

Estimation of IgM-anti HEV, Rubella and Cytomegalovirus in the sera of aborted women.

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Abstract:

IgM-anti HEV, Rubella and CMV were detected in 352 women with abortion. The percentage of patients with HEV was the highest (8.8%), and the percentage of patients with Rubella was (6.8%), followed with the percentage of patients with CMV (1.14%). When all patients (352) were divided into age groups the patients that their age was ≤ 20 years had the highest percentage in patients with Rubella (10.8%), followed with the percentage of patients with HEV (8.1%), while the percentage of patients with CMV was the lowest (2.7%). The age group ≥ 40 years showed no positive reaction with the three types of viruses.

Introduction:

Hepatitis E Virus (HEV) occurs in epidemic form in developing countries, where water supplies are sometime focally contaminated. (1). there are two best methods for diagnosis of HEV infection: 1- Enzyme – linked immunosorbent assay (ELISA) for detection of antibodies (IgM in acute and primary infection & IgG for previous infection). 2- Transcription-polymerase chain reaction for detection of HEV – RNA (2, 3). Women how contact HEV infections during the third trimester of pregnancy have a high risk of fulminate hepatitis (2), and pregnant women may have a high (20 %) mortality rate (1).

Rubella (German measles) is an acute febrile illness characterized by a rash and lymphadenopathy that affects children and young adults. It is the

mildest among the common viral infections. However infection during early pregnancy may result in serious abnormalities of the fetus, including congenital malformation and mental retardation. Rubella infection during pregnancy may result in infection of the placenta and fetus but only a laminated number of fetal cells become infected, that may lead to abnormalities in the newborn and cause abortion in the mother (1).

Cytomegalovirus (CMV) is group ubiquitous herpes viruses that are a common cause of human disease. Cytomegalovirus inclusion disease is a generalized infection of infants due to intrauterine or early postnatal infection with the virus. It posses an important public health problem because of its high frequency as a congenital infection, which leads to severe

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congenital problems (1, 4). IgM antibodies for CMV are produced following initial infection and generally persist for 3-4 months (5). Based on the coming information. The present study was done to assess the frequency of anti-HEV, rubella and CMV antibodies (IgM) in a sample of Iraqi aborted women.

Material and Methods:

Patients: Blood samples were collected from 320 aborted women during the period January 2002 - April 2002. The abortion was carried out at Al-alweaa hospital. The women were divided into four groups ≤ 20 year, (37 cases), 21 – 30 years (198 cases), 31 – 40 years (105 cases) and ≥ 41 year (12 cases). None of the investigated subjects experienced accidents or a mechanical stress which could have caused the abortion. . No one of cases has any antiviral or immunosuppressive drugs.

Laboratory methods: By means of ELISA method IgM- anti CMV (Dade Bearing Merburg), IgM -anti Rubella (Bio Kit, span).and IgM- anti HEV (Dade Bearing Merburg).antibodies were detected in the sera of subjects.

The sera were also evaluated for IgM anti- *Toxoplasma gondii* by indirect immunofluorescence method (Bio kit).

Results and Discussion:

All cases gave negative result with Toxoplasmosis test and therefore the toxoplasmosis was excluded as a cause of abortion in the investigated sample. The highest frequency of IgM- anti viruses antibodies was observed in HEV (8.8%), followed by rubella (6.8%) and CMV (1.14%). These frequencies showed different distributions in the age groups of patients. In rubella the frequency of positive cases showed a declined percentages as the age progressed, while in CMV and HEV, the positive cases showed similar frequencies in the first three age groups (Table -1-). The

three viruses shaved a common theme with respect to the group ≥ 40 years, in which none of the investigated subjected was positive

Table-1- Frequencies of IgM -anti Rubella, CMV and HEV in aborted women with different age groups.

Information	≤ 20 year	21-30year	31-40 year	≥ 41	all ages
Total of cases	37	198	105	12	352
Rubella					
Number of positive cases	4	17	3	0	24
Percentage of positive cases	10.8	8.59	2.85	0	6.80
Number of negative cases	33	183	100	12	328
CMV					
Number of positive cases	1	2	1	0	4
Percentage of positive cases	2.7	1.01	0.95	0	1.14
Number of negative cases	36	196	104	12	348
HEV					
Number of positive cases	3	18	10	0	31
Percentage of positive cases	8.1	9.1	9.5	0	8.80
Number of negative cases	34	180	95	12	321

Hepatitis E virus present as epidemic as well as sporadic disease in Middle East and east countries, and this infection is caused by fecal contaminated drinking water (6). One distinctive clinical feature of hepatitis E, compared with other forms of viral hepatitis, is its increased incidence and severity in pregnant women (7), which results in up to 20 % mortality. By contrast, none of the other recognized hepatitis viruses causes such severe hepatitis in pregnancy. Although the mechanic(s) is not known, a hypothesis has been put forward to explain the pathogenesis of fulminate hepatitis E in pregnancy (8). This suggests that the liver sinusoidal cells, particularly the Kupffer cells are damaged by HEV, which diminishes the ability of these cells to protect hepatocytes against endotoxin that originate from Gram – negative bacteria found in the intestinal tract. The enhanced sensitivity of pregnant women to such endotoxin – mediated effect is well recognized and might explain the effects of hepatitis E in pregnancy (8). The infection causes jaundice and liver defect and changes

in metabolisms in infected pregnant women (9) so this may also causes an abortion.

The results of IgM anti – Rubella showed a little difference from other studies (10) while others were in agreement with this study (11). The time of the fetal infection determine the extent effect in general. The earlier infection in pregnancy is associated with a greater damage to the fetus. Infections during the first trimester of pregnancy result in abnormalities in the infants in about 85% of cases (1). Many investigators reached similar results (12).

Others investigators recorded much highest frequency (5.8 %) of IgM-anti CMV antibodies (9). The CMV can be transmitted in utero with both primary and reactivated maternal infections in about one third of pregnant women with primary (1).

The present study demonstrated that HEV is more important than rubella and CMV in during abortion in the infected women.

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تقدير الأضداد نوع ميو لألتهاب الكبد الفيروسي نمط ياء والحصبة الألمانية والسايتميكالوفايروس في المريضات اللواتي يعانن من الأسقاط.

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الخلاصة

تم التحري عن اعداد (نوع ميو H) الخاصة بفايروس التهاب الكبد الفيروسي نمط ياء وفايروس الحصبة الألمانية وفايروس السايتميكالو في 352 امرأة تعاني من الأسقاط . حيث وجد أن النسبة المؤية للمريضات الحاملات لأضداد التهاب الكبد الفيروسي نمط ياء هي أعلا نسبة حيث تبلغ 8.8% وتليها نسبة المريضات الحاملات لأضداد الحصبة الألماني (6.8%) ثم تليها النسبة المؤية للمريضات الحاملات لأضداد فيروس السايتميكالو حيث تبلغ الأخيرة (1.14%) . وعند تقسيم المريضات (320) الى مجاميع حسب العمر وجد أن في المجموعة التي تبلغ أعمارها 20 ≤ سنة كانت النسبة المؤية لأضداد الحصبة الألمانية هي الأعلى (10.8%) ثم تليها النسبة المؤية للمريضات الحاملات لأضداد فيروس التهاب الكبد الفيروسي نمط ياء (8.1%) ثم تليها النسبة المؤية للمريضات الحاملات لأضداد السايتميكالو (2.7%). المجموعة العمرية ≥ 40 سنة لم تعطى اي تفاعل ايجابي مع الفيروسات الثلاثة.