Tissuetransglutaminas antibodies in male and female celiac patants,

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Abstract: The current study included knowledge of the level of anti-tissue transglotaminasTtg (Ab) of both types (IgA-IgG) for males and females celiac patients. The study was conducted in the Public Health Laboratory in Wasit province, where they were diagnosed with celiac disease using measuring the level of Ttg antibodies with both types (IgA), (IgG) by the ELIZA method. Then, the patients were divided into two groups. The first group included 35 male patients compared with another group that included 40 female patients, whose ages ranged from one year to more than 40 years for both genders.

The results were: Anti-tTg-Ab was significantly increase in both types (IgA and IgG) in both genders when compared with controls, with no significant statistical differences in the level of anti-tissue transglutaminas Ttg in both types(IgA , IgG) between the two groups, which was at 47.06± 13.23 , 49.94 ± 14.38 for IgA. And 88.34 ± 74.79, 98.91 ± 45.95 for IgG in males and females respectively. Tissue Transglutaminase antibody levels rise according to the degree of disease progression and degree of damage to the intestine due to sensitivity to gluten protein, but it did not depend on the gender of the patient.

Keywords: Tissuetransglutaminas antibodies , Cileac disease , Cileac patiants gender .

1- Introduction

Celiac disease (C.D) is an immune disease of the small intestine that affects people who are genetically predisposed to contracting it as a response to digestion of the protein gluten found in wheat, barley and oats (1). The antigliadin antibodies (AGA), tTg antibodies and endomysial antibodies (EMA) used before the di-

agnosis by biopsy (5,6). The IgG antibody test is used when the IgA antibody appears to be very low in the serological test, and the tTg or EMA antibody test helps to determine whether the biopsy of the small intestine is needed or not, if the level of IgG antibodies is low or negative and the persistence of the typical symptoms of the disease is continuing , in this case the diagnosis is resorted to by biopsy (2,7).

And because most people with C.D. have a deficiency of IgA immunoglobulin, therefore it is not relied upon in diagnosis, but the diagnosis of disease is confirmed by using IgG immunoglobulin, and serological diagnosis by detection of EMA antibodies is less sensitive than the diagnosis of anti-tissue transglutaminase -Ab but It is characterized by its high accuracy and specificity, however, this type of diagnosis is not used or it is less used than other serological examinations because it is done by immunofluorescent, and thus it requires time and cost more than diagnosis by ELIZA (8,9).

2- Tissue transglutaminase (tTg) is an immunostimulant for celiac disease:

The action of tTg enzyme begins when gliadin enters the epithelial layer of the intestine into the middle plate, Lamina propria, in people who have DQ2 or DQ8 positive and under conditions predisposing to infection, such as other diseases of the intestine that cause a change in the internal environment of the intestine and cause an increase in the permeability of the epithelial layer and then Increased penetration of gliadin into the Lamina propria of the small intestine (11). The action of tTg enzyme is initiated by removing the amine group from the gluten peptides and becoming demineralized and the Tissue transglutaminase / glutin complex is formed which binds to the HLA- DQ8 or HLA-DQ2 lymphocyte antigen receptors on the APC-antigene presenting cell and the APC cell antigen present the complex to The immune cells of the small intestine CD4 + T, which distinguish it as a foreign body, are activated and begin to release inflammatory mediators such as interferon gamma INF-ɣ and tumor necrosis factor TNF (12). T-cells activate plasma cells and stimulate them to form antibodies to disease represented by tTg, AGA and EMA (9,13). Due to the lack of studies in Iraq on the relationship of celiac disease to the gender the current study aims to find out whether there is a relationship between the gender of the patient and C.D. by measuring levels of anti- tTg antibodies that used in diagnosing celiac disease.

3- Materials and methods

study design:35 male celiac patients were compared with 40 female patients after they were diagnosed by using the serological test and after the information of age, gender, history of disease, family history of the disease and gluten diet were collected. Patients with unknown celiac disease and who did not follow a gluten diet were selected. Venous blood was drawn from the two groups (males and females) and serum was separated using a centrifuge at 4000 rpm/5min.

3.1 The diagnosing of celiac disease:

The diagnosis was made by serological test using the German ELIZA technology manufactured by Human Corporation. The results of the test were based on the values proven in the kit's usage manual and were 18 ml / IU (10).

3.2 statistical analysis:

The SPSS version 24, was used to perform a T.test to compare patients groups(males and females) with a probability level ($P \leq 0.05$).

4- Results:

The results of the current study showed that there were no significant statistical differences in the levels of tTg antibodies in Table (1) and Table (2) when comparing their levels in males and females who were confirmed with celiac disease using serological test by both types IgA and IgG (Ab).

5- Discussion:

The results of the antitissue-transglutaminas Ab are in agreement with (14, 15). The reason for this is that tTg enzyme release does not depend on the gender of the patient, but rather is released in most tissues in which there is apoptosis and regeneration of tissue cells depending on the degree of damage in the small intestine. In C.D. this enzyme is produced from the epithelial layer of the affected small intestine tissue, Because it stimulates the binding of gluten protein to antigene presenting cell (APC) (2,4,17). Where it works to change the composition of gluten by removing the amine group from it and the gluten protein represents the basis for the work of this enzyme and is associated with it to be a complex that works as the immune activation of the disease and thus this enzyme is a catalyst for immune activation in celiac disease (3,18), which thus leads to the release of antibodies For the tTg enzyme, IgA antibodies are detected in the early stages of celiac disease, then the diagnosis is confirmed by using IgG in advanced stages of the disease, (5,6,1 6).

6- Conclusion

The current study concludes that the level of tissue-transglutaminase Ab does not depending on celiac patients.

7- Acknowledgements: I would like to thank everyone who contributed and participated in the completion of this research.

Table(1) : tissuetranseglutaminase (tTg - IgA) Ab U/ml) for male and female celiac patiants

tTg-IgA Samples	Age (Year)	Mean ± SD	t.value	P.value
male	(1-40 <)	05.44± 13.23	0.34	0.05>
female		49.94±14.38		

*significant difference at level ≤ 0.05.

* Represents adjusted numbers ± standard deviation.

Table(2) : tissuetranseglutaminase (tTg - IgG) Ab U/ml) for male and female celiac patiants .

tTg-IgG Samples	Age (Year)	Mean ± SD	t.value	P.value
male	(1-40 <)	98.91± 45.95	0.76	0.05>
female		88.34±74.79		

*significant difference at level ≤ 0.05

* Represents adjusted numbers ± standard deviation.

List of abbreviation :

A bbreviation	meaning
Ab	Anti body
APC	Antigene presenting cell
C.D.	Cileac disease
CD4	Cluster of differentiation 4
ELIZA	Enzyme-linked Immunosorbent Assay
HLA	Human leukocyte antigen
IFN-γ	Interferon-gamma
IgA	Immunoglobulin A
IgG	Immunoglobulin G
SPSS	Statistical Program for Social Sciences
Ttg	Tissu transe glutaminase

8- Reference

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