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# A Serological Study to Diagnose the Causes of Recurrent Viral and Immune Miscarriage in Aborted Women who Attend the Shatrah General Hospital

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**Abstract---***The current study agreed with the results of the study reached by the study in Tikrit, as well as with what indicated that the highest rate of infection was within the age groups (16-25) and (20-30) respectively, and the results of the current study differed with What the researcher reached in the city of Kirkuk, which showed the highest rate of infection, falls within the age group (30-39). These differences can be related to physiological factors such as hormones and their proportions in women of lower ages compared to the higher age groups and their frequent exposure to pathogens continuously, and this harms the psychological state of the patient resulting in cases of repeated miscarriage of the cause. The results of the current study differed with the results of the researcher in Iran, where the highest incidence of infection was within the age group 36-45 and agreed with a study in Iraq where the highest incidence of infection was in the age group 21-25, a study in Russia and France showed the proportion of infection 78% and 46.8%, respectively.*

**Keywords---***hospital, immunity, recurrent miscarriage, serology, viral.*

## 1 Introduction

Currently, recurrent abortion is a global problem facing modern medicine because of the increased causes of repeated abortion in Iraq and the South in particular. A total of 80 samples of women reviewed for the Shatrah General Hospital in Thi-Qar province were diagnosed with abortions and are likely to have abortions commonly known in clinical laboratories (including *APS IgG antibodies*, rubella virus, Cytomegalovirus and Herpes virus) by using ELISA technique (To identify antibodies to the above abortion causes after separation of blood into serum using a central screening device. *Abdul-Jalil et al. (2010)*, the results of the present study were 38 (47.5%) positive sample of the causes of abortion out of 80 blood samples examined: 15 out of 38 (39.47%) of Cytomegalovirus IgG and IgM and 7 of 38 (42.18%) positive sample Infected with simple IgG and IgM. While the results of the German measles virus (8% 21%) IgG and IgM and the anti-phospholipid (anti-phospholipid antibodies) results were 9 (23.6%) IgG and IgM. The highest percentage of infection was found in the age group (21-25). *Gandhoke et al. (2006)*, the number of positive samples of the four pathogens in this category was 18 (47.3%) while the lowest percentage was among the 36-40 age group with the lowest percentage of infection (5.2%). We conclude that the highest percentage of infection was by CMV due to the global spread of this virus because there is a high proportion of IgG antigen among any samples examined the possibility of an antimicrobial interference of antigens to this virus with other antigens and can result in false positive (*Coulter et al., 2000*).

## Literature review

One of the medical problems that have emerged in recent decades in Iraq is the high incidence of miscarriage, as there has been a significant increase in the percentage of pregnant women who suffer from repeated spontaneous abortions, and many of them are considered an unknown or cause abortion. Abortion can also be defined as one of the important complications in pregnancy and its incidence rate is (1-5%). Miscarriage causes vary, including maternal and paternal chromosomal deviations, uterine function disorders, infections, genital autoimmune disorders and infection with viruses. However, the causes are unlimited in (40-60%) of women (Kim & Weiss, 2004). Sometimes abortion occurs during the early pregnancy period, that is, during the first trimester of pregnancy, and it may happen during the second trimester of pregnancy. Second trimester and it may usually happen spontaneous abortion. It may happen early before the 12th week of pregnancy. It is called early spontaneous abortion. (Twenty and Twenty-two) Pregnancy is called late self-abortion. Most cases where miscarriages during the first trimester of fertilized eggs are aborted and often without the knowledge of the mother. Figueroa (1998), Chromosomal aberrations are the most common causes of miscarriage during the first third of pregnancy (the first 13 weeks of pregnancy) Defects or chromosomal aberrations are due to parents, which is one of the reasons for the repeated occurrence of miscarriage in Women. These disadvantages appear in older parents and more so in older women. Another progesterone deficiency is another reason for miscarriage. As for the second trimester of pregnancy, miscarriage occurs for several reasons, the most important of which are: congenital anomalies in the womb, the presence of tumors in the womb, or the presence of problems in the cervix. These problems lead to premature birth (abortion) (Montoya & Liesenfeld, 2004).

The rubella virus causes abnormalities in the fetus such as delayed intrauterine growth, disorders of the central nervous system that can cause various disorders, and heart abnormalities. HIV infection is at an early age, but it may also occur at an older age. The presence of antibodies in the early stages of pregnancy protects the fetus from infection. The absence of antibodies against rubella indicates that the mother did not occur and did not experience a previous viral infection, so she should remain under observation until half of the pregnancy period (Coulter *et al.*, 2000).

The Herpes virus is one of the most viruses that cause many infections in the world that can affect the eye and the reproductive system, meninges and other infections. This has a large ability to spread between humans and many hosts, and the ability to multiply in many types of cells and infects different types of animals as it grows quickly and analyzes Cells dramatically. The virus is transmitted through direct contact with body fluids of infected individuals. Deorari *et al.* (2000), the transmission may also occur during skin contact during the release of the virus, which is asymptomatic. It is one of the opportunistic viruses, that is, it exploits the infection of the body with pathological conditions and the immune system is busy with it to float on the surface of the body in the form of secondary attacks. The spread of infections of this virus differs throughout the world, as poor health conditions and childbirth processes in non-developed countries are among the most important risk factors that help to spread it (Ali & Quwatli, 1999).

CMV is one of the viruses of the Herpes family, one of its main features is that it tends to remain in a dormant state in the body of the affected host and sweep the body in the case of immunodeficiency, most people develop in their childhood (80-85%) with this virus and is usually without symptoms, but is sometimes (Steininger, 2007), with cold-like illness, where symptoms of fever for a long period include pain in the muscles and weakness. But if the infection occurs for the pregnant mother, the virus can be transferred completely or part of it to the fetus via the placenta, causing miscarriages (Mocarski, 2007).

## 2 Methodology

- a) *Collecting samples:* 80 blood samples were collected from aborted women who reviewed to Al-Shatrah General Hospital for the period 1/12/2018 to 1/30/2019 using a sterile single-use syringe. About 3 ml of venous blood was withdrawn from aborted women and the blood was placed in Gel tube test tubes and left until clotting the blood was then placed in the Centrifuge device for 5 minutes, after which the serum was separated and placed in a small tube of append off the tube. The samples were frozen in the refrigerator -20 ° C for conducting some tests on them later.
- b) *Gathering information from aborted women:* During drawing blood then making a special information sheet for each patient to collect information, which is (age - number of abortions - months of miscarriage)
- c) *Investigation* of the presence of IgM - IgG antibodies to miscarriages (Anti-phospholipid, Rubella, Herpes, and CMV) using ELISA examination in private laboratories through the method of work and according to the manufacturer of the cyst used by Foresight, USA).

### 3 Results

Table 1  
Shows the distribution of infection of the causes of miscarriage in ALISA examination for aborted women based on age groups

Age categories	Number of abortions	CMV	Rubella	Anti-phospholipid	Herpes	Total
(16_20 )	16	1	1	1	1	4
(21_25 )	27	8	4	3	3	18
(26_30 )	19	3	1	4	2	10
(31_35 )	13	2	1	1	0	4
(36_40 )	5	1	0	0	1	2
Total	80	15	8	9	7	38

The results of the current study showed that the highest incidence of pathogens causing miscarriage was within the age group (21-25) which is (22%) 18 out of 80 and the lowest percentage is within the age group (36-40) which is 2 (2.5%) out of 80 samples.

Table 2  
Shows the distribution of infection for Cytomegalovirus in aborted women based on age groups

Age categories	IgG+	IgG-	IgM+	IgM-	Total
(16_20 )	1	15	0	16	16
(21_25 )	5	22	3	24	27
(26_30 )	2	17	1	18	19
(31_35 )	2	11	0	13	13
(36_40 )	1	4	0	5	5
Total	11	69	4	76	80

The number of aborted women is 80 total, the abortions positive for IgG + examination are 11 out of 38 (28.9%) which is higher than the opposite. IgM positive abortions IgM + is 4 out of 38 (10%). The highest incidence of IgG was in the age group (21-25) and the lowest in the groups (16-20) and (36-40) either for the IgM + injury was 3 which is within the age group (21-25) and was zero in the age groups (16- 20), (31-35) and (36-40).

Table 3  
Shows the distribution of Rubella disease in aborted women based on age groups

Age categories	IgG+	IgG-	IgM+	IgM-	Total
(16_20 )	1	15	0	16	16
(21_25 )	3	24	1	26	27
(26_30 )	1	18	0	19	19
(31_35 )	1	12	0	13	13
(36_40 )	0	0	0	5	5
Total	7	73	1	79	80

The results showed in the above table that the highest rate of infection in the age group (21-25) is 4 (10.5%) out of 38, while no infection with German measles virus was seen within the age group (36-40).

Table 4

Explains the distribution of phospholipid antibody (immune bodies) in aborted women based on age groups

Age categories	IgG+	IgG-	IgM+	IgM-	Total
(16_20 )	1	15	0	16	16
(21_25 )	2	25	1	26	27
(26_30 )	2	17	2	17	19
(31_35 )	1	12	0	13	13
(36_40 )	0	5	0	5	5
Total	6	74	3	77	80

The results of the above table (4) showed that the highest anti-phospholipids-IgG antibody was 2 (5.2%) within the age group (26-30) and (21-25) and it was 0 in the category (36-40), our study did not agree with a study ([Abdul- Jalil et al., 2010](#)), where the highest incidence of infection was in category (21-25), and it agreed with the study ([Rana, 2014](#)).

Table 5

Shows the distribution of the infection of the herpes virus for aborted women based on age groups

Age categories	IgG+	IgG-	IgM+	IgM-	Total
(16_20 )	1	15	0	16	16
(21_25 )	2	25	1	26	27
(26_30 )	1	18	1	18	19
(31_35 )	0	13	0	13	13
(36_40 )	1	4	0	5	5
Total	5	75	2	78	80

The total number of positive IgG abortions is 5 (13.1%) out of 38 and the number of total abortive IgG abortions is 2 (5.2%) out of 38, the current results agree with the study ([Ali & Quwatli, 1999](#)) in Syria and differed with the study ([Coulter et al., 2000](#)), and the reason for the difference is due to factors Genetics, all linked to the immune response within a pregnant woman's body ([Habib, 2000](#)).

Table 6

Shows the distribution of infection for aborted women based on the number of miscarriages (repeated miscarriage)

The number of abortions	Positive samples for miscarriages				Total
	CMV	Rubella	Anti-phospholipid	Herpes	
1	7	4	2	3	40
2	3	4	3	2	25
3	3	0	3	2	10
4	2	0	1	0	5
Total	15	8	9	7	80

Based on the information collected from aborted women, it turned out that 40 patients had only one miscarriage and 25 patients had miscarriages twice and 10 samples had three abortions, while the number of samples that suffered four abortions is only 5 out of 80, these cases depend on the proportion of the presence of chronic infection of some of the causes that would take advantage of the immune weakness of the pregnant woman, causing re-conversion of the chronic phase to acute and the occurrence of miscarriage again.

## 4 Conclusions

The current study agreed with the results of the study reached by the study in Tikrit, as well as with what indicated ([Al-Taie, 2014](#)), that the highest rate of infection was within the age groups (16-25) and (20-30) respectively, and the results of the current study differed with What the researcher reached ([Rana, 2014](#)) in the city of Kirkuk, which

showed the highest rate of infection, falls within the age group (30-39). These differences can be related to physiological factors such as hormones and their proportions in women of lower ages compared to the higher age groups and their frequent exposure to pathogens continuously, and this hurts the psychological state of the patient resulting in cases of repeated miscarriage of the cause (Odland *et al.*, 2001).

The results of the current study differed with the results of the researcher (Jindal & Aggarwal, 2005), in Iran, where the highest incidence of infection was within the age group 36-45 and agreed with a study in Iraq (Abdul-Jalil *et al.*, 2010), where the highest incidence of infection was in the age group 21-25, a study in Russia and France showed the proportion of infection 78% and 46.8%, respectively (Picone, 2009).

The IgG antibody represents the phase or chronic infection that remains for a long period of up to years while the IgM antibody infection is acute and short term. This indicates that the percentage of infection with viruses is different from one region to another and from one country to another, and perhaps the reason is attributed to the method of collecting the sample taken from aborted women where the pathogen is transmitted from the pregnant mother to the fetus through the umbilical cord or that the infection is secondary, it is transmitted from mother to fetus without infection (Stango, 1977), in addition to many genetic factors, all linked to the immune response within the pregnant mother's body (Gandhoke *et al.*, 2006). This study is consistent with the researcher's study (Ahmad, 2008), In Ramadi, and it differed with the researcher in Kirkuk. The reason for this may be due to the number and type of samples used in both previous studies and the current study (Deorari *et al.*, 2000).

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