Serological study of toxoplasmosis in Diwania

G. A. jasim K. A. Dawood N. A. Faeroz S. A. Salman
Coll. of Vet. Med./Unive of Al-Qadisyia Institute of Technology /Al-Diwania

Abstract

One hundred and forty 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 through 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 patient 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 shaked 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 performed as follows:

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

2- Negative reactions:
Absence of agglutination, uniform suspension.

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 psychopathic children serum which had the lowest percent (+, 8.5%). The negative cases were 52 (30%). (table -1-)

Table -1- Agglutination tests results of women and children.

<table>
<thead>
<tr>
<th></th>
<th>No. sample</th>
<th>Positive Reaction of test</th>
<th>Percent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women with abnormal child</td>
<td>79</td>
<td>++</td>
<td>14.5</td>
</tr>
<tr>
<td>Women with died child habitual abortion</td>
<td>67</td>
<td>+++</td>
<td>23.7</td>
</tr>
<tr>
<td>Women with child abnormal size head</td>
<td>70</td>
<td>++</td>
<td>13.6</td>
</tr>
<tr>
<td>Psychopathy children</td>
<td>140</td>
<td>+</td>
<td>8.5</td>
</tr>
<tr>
<td>total</td>
<td>140</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table-2- The distribution of abortion in women.

<table>
<thead>
<tr>
<th>(+)</th>
<th>First</th>
<th>second</th>
<th>third</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Women with died child</td>
<td>47</td>
<td>14.1</td>
<td>9</td>
</tr>
<tr>
<td>Women with abnormal head size child</td>
<td>19</td>
<td>1.5</td>
<td>6</td>
</tr>
<tr>
<td>total</td>
<td>66</td>
<td>15.6</td>
<td>15</td>
</tr>
</tbody>
</table>

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, Pearlson 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)

References

دراسة مناعية لمرض داء المقوسات في الديوانية

ندا احمد فرارز
أحمد عيسى عبد الله
كلية الطب البيطري / جامعة القادسية

الخلاصة

إن مرض داء المقوسات المعروف بداء القطط من المشاكل الكبرى التي تعاني منها شعوب العالم وكذلك العراق.

تم جمع 140 عينة من الدم سحب 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 كـ ذلك وظهرت نتائج إيجابية Rapid latex particle agglutination من أطفال مختلفين عقلياً تم أجراء فحص للمرض (+++) 47% في النساء التي تلد أطفال يموتون بعد الولادة وافق إيجابية للمرض (++) في الأطفال المختلفين عقلياً، وعند تصنيف الإجهاض على أساس ترتيب الحمل الأول والثاني والثالث كان عدد الإجهاض للفئة الأولى أعلى من الثاني والثالث إذ بلغ (25%) من مجموع (66) بينما الإجهاض للفئة الثالثة كانت (8.5%).