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Serological detection of Toxoplasmosis among women in wassite province

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دراسة مصلية لإنتشار داء المقوسات للنساء في محافظة واسط

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الخلاصة

في هذه الدراسة تم تحديد مرض داء المقوسات مصليا بين النساء في محافظة واسط . ستمائة وثمان وأربعون أمرأة ممن يراجعون العيادة الاستشارية اليومية لمستشفى الزهراء الام في محافظة واسط وللفترة من حزيران ٢٠٠٦ وحتى اذار ٢٠٠٧ الاجسام المضادة الخاصة لطفيلي المقوسات من نوع G حددت باستخدام اختبار التلازن والاجسام المضادة الخاصة نوع M حددت باستخدام تقنية ELISA.

من 31% بينما ١١٢ امراةG موجبة للاجسام المضادة نوع 5% كانت النتائج ٣٥٧ من ٦٤٨ أمراة .ان مصل الدم للثلثمائة وسبع وخمسين امراة ممن ٣٥٧M امراة كانت موجبة للاجسام المضادة نوع أظهرن الايجابية باستخدام اختبار التلازن وتخيف المصل كانت نتائج التخفيف كلاتي من ٢٢٥ امراءة حامل كانت موجبة للاختبار حيث كانت نتائج التخفيف ١:٢٠ كانت ٢٥ امراءة، ١:٤٠ كانت ٢٢ امراءة، ١:٨٠ كانت ١٥٠ امراءة، ١:١٦٠ كانت ٢٠ امراءة ،١:٣٢٠ كانت ٥ نساء،١:٦٤٠ كانت ٣ نساء فقط بينما ١٣٢ امراءة ليست حامل ممن أظهرن الايجابية باستخدام اختبار التلازن كانت نتائج التخفيف كلاتي ١:٢٠ كانت٢٦ امراءة ،١:٤٠ كانت ٤٠ امراءة ،١:٨٠ كانت ٥٠ امراءة ،١:١٦٠ كانت ١٠ نساء ،١:٣٢٠ كانت ٤ نساء ،١:٦٤٠ كانت ٢ امراءة.بينما ١١٢ ٣١% امراءة اظهرت للطفيلي يكمن Gأن عامل الخطورة للاجسام المضادة نوع . ELISAالليجابية باستخدا تقنية ال باستهلاك الحم الملوث.

Summary

In this study Toxoplasmosis was detection serologically among women in wassite province. Six hundred and Forty eight women attending to daily clinic in AlZahraa hospital, wassite province during Jun 2006 – March 200 were attributing in this study. Toxoplasma – specific IgG antibody were detect using latex agglutination test while Toxoplasma –specific IgM antibodies were detect by using Enzyme Linked Immunosorbent Assay (ELISA).

Our result showed that 5 %(357 out of 648) of patients were positive for IgG antibodies whereas 31 %(112 out of 357) were positive for IgM antibodies. The sera of 357 women showed IgG positive by using serum dilution and latex

agglutination test. The result were 225 pregnant women showed positive were serum dilution result 1:20 was 25 women, 1:40 was 22 women, 1:80 was 150 women, 1;160 was 20 women, 1:320 was 5 women and 1:640 was 3 women were 132 not pregnant women showed positive were serum dilution result was 1:20 was 26 women, 1:40 was 40 women1:80 was 50 women, 1:160 was 10 women, 1:320 was 4 women and 1:640 was 2 women. Were112 (31%) showed IgM positive by using ELISA. The risk factors for IgG anti- Toxoplasma seropsitivity were consumption of raw meat.

Introduction

Toxoplasmosis is a universal zoonotic disease; approximately 30-50% of the individuals throughout the world have antibodies to Toxoplasmaa gondii. [١] Human infections are acquired through direct or indirect contact with cat feces. Thus, consumption of unwashed vegetables, undercooked meat and unpasteurized milk from infected animals are sources of the infection [٢,٣,٤] .Human-to-human transfer does not occur except from the primarily infected pregnant woman to her fetus. [٥] Where transplacental transmission of the organism may lead to fetal infection and congenital Toxoplasmaosis. [6] Congenital Toxoplasmosis is manifested in a classic triad of chorioretinitis, hydrocephalus and cerebral calcifications. Other features include; microcephaly, neurological sequelae, hepatosplenomegaly, jaundice, anemia and infantile nephrotic syndrome [7,8]. Among women infected during pregnancy, 40%–60% give birth to infected infants. The later in pregnancy that infection occurs, the more likely it is that the fetus will be infected but the less severe the illness will be [9]. Toxoplasmosis acquires its importance for 2 reasons. First, it can cause fetal infection if it is acquired during pregnancy, with unpredictable manifestations in the fetus and neonate [10, 11]. Second, it is an important cause of morbidity and mortality among immunocompromised patients [12, 13]. Diagnosis of Toxoplasma infection is seldom made by recovery of the parasite; usually it is done by serological tests, and for proper diagnosis the algorithm illustrated in Figure 1 should be followed [14].

Most gynecologists working in the general hospital in wassit, a small city in southern Iraq, consider Toxoplasmaosis a primary cause of cases with bad obstetric history. For these reasons we aimed to identify the true contribution of Toxoplasmaosis to bad obstetric history by comparing the agglutination test, the enzyme-linked immunofluorescent assay for Toxoplasmaa-specific IgM antibodies.

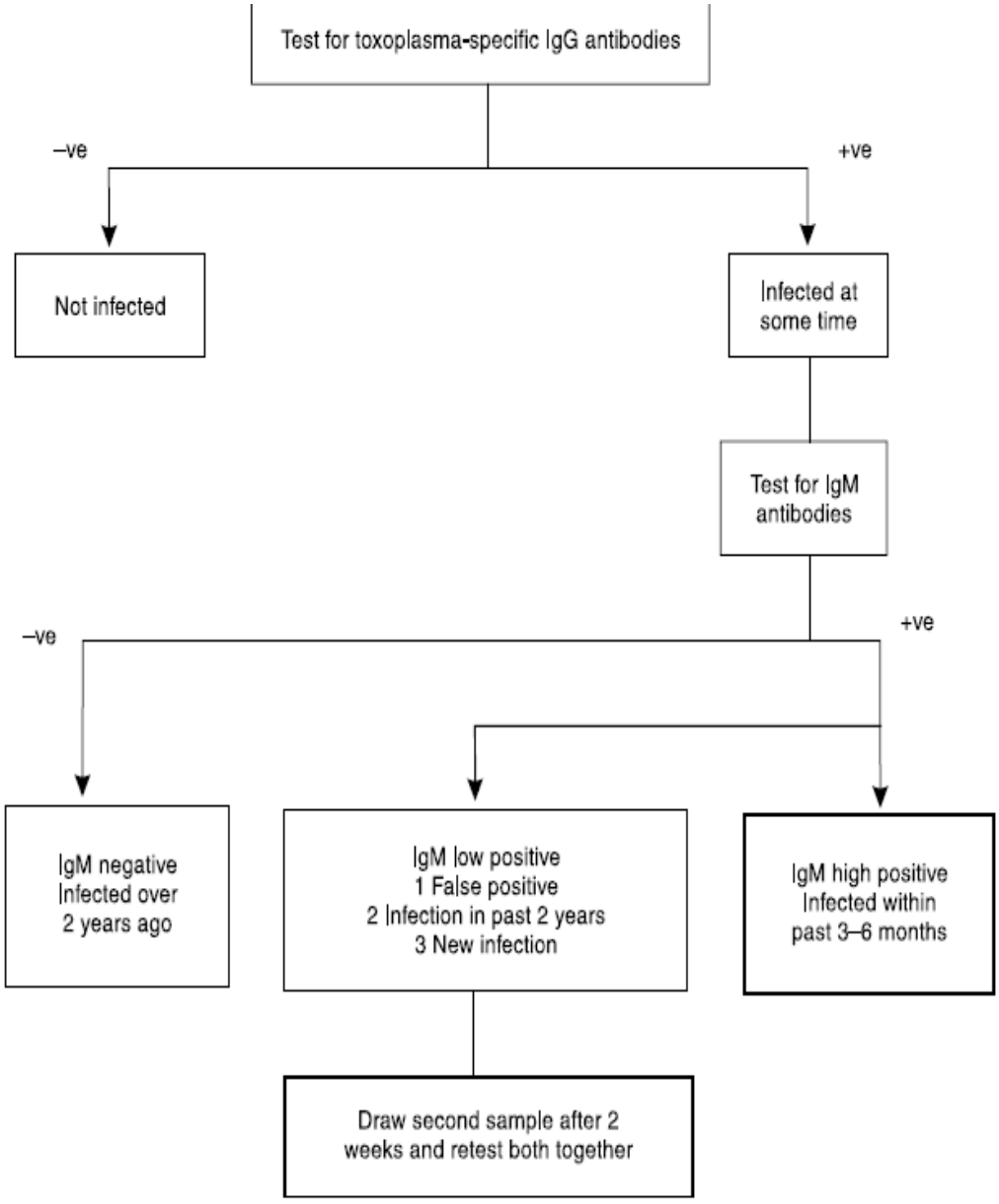

Figure 1 **Algorithm for testing for toxoplasma infection**

[14]

Materials and Methods

Patients: This study included 648 women (aged 15-46 years) attending Al-Zahraa General Hospital in wassit province during May 2006 – March 2007.

For each patient a full history was taken covering age, gravidity parity and the fate of each pregnancy, as well as the health of her live-born children.
Laboratory diagnosis: For all patients, Toxoplasma gondi specific IgG antibodies were detected using latex agglutination test (Toxocell latex, Biokit, Barcelona). The antibody titer was also determined by serial serum dilution.
Toxoplasma gondi specific IgM antibody were detect in sera of patient who showed positive latex agglutination test. IgM antibodies were detecting using Enzyme Linked Immuno Assay technique (ELISA Toxo. IgM, Biocheck France)

Results

Of the 648 women participated in this study. About half of the participants, 320 women (49%) were in their twenties. 60 (9%) were < 20 years, 220 (33%) were 30-39 years and 48 (7.5%) were >40 years.
Toxoplasma – specific latex agglutination test was positive for 357 patients (357out of 648) with titer of sera ranging from 20 to 640 (Table -1).
(Table -1): Serum dilution of Toxoplasma positive cases using Latex agglutination test.

Group	No.	1:20	1:40	1:80	1:160	1:230	1:640
Pregnant	225	25	22	150	20	5	3
Not pregnant	132	26	40	50	10	4	2
Total	357						

Table (2): Number of Seropositivity using latex agglutination test.

	Positive by using LAT	Negative by using LAT	TOTAL
No. of patients	357	291	648

Toxoplasma specific IgM antibodies were positive in sera of 112patients out of 357(31%).

Table (3): Number of Seropositivity using ELISA.

	Positive by using ELISA	Negative by using ELISA	TOTAL
No. of patients	112	245	357

Discussion

In this study we depend on serological test (latex agglutination test and ELISA) for diagnosis of Toxoplasmosis and this is accordance with other. [15] Said that despite the limitations, serum testing is still used for the diagnosis Commercial kits for detection of Toxoplasma antibodies is increasingly being used. In general, it is agreed that in most cases a positive IgG titer is sufficient to establish that a patient has been infected with T. gondii, but a negative IgM result virtually rules out a recently-acquired infection, unless sera are tested so early that an antibody response has not yet developed or it is undetectable [16,17]. Mazender, P.et al [18] and Rye, J.S. et al [19] Referd that LAT is the best for seroepidemiological study to detect Toxoplasma gondii antibodies.

In our study 55% of patients were positive for Toxoplasma using latex agglutination test. This high percent could be explained in that this region is an agricultural area and cats and other animals are usually kept in or near homes. High seropositivity has been reported in other region of Iraq. Al-Doski studied 320 persons in Duhok province and found that 134 were positive by latex agglutination test [20]. Al-Sim'ani reported a seropositivity of 39.33% by the latex agglutination test and 45.33% by the indirect haemagglutination test in nearby Mosul province [21]. In this study we found that high number of seropositive of Toxoplasma by using latex agglutination test. This reflects that it is possiple to depend on latex agglutination test in seroepidemiology study of Toxoplasma gondii, which is less costy and easy to perform. In Mosul, Al Kafaf [22] who found the rate of seropositivity was 86% using LAT, ELISA and IFAT. Semani [25] found the rate of Toxoplasma gondii seropositivity 39%-53% in pregnant women using LAT.

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