study the changes of some immunological parameters as a result of microbial infection.

Material and Methods

(A) Sample collection

25 swap from periodontics and 25 blood sample were collected from smoking patient with gingivitis (age 20-25 years) these samples taken to detect parasite.

(B) Isolation and identification of parasite

To detect parasite used wet mount, normal saline and eosin stain then prepared slide and finely examined directly under microscope (Jabuk *et al*., 2015)

(C) Immunological Study

Serum samples were collected from patients with periodontitis & from healthy individual as a control samples according to, to test immunological parameters including (IL-2, IL-4, IgG and IgA) according to the manual procedure of lab scien compand (china). (Chi-Cheng Tsai *et al*., 2007)

(D) Statistical Analysis

Statistical analysis (mean ± standard deviation) was done depending on SPSS

Results and Discussions

The result show that *Entamoeba gingivalis* and *Trichomonas tenax,* were types of parasites detected in samples as table (Karasneh *et al*., 2017) show infected with *E. gingivalis* highly ratio when comparative infected with *T. tenax*. This result was different from another research which refers to highly infected with *T. tenax* more than *E. gingivalis* (Chi-Cheng Tsai *et al*., 2007) while were closed to another research (Mehr *et al*., 2016) .

Table 1 : Number and ratio of positive samples parasites

Parasites	No. of positive sample	%
Entamoeba gingivalis	10	40
Trichomonas tenax	8	32
control	7	28
	25	100

Entamoeba gingivalis is protozoan parasite that infects humans, and is opportunist which need to another microorganism to has infection; in this study, we believes that's smoking may be helped parasites and bacteria to infection; and determined some immunity parameters and comparison it with infection by *Entamoeba histolytica* and *Trichomonas tenix* because have be not found research for the same aim. We found IL-4 and IL-2 have be increased level in serum like another research which show increasing of IL-4 and IL-2 levels in serum because of infected with *E. histolytic* (Bansal *et al*., 2005). Similar the result obtain by (Chi-Cheng Tsai *et al*., 2007). Nonetheless, it is some way or another startling that inoculated CD8+ T cells could likewise secure. CD8+ cells are for the most part seen as middle people of insusceptible reactions against intracellular pathogens. Be that as it may, the wonder of cross-preparing, what's more, past work portraying an antigen-non-particular incitement of CD8 T cells by cytokines, for example, IL-2, IL-15 or IL-21 given provisional clarifications to how CD8 T cells may be enacted by *E. histolytica* antigens. Truth be told a past report demonstrated that PHA-invigorated CD8 T cells had coordinate amebicidal movement in vitro (Leippe, 1997), in this way it would hold any importance with perceive whether the CD8+ cells executed amebae by means of direct cytotoxicity or through enacting frill cells (eg. neutrophils and macrophages). In another study had been in Baghdad university show increased levels of IL-4 and IL-2 in infection with *T. vaginalis* like our results. (Shaker and Hussein, 2012) Table (2)

Table 2 : Show change of IL-2 and IL-4 in smoking patients

Parameters / Groups	IL-2 Mean	IL-4 Mean
Patient with *Trichomonas tenax* (10)	20.62727	509.3636
Patient with *Entamoeba gingivalis* (8)	19.31818	235.2727
control (7)	11.4	14

IgG level had been decreased and increasing IgA level in serum during infection by *E. gingivalis* and *Trichomonas tenax* as another studies (Kaur *et al*., 2008) similar the result obtain by (Onyido *et al*., 2011)

Our past examinations have demonstrated that T cell however not safe serum is adequate to exchange Gal/GalNAc lectin-gave insurance, and IFN-γ gives off an impression of being required for lectin or LecA-inspired defensive insusceptibility crosswise over three unique plans. Strangely, in spite of the fact that the LecA/alum definition evoked a Th2-type reaction portrayed by generous creation of IL-4 and prevalent levels of IgG1 isotype, IFN-γ remained a defensive factor and invulnerable correspond to the LecA/alum-based immunization. Notwithstanding IFN-γ, LecA additionally inspired antigen-particular IL-17 generation by splenocytes and mesenteric lymph hub cells, however how this cytokine may add to the insusceptibility to amebiasis stays vague (Abd-Alla *et al*., 2006). While IgA level was highest in serum identical to another research when infection with parasite. Increments in against Gal/GalNAc lectin IgA antibodies in post-ALA patients were related with freedom of consequent amebic diseases, exhibiting those patients built up a higher invulnerable responsiveness and kept up immunological memory (Ravdin *et al*., 2003). Then again, IgG levels have either defensive or non-defensive impacts on the vulnerability to amebic contaminations relying on significant IgG subclasses instigated by disease (i.e., IgG1 and IgG2 actuated by Th2 and Th1, separately) (Kaur *et al*., 2004; Bernin *et al*., 2014). As show in table (3)

Table 3 : Show change of IgA and IgG in smoking patients with gingivitis

Parameters / Groups	**IgA Mean**	**IgG Mean**
Patient with *Trichomonas tenax* (10)	264.50	975.00
Patient with *Entamoeba gingivalis* (8)	243.50	1024.00
Control group (7)	42	1250

Conclusions

Gingivitis is a non-destroyed disease infects around the teeth. Caused by parasites *Trichomonas tenax* and *Entamoeba gingivalis* and not necessary have by *porphytomonas gingivitis* bacteria.

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