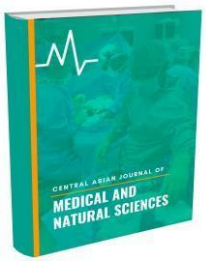

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Article

Assessment the Levels of IgM And IgG and A number of Hormones in Pregnant and Aborted Women With Toxoplasmosis in Kirkuk

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Abstract: The current study aimed to evaluate the infection of toxoplasmosis on some physiological variables in both pregnant and aborted women reviews for government hospitals and some women's clinics and compare them with healthy women in Kirkuk. The ages of (20 -40) years have been collected (90) blood sample of women which was distributed to three groups and at 50 samples of pregnant women, 20 samples of aborted women, 20 sample of healthy women, which were considered to be in the control group, the IgM and IgG rate was estimated, as well as the concentrations of both LH, progesterone and testosterone hormones were estimated. The results of the present study show a significant increase of) $p \leq 0.01$) in the rate of IgM in pregnant women (3.96±1.83) pg/ml and in aborted reached)5.03±1.41)pg/ml compared to the control group (0.68± 0.39) pg/ml. It also showed an increase in the IgG antibody rate for pregnant women (7.61 ± 2.39) pg/ml and aborted (2.85± 0.59) pg/ml compared to the control group) 1.72 ±0.78) pg/ml. The results of the present study showed a significant increase ($p \leq 0.01$) in the concentration of LH hormone in aborted women at a rate of (3.97 ± 0.24) IU / ml compared to pregnant women infected with toxoplasmosis gondii which reached (0.54 ±0.04) IU / ml and with the control group which reached (2.94±0.71) IU / ml. The results showed an increase in the concentration of the progesterone in pregnant women (15.4 ± 2.26) ng /ml infected with toxoplasmosis while there were no differences in aborted women (9.79 ± 1.97) ng /ml compared to the control group(9.35 ± 1.76)) ng /ml. The results of the current study also showed a significant increase in the concentration of testosterone in the aborted women (1.66 ± 0.11) ng /ml infected with toxoplasmosis compared to the pregnant group (0.12 ± 0.28) ng /ml and control group (0.56± 0.28) ng /ml.

Keywords: Toxoplasmosis, IgM, IgG, LH, Progesterone, Testosterone

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1. Introduction

Toxoplasmosis is one of the serious diseases that affects both humans and animals, which is caused by one of the types of primary animals, and it is a parasite toxoplasma gondii, which is from the Wahid Cell, the internal Obligate, meaning that he can only live within living cells that belong to the Apicomplexa class and the life cycle of this parasitic. the most complicated courses, if you require two types of host, the human being, the second host, the second host, which is the cat, the cat, the second host, which is the cat and members of the cotton family [1]. There are many methods used to diagnose the parasite toxoplasma gondii, including the investigation of the antibodies, whether it is the sharp IgM or the chronic IgG, as the infection of the parasite can lead to changes in the levels and abortion and who end with the death of the fetus [2]. It was found that the

infection of the disease of the weighing toxicity leads to changes in some hormones concentrations, including the yellow body hormone, which is excreted by the front lobe of the pituitary gland, which is one of the hormones associated with pregnancy that controls the periodic changes of the ovary [3]. Also, the infection of the disease of the weighing toxoplasma leads to unwanted changes, especially in the second and third week of pregnancy, and an increase in the concentration of the hormone progesterone [4]. Testosterone hormone is very sensitive to infection with the parasite, as its secretion increases with the occurrence of infection, but it is reduced after a long period of infection, and there are many indirect evidence that indicates high testosterone before birth due to chronic toxoplasmosis [5].

2. Materials and Methods

Study Design:

The current study samples were collected during the time period from of November 2023 to March 2024 for women, reviews for government hospitals and some women's clinics in Kirkuk Governorate, the samples of study were distributed to three groups whose ages ranged between (20-40) years old and collected 90 blood samples and divided into 50 samples Blood from pregnant women, 20 blood samples for aborted women, and 20 blood samples of health and control.

Blood samples

Blood samples were obtained from patients via a 5 ml venous withdraw and were then transferred into glass tubes that contained gel, as well as into vacuum tubes with gel and clot activator but no anticoagulant. The sample was left at room temperature for 30 minutes to coagulate, and the tubes were placed in a centrifuge for a duration of 15 minutes, rotating at a speed of 3000 rpm to acquire serum we performed immunological tests using ELISA and we estimated the concentration of hormones using FIA by Roche Cobas e411 for all study samples.

Statistical Analysis:

Statistical analyses of the results of the current study were conducted by Graph Pad Prisim using the statistical examination (One Way ANOVA test Kruskal-wallis test at a probability level ($P \leq 0.01$), while the Qi square statistical test was applied to the totals with qualitative values [6].

3. Results and Discussion

IgM antibody rate in the study groups

The results of the current study Table 1 showed an increase of ($p \leq 0.01$) in the IgM antibody rate in aborted and pregnant women, as the IgM antibody rate in pregnant women was (3.96±1.83) and in aborted it was (5.03±1.41) compared to the control group (0.68± 0.39) pg/ml. The reason for the importance of studying the level of IgM concentration in the serum of pregnant women is to distinguish between acute and chronic infection to take early treatment to reduce the risk of infection with the parasite Toxoplasma gondii and transmission to the fetus leading to the occurrence of cases of congenital malformation and miscarriage [7].

Table 1. IgM antibody rate in the study groups

Study groups	Number	IgM (pg / ml)	
		Mean	Standard deviation
Pregnant	50	3.96 b	1.83
Aborted	20	5.03 a	1.41

Control	20	0.68 c	0.39
P value		p≤ 0.01	

Different letters within the same row indicate significant differences (p≤ 0.01) between the totals.

IgG antibody rate in the study groups

The results of the present study show Table 2 significant differences (p≤ 0.01) for IgG for pregnant women (7.61 ±2.39) with toxoplasmosis and in aborted women (2.85 ± 0.59) compared with the control group(1.72 ±0.78) pg/ml.

Table 2. IgG antibody rate in the study groups

Study groups	Number	IgG (pg / ml)	
		Mean	Standard deviation
Pregnant	50	7.61 a	2.39
Aborted	20	2.85 b	0.59
Control	20	1.72 c	0.78
P value		p≤ 0.01	

Different letters within the same row indicate significant differences (p≤ 0.01) between the totals.

The reason for the high IgG antibody in the serum of infected pregnant women is that it is the only antibody that is transmitted from mother to fetus through the placenta, leading to a defect in the process of transportation through the placenta, which leads to its accumulation in the pregnant mother, as well as the lack of blood of the mother through the placenta to her fetus due to the tissue diseases of the placenta, as the presence of the antibody is necessary to protect the fetus until the maturity of the immune system is completed [8].

Concentration of corpus luteinizing hormone LH

The results of the current study show a significant increase (p≤ 0.01) in aborted women at a rate of (3.97 ± 0.24) Iu / ml compared to pregnant women with toxoplasmosis gondii which reached (0.54 ±0.04) Iu / ml and with the control group which reached (2.94 ±0.71) Iu / ml.

Table 3. Concentration of corpus luteinizing hormone LH

Study groups	Number	LH (IU / ml)	
		Mean	Standard deviation
Pregnant	50	0.54 c	0.04
Aborted	20	3.97 a	0.24
Control	20	2.94 b	0.71
P value		p≤ 0.01	

Different letters within the same row indicate significant differences (p≤ 0.01) between the totals.

The reason for the occurrence of miscarriage in women with toxoplasmosis may be due to the increase in the concentration of luteinizing hormone as a result of injury, as the increase in the secretion of luteinizing hormone affects the lining of the uterus and thus leads to miscarriage [9].

Progesterone concentration

The results of the current study, as shown in Table 4, showed a significant increase (p≤ 0.01) in the concentration of progesterone hormone in pregnant women (15.4±2.26) ng/ml with toxoplasmosis compared to aborted women (9.79 ±1.97) ng/ml and control group 9.35 ±1.76) ng/ml.

Through the results, we notice a significant increase in the concentration of the hormone progesterone in the group of pregnant women compared to the control group. The uterus and prevent the uterine tissue from rejecting it through cooperation with the hormone (HCG) and that its low level during the period of pregnancy negatively affects the formation of the placenta and its growth [10,11].

Table 4. Progesterone concentration

Study groups	Number	Progesterone (ng/ml)	
		Mean	Standard deviation
Pregnant	50	15.4 a	2.26
Aborted	20	9.79 b	1.97
Control	20	9.35 b	1.76
P value		p≤ 0.01	

Different letters within the same row indicate significant differences (p≤ 0.01) between the totals.

Testosterone concentration

The results of the current study in Table 5 show a significant increase (P≤0.01) in Testosterone concentration in aborted women (1.66 ± 0.11) ng/ml and those with toxoplasmosis compared to the pregnant and control groups (0.12 ± 0.28) (0.56 ±0.28) ng/ml.

Table 5. Testosterone concentration.

Study groups	Number	Testosterone(ng/ml)	
		Mean	Standard deviation
Pregnant	50	0.28 c	0.12
Aborted	20	1.66 a	0.11
Control	20	0.56 b	0.28
P value		p≤ 0.01	

Different letters within the same row indicate significant differences (p≤ 0.01) between the totals.

During the study conducted by [12] which found an elevation in the level of testosterone in plasma in aborted women because testosterone has immunosuppressive effects [13] which represents the best explanation for the association of toxoplasmosis and testosterone and an increased risk of toxoplasmosis or may explain the heterogeneous behavior caused by T. gondii as a side effect of the host's repressed immunity and thus enhance the chances of survival of the organism in the host [14].

4. Conclusion

There are clear moral differences in the immune indicators under study, which included IgM IgG after measuring their concentration in the blood serum of pregnant women and aborted compared to the control group .A moral rise in the concentration of LH hormone in aborted women compared to pregnant women and the control group. A moral rise in the concentration of the progesterone hormone in pregnant women compared to the aborted women and the control group, while the concentration of the Testosterone in the women of the aborted women compared to the two pregnant and control groups.

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