

Effect of anti-Rubella (IgG) on a number of abortion in pregnant women of living in Diyala Province

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Abstract: *The present study was conducted during the period from 1 December 2012 to 1 March 2013 and included eighty nine (89) samples of blood collected from pregnant women living in Diyala province. The result showed that thirty five (39.3%) pregnant women had the antibody immunoglobulin (IgG), and the highest ratio of rubella virus IgG was found in the age group 18-28 years. The results revealed that fourteen (40%) pregnant women had a one abortion and showed the highest titer of IgG, and 18 of them were from rural areas (51.4%) and 17 from urban areas (48.6%). The present study recommends that Rubella virus vaccination should be considered carefully in developing countries, due to the high seropositivity to rubella in our region but we do not recommend rubella vaccination in early childhood. Routine screening of ,mm,rubella is recommended for pregnant women in Iraq and all women whose rubella vaccination history is unreliable or those lack laboratory evidence of immunity should receive measles, mumps, and rubella vaccine (MMR vaccine) upon completion or termination of pregnancy and vaccinated women should be informed to avoid pregnancy for 28 days after vaccination.*

Keywords: *rubella, pregnant women, abortion, Diyala, Iraq.*

I. Introduction

Rubella is also called German measles caused by Rubella virus (RV), which affects both sexes and all ages. German measles was one of the most important childhood diseases, which is acquired after birth as a postnatal infection (1). Pregnant women who did not have IgG to rubella virus are at a high risk of getting this virus, and if the infection occurred at the beginning of pregnancy, especially during the first 12 weeks might cause several serious complications like abortion, stillbirth, premature delivery or birth of children with congenital rubella syndrome (2), which is called Prenatal infection (3; 4).

Rubella virus is the sole member of the Rubivirusgnus within the family Togaviridae which has a single stranded RNA genome. A virus envelope ranges between (60-70) nanometers (5). The only natural host for the rubella virus are humans. Transmission of rubella is through direct or droplet contact with infected nasopharyngeal secretions and the virus can also be transmitted from infected mother to fetus through the placenta (6).

German measles virus worldwide distribution and in spite of the introduction of rubella vaccine in the immunization program in developed countries in 1969 and developing countries in 1974, the World Health Organization (WHO, 2001) reported that a total of 356836 infections annually in the world. In adolescent girls were ready to accept the infection in the United Kingdom 12% (7) and in Sanaa, Idern city in Turkey and Yunnan the ratio of accepting to the infection about (6.3%-22.9%) (8; 9;10). The incidence males were less in Mexico and India 6.45%, 8.64%, respectively (11; 12;13), and among non-pregnant women of child bearing age ranged between (9%-10.6%) (14; 15). Rubella was rare in many industrialized countries, because of the success of vaccination programmes (16).

Studies found through to investigate serum there are levels of protection different immune against infection with rubella and the appearance of antibodies specific IgG in different communities, noted previous study conducted in 1988 that the percentage of positive serological in serum of pregnant women pollinators vaccine rubella was 94.9% (17) while the percentage of positive serological 76% among pregnant women was not vaccinated (18).

The importance of rubella virus does not come from cause of mild illness in childhood, but the ability to make congenital anomaly in the fetus (2). Infection had proven in all the placenta and fetus was infected with rubella through histological studies conducted on the outcomes of pregnancy for women infected with the virus through the first trimester of pregnancy and that presented the first evidence that the infection with rubella is a result from the infection of mother during pregnancy (19;2), and that happed especially when absence or low levels (≤ 10 IU/ml) of rubella IgG before or during the first trimester of pregnancy identifies women who may be at risk of infection and hence congenital transmission of the virus (20).

Increasing the risk of infection to the fetus infected with rubella in the first weeks of pregnancy because the immune system of the fetus was still primitive, (21).

It has been found that the ratio fetuses deforms congenital 100% when maternal infection in pregnant woman in the first eight weeks of pregnancy, while the level of infection to the fetus and the severity of congenital malformations in the event of infection mother after the first trimester of pregnancy, as showing that most birth defects occur when maternal infection with rubella After the eighteenth week of pregnancy (22; 23).

Researches refers that 80% of newborns infected with rubella in uterus contain in their excretion pharyngeal and nasal, urine and feces, and cerebrospinal fluid amounts of rubella virus after birth and 3% of them continue to spreading and cause infection from 18-20 month after birth ,and thous dangerous source of infection for other children and pregnant women (24;25).

It was difficult to diagnose the rubella disease depended on clinical signs only, because the rash was not Pathognomonic characteristic for rubella in order to happen in another viral disease and therefore must be ensure through testing serum immunoglobulin quality or viral testing (6).

II. Materials, Methods and Patients.

Collection of samples: This study was conducted in Dyjala province (Primary Care Centers in (Al –hudaid and Canaan), Al-ebtehal laboratory in baquba Al-jadeda and Al-Zahra Hospital in Muqdadiyah) as across section study including 100 patients attending these center during the period between 1 December 2013 to 30 of march 2013. The demographic information include age, address and number of abortions.

Serologic studies: In order to determine the rubella serology 5 ml of venous blood were collected from 100 pregnant women and woman who have more than once abortion in Dyjala province and then the serum was separated centrifugation and stored at -20C° until using Enzyme-Linked Immunosorbant Assay (ELISA; Bio Chick, Inc/UK) for diagnoses.

Statistical analysis:-

Statistical analysis was done using SPSS (Statistical Package of social Science) version 18 computer software. Frequency distribution and percentage for selected variable were done. The Chi-square test was used P and P value of <0.005 was considered significant (26).

III. Results and Discussion

Blood samples were collected from 100 women living in Diyala province found infected with RV but only 89 samples was used, 11 samples were haemolized. The patients' ages ranged from 18- 40 years and forty nine (55.5%) of patients in the age group 18-28 years, while 40 (44.5%) in the age group 29-40 years, (Table 1).

Table(1) Distribution of patients according to age .

Age	No. of patients	%
18-28	49	55.05
29-40	40	44.95
Total	89	100

The results of this study revealed that only 35(39.3%) patients gave positive results to IgG of anti-rubella virus (Table 2). The result is in agreement with the results of(27).., who found rubella virus IgG in 34.2% of the pregnant women living in Baghdad Iraq. In contrast the seropositivity rate reported in present is lower than reported in Al-Najaf province(77%) (28) and that Nigeria (85%); (29). (Table two). These vibration may related to the difference in hygienic and environmental condition.

Table (2) Detection of rubella in patients by ELISA.

Result	No	%
Positive	35	39.3
Negative	54	60.7
Total	89	100

The results revealed that 27 patients (77.15%) were in the age group 18-28 years and 8(22.85%) in the age groups 29-40 years. (Table 3).

The result of the present study is in agreement with that reported by (20) who found the highest percent seropositivity rate (52.2%) in pregnant women who were tested for anti-rubella IgG aged between 20 and 29 years, while only 1.4% of the pregnant women were aged <20 years.

The present study disagree with the results of the study reported by (30) who found the highest rate of rubella IgG (94,1%) in the age group 35-44 years. On the other hand, (31) found the highest rate of anti-rubella-IgG (84.6%) among the pregnant women of the age group 18-25 years.

Table (3) Distribution of positive cases of RV(IgG).

Age range	Results	%
18-28	27	77.85
29-40	8	22.15
Total	35	39.3%

The results in Table (4) showed that no significant difference was found in the number of positive cases between urban areas (Baquba, Muqdadiah) 18(51.4%) and rural area 17(48.6%) (Cnaan, Al-hudad). Our results disagree with those reported by (32) who found significant difference between anti-Rubella IgG result in rural and urban area.

Table (4) Distributed of patients according to the residential area

Resident	No of patients	%	Value
Rural	18	51.4	Ns*
Urban	17	48.6	
Total	35	100	

*Ns: no significant

In the present study 40% of women had one abortion, 25.7% with two abortions, 17.1% with three abortions, 2.8% with four abortions, while (14.2%) women with no abortion. No significant differences were found between number of abortions and the seropositivity rate (Table 5) .

The results in Table (5) revealed that the IgG seroprevalence was the highest in pregnant women who had one abortion in comparison with multiple abortions which means that IgG antibodies had a very important role in decreasing the rate of abortion in pregnant women. Therefore, the results showed that pregnant women who had four abortions constitute only 2.4% of the women and this is in line with the results of other previous studies (33;34).

Table(5) Distributed of patient according to the number of abortions.

No. of abortion	Positive result	%	P. value
1	14	40	Ns*
2	9	25.7	
3	6	17.1	
4	1	2.8	
Zero	5	14.2	

*Ns: no significant

IV. Conclusion:

The present study recommends that RV vaccination should be considered carefully in Iraq and other developing countries, because of the high seropositivity to rubella in our region. In addition we do not recommend rubella vaccination in early childhood and routine screening is needed for pregnant women in Iraq and all women whose rubella vaccination history is unreliable .Women who lack laboratory evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and vaccinated women should be informed to avoid pregnancy for 28 days after vaccination.

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