

SEROLOGICAL STUDY FOR SOME OF IMMUNE FACTORS ON THYROIDITIS PATIENTSZainab A. Fadhil^{*1}, Abd Alkader A. Mohamed² and Lekaa N. Abdulah³

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ABSTRACT

Abstract. thyroiditis disease is an autoimmune inflammationIt has genetic, clinical, pathological, and immunological features, and it goes through alternating phases of healing and relapse. The aim of this study was to assess the immunological status of some Iraqi Thyroiditis patients. The present study was conducted on a groups of patients. This study was conducted for a period from the beginning of October 2020 to the end of January 2021, as blood samples were collected from patients with thyroiditis, as well as healthy people from Baquba Teaching Hospital and Al-Batoul Hospital Education Feminine & Pediatric in Diyala Governorateaged 27 female and 3 males healthy participants included in this study as a control group. Their ages ranged between (18-45) years. Hyperthyroidism Group 25 female and 5 males patients. Their ages ranged between (23-60) years. Hypothyroidism Group 30 female patients. Their ages ranged between (21- 60) years. The research looked into the relationship between immunological detection of Immunoglobulin A cellular motility and the ELIZA technique. The current study's findings revealed a non-significant decrease in serum IgA level in hypothyroidism group (29.12 ± 2.67) ng/ml and when compared with the control group (42.46 ± 9.89) ng/ml while the result revealed that there were a significant ($P < 0.010$) increase in serum IgA level in hyperthyroidism group (61.84 ± 16.94)ng/ml. when compared with control group (42.46 ± 9.89) ng/ ml. These findings suggest that Immunoglobulin A might have a role in etiopatho genesis of Thyroiditis disease.

KEYWORDS: Hypothyroidism, Hyperthyroidism, Immunoglobulin A.**INTRODUCTION**

Immunoglobulin A (IgA) is an antibody that is required for mucous membrane immunological activity. In its secretory form, it is also known as sIgA. The total amount of IgA produced in conjunction with mucosal membranes outnumbers all other forms of antibody combined. Three to five grams per day are secreted into the intestinal lumen in absolute terms. This method is responsible for up to 15% of total immunoglobulin production in the body. (Brandtzaeg & Pabst, 2004; Fagarasa & Honjo, 2003; Macpherson & Slack, 2007).

IgA is divided into two subtypes (IgA1 and IgA2) and is available in both monomeric and dimeric forms. The secretory IgA form of IgA is the most common sIgA Tears, saliva, perspiration, colostrum, and secretions from the genitourinary tract, gastrointestinal system, prostate, and respiratory epithelium all include sIgA, the major immunoglobulin found in mucous secretions. It's also found in trace concentrations in the blood. The secretory component of sIgA keeps the immunoglobulin from being degraded by proteolytic enzymes., which allows it to live in the tough environment of the gastrointestinal tract while also protecting it from germs

that flourish in bodily secretions. (Delacroix, *etal*, 1982; Fagarasan & Honjo, 2003)

External secretions such as tears, maternal milk, colostrum, and saliva contain both IgA1 and IgA2, with IgA2 being more predominant than IgA1 in the blood. Polysaccharide antigens elicit greater IgA2 responses than protein antigens (Simell, *etal.*, 2006).

IgA1 and IgA2 are two isotypes of IgA. Both proteins are heavily glycosylated. IgA1 predominates in serum at 80%, but IgA2 levels in secretions are higher than in serum. 35% of the time is spent in secretions The proportion of IgA1 and IgA2 secreting cells in different lymphoid organs of the human body varies. (Simell, *etal.*, 2006; Maverakis, *et al.*, 2015).

To begin inflammatory reactions, IgA binds to the Fc receptor FcRI, also known as CD89 which is found on immune effector cells in the blood. The systemic vasculitis Henoch-Schönlein purpura is caused by IgA and complement component 3 (C3) deposition in tiny blood vessels (HSP). HSP affects the skin and connective tissues, as well as the scrotum, joints, gastrointestinal tract, and kidneys, and is particularly frequent in small

infants. It usually occurs after an upper respiratory infection and disappears within a few weeks as the IgA aggregation is excreted by the liver. (Rai, *et al.*, 1999; Snoeck, *et al.*, 2006).

MATERIALS AND METHODS

Subjects

This study was conducted for a period from the beginning of October 2020 to the end of January 2021, as blood samples were collected from patients with thyroiditis, as well as healthy people from Baquba Teaching Hospital and Al-Batoul Hospital Education Feminine & Pediatric in Diyala Governorate. After the diagnosis by taking laboratory analyzes TSH, T3, T4 and Specialist physician and divided into three study groups have been investigated. An informed consent was obtained from all patients.

Control Group: 27 female and 3 males healthy participants included in this study as a control group. Their ages ranged between (18-45) years.

Hyperthyroidism Group: 25 female and 5 males patients. Their ages ranged between (23-60) years.

Hypothyroidism Group: 30 female patients. Their ages ranged between (21-60) years. Collection of Blood Samples Three Samples were collected by drawing venous blood. Where (5ml) of blood was withdrawn by using plastic medical syringes after sterilization of the drawing area with ethyl alcohol at a concentration of (70%), and the drawn blood was placed in the test tubes, and the samples were left for (15) minutes at room temperature to avoid clotting. Then the serums were separated by a centrifuge for a period of (5) minutes at a rate of (3000 revolutions / minute). Then divide the serum into equal quantities (250 μ l) in small tubes (Eppendroff). And store it at a temperature (20 -C °) until use. Each section of the conserved serum was used once to avoid repeated thawing and freezing of the model. For the purpose of measuring the concentration level of Immunoglobulin A by using the sandwich ELISA test.

Assay procedure

The test was performed according to assay procedure Mentioned in the kit Human Immunoglobulin A ELISA in China. Shangha.

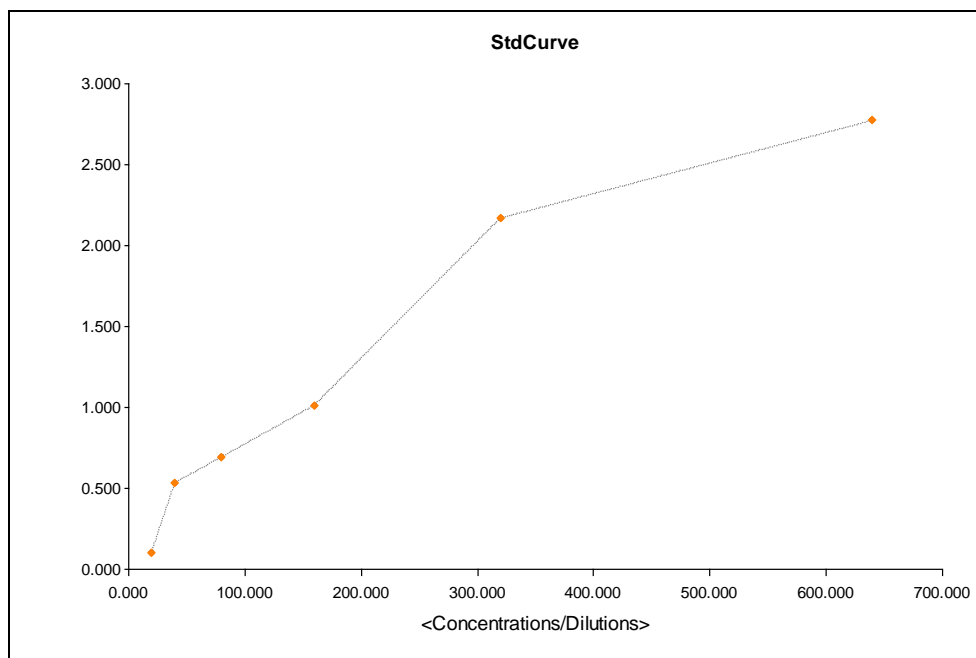


Figure (1-1) Standard curved for Immunoglobulin A(IgA)

Statistical analysis

The IBM SPSS computer program version 26.0 (IBM Corp, 2019). was used to analyzed the parametric data, mean \pm SE, Independent T-test was used to calculate the probability. While, WinPepi computer program version 11.65 (Abramson, 2011). was used to calculate the probability of the non-parametric data by using Chi-square test.

RESULTS AND DISCUSSION

The results in Table (1-1) showed that there was a non-significant decrease in serum IgA level in

hypothyroidism group (29.12 ± 2.67) ng/ml and when compared with the control group (42.46 ± 9.89) ng/ml while the result revealed that there were a significant ($P < 0.010$) increase in serum IgA level in hyperthyroidism group (61.84 ± 16.94)ng/ml. when compared with control group (42.46 ± 9.89) ng/ml.

Table (1-1): Serum concentrations of Immunoglobulin A in hypothyroidism, hyperthyroidism groups and with control group.

Groups	Gender	Mean \pm Std. Error of Mean	Probability
Control	Male	22.83 \pm 2.02	0.974
	Female	44.64 \pm 10.92	
	Total	42.46 \pm 9.89	
Hypothyroidism	Female	29.12 \pm 2.67	A
	Total	29.12 \pm 2.67	
Hyperthyroidism	Male	143.17 \pm 74.46	0.010
	Female	45.57 \pm 12.84	
	Total	61.84 \pm 16.94	

• Values are Mean \pm SE.

• Tukey test: Similar letters indicate that there are no significant differences, while different letters indicate that there are significant differences at the level of significance less than 0.05. immunoglobulin A (IgA) has a critical role in immune defense particularly at the mucosal surfaces (woof & Russell, 2011). While one study was disagree with the current study, when the level of IgA was higher in Hashimoto's thyroiditis compared with healthy subjects (Hadizadeh Riseh, *etal.*, 2017). A study found an elevated level of IgA in Graves' disease (Glynn & Thomson, 1972). Increased IgA concentration in inflammatory thyroid disorders (Dodig *etal.*, 2010). High level of IgA in patients with hypothyroidism and hyperthyroidism (Ludvigsson, *et al.*, 2014). A study inconsistent with the current study in low IgA concentration in Graves' patients (Dagdeviren Cakir, *etal.*, 2019).

IgA deficiency has also been linked to food allergies. Selective IgA Deficiency has no recognized etiology. It's possible that there are multiple causes, which explains why symptoms and health concerns differ from person to person. The deficiency of IgA is caused by a defect in the HLA genes (Hostoffer, *etal.*, 2017).

CONCLUSIONS

- 1- that there was an insignificant decrease in the level of IgA in the blood in the hypothyroidism group compared to the control group.
- 2- The results showed that there was a significant increase in the level of IgA in the blood in the hyperthyroidism group compared to the control group.

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