

Serological study of toxoplasmosis in Diwania

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Abstract

One hundred and fourty blood samples were collected from the women attending the clinics of the children and maternity hospital of AL-Diwania city. These women either born congenital abnormal infants who were died immediately after parturition others child were with abnormal size of the head. The dead children with psychopathy. The sera of the women who with dead child were the most positive cases (+++, 47%) in comparison to the sera of the psychopathy children were the lowest percent 12% of (+) positive test. The abortion of both women with died child and women with abnormal size head classified to first, second and third abortion. The first abortion was the highest number (25%) while the third abortion was the lowest number (8.5%).

Introduction

Toxoplasmosis is a zoonotic disease and all infections in man originally comes from the animals. Toxoplasmosis shows a nonseasonal world wide distribution. Most natural infection are acquired by ingesting under cooked meat containing tissue cysts or food contaminated by cat fees. *T. gondii* is an intestinal coccidium that parasitizes members of the cat's family as definitive hosts and has a wide rang of intermediate hosts (Lary and John, 2005). Prenatally acquired *T. gondii* often infects the brain and can cause a wide spectrum of clinical disease. Mild disease my consist of slightly diminished signs where as severely diseased children may exhibit a classic tetrad of signs:

Hydrocephalus, Ocular disease and abortion is the most important signs. In humans, acute infection with *T. gondii* can produce psychotic symptoms similar to those displayed by persons with schizophrenia. (Torrey and Yolken, 2003). Serological study of toxoplasmosis in women with abnormal pregnancy and abnormal parturition revealed that the disease has wide spread throught the world, approximately half billion of humans have antibodies to *T. gondii*. The incidence of infection may vary in humans and animals (Dubey *et al.*, 1998). This study aimed to know the rate of congenital defect related to Toxoplasmosis in human.

Materials and Method

Blood samples (140) were collected from the women and children attend as out patint to gynecological clinic of children and maternity of AL-Diwania Governorate in a period of one year (1st Jan-Dec-2007). These women were classified to three categories women with abnormal (congenital defects) child, women with aborted died child, women with aborted abnormal head size . The fourth group was psychopathy children. Sera were separated from the blood samples by centrifugation at 3000 rpm for 5 mint.

Rapid latex agglutination test:

Rapid latex particle agglutination test for the qualitative and semi quantitative

determination of toxoplasma antibodies in serum was used according method of Abul-Abass and Lichtman, (2005) as follow:

- 1-One drop of control was placed on to one section of the slide.
- 2- The reagent vial was shaken and one drop of reagent was added next to the drop of sample.
- 3- Both drops was mixed with a stirrer covering the whole surface of the slide section.
- 4- The slide was rotated for 5 minutes manually.
- 5- Presence or absence of agglutination was observed.

The interaction of agglutination tests resulted was preformed as a follow:

1-Positive reactions : presence of agglutination 3+ large clear back ground
2+Moderate clumping with fluid slightly in back ground.

1+ small clumping with opaque fluid in back ground.

2- Negative reactions:

Absence of agglutination, uniform suspension.

Results

A total of 140 serum samples were collected from the blood of women and children these samples were tested for antibodies of *Toxoplasma gondii*. (70%) of woman and children had positive agglutination result, while 14.3% of women with abnormal child bearing were

positive (++) agglutination. The positive tested sera of women with died child were 47 positive (+++,33.7%) and it was the highest percent , in comparison with psychopathy children serum which had the lowest percent (+,8.5%). The negative cases were 52 (30%). (table -1-)

Table -1- Agglutination test's results of women and children .

	No. sample	Positive	Reaction of test	Percent %
Women with abnormal child	39	20	++	14.3
Women with died child habitual abortion	56	47	+++	33.7
Women with child abnormal size head	20	19	++	13.5
Psychopathy children	20	12	+	8.5
total	140	98		70

Table-2- The distribution of abortion in women .

	(+)	First		second		third	
		No	%	No	%	No	%
Women with died child	47	30	14.1	9	4.2	8	3.7
Women with abnormal head size child	19	8	1.5	6	1.1	5	0.95
total	66	38	15.6	15	5.3	13	4.6

This table show the first pregnancy exposed to abortion 15.6% for both women with died child while the percent of abortion of the second pregnancy was 5.3% and the percent of abortion while the

percent of abortion in third pregnancy was 4.6%. The women with died child in first pregnancy were the highest percent of abortion 25% are than more and third pregnancy (9.9% and 8.5 % respectively).

Discussion

In humans, *Toxoplasma* is an important cause of abortions and stillbirths after primary infection in pregnant women. The parasite can also cross the placenta and infect the fetus. The symptoms of congenital toxoplasmosis include abnormal changes in size of head, hydrocephaly or microcephaly, intracranial calcifications cerebral palsy, damage to the retina and mental retardation. Some sequelae of congenital toxoplasmosis are not apparent at birth and may not become apparent until the second or third decade of life. (Lary and John, 2005). Kaiser and Burke, (1996)

record that Hydrocephalus increased ventricular size, Pearson *et al.*, (1985) noticed conjunctivitis and impairment of retina, Elvevag and Goldberg (2000) have also been noted the infection of toxoplasma in some persons with schizophrenia and other forms of psychosis. Some cases of acute toxoplasmosis in adults are associated with psychiatric symptoms such as delusions and hallucinations (Kramer, 1966). The result of some studies which were used modern diagnostic criteria for schizophrenia, these patients have more antibodies to *Toxoplasma* than control

groups in China and Germany (Leweke *et al.*, 2003), and the levels of antibodies for treated group were intermediate between the levels of the never-treated group and control group. These results suggesting that antipsychotic medication may have decreased the antibodies levels. In our result recognized by using latex agglutination test that both women with died child and large size head (+++, ++,

respectively, can be expected these women infected by *T. gondii*. And also the women with died child the (most positive cases) immunologically have antibodies against toxoplasmosis. This conclusion is supported by a study that indicated that some antipsychotic medications inhibit the growth of *T. gondii* in cell culture (Jones *et al.*, 2003)

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دراسة مناعية لمرض داء المقوسات في الديوانية

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الخلاصة

إن مرض داء المقوسات المعروف بداء القطط من المشاكل الكبيرة التي تعاني منها شعوب العالم وكذلك العراق. تم جمع ١٤٠ عينة من الدم سحبت من نساء يراجعن مستشفى الأطفال والولادة في مدينة الديوانية واللاتي يعانين من ولادة أطفال مشوهين أو أطفال يموتون بعد الولادة أو ولادة أطفال يعانون من كبر حجم الرأس بشكل غير طبيعي كذلك من أطفال متخلفين عقلياً. تم إجراء فحص Rapid latex particle agglutination وظهرت أعلى نتائج ايجابية للمرض (++++) ٤٧% في النساء التي تلد أطفال يموتون بعد الولادة واقل ايجابية للمرض (+) ١٢% في الأطفال المتخلفين عقلياً، وعند تصنيف الإجهاض على أساس ترتيب الحمل الأول والثاني والثالث كان عدد الإجهاض للفئة الأولى أعلى من الثاني والثالث إذ بلغ (٢٥%) من مجموع (٦٦) بينما الإجهاض للفئة الثالثة كانت (٨.٥%).