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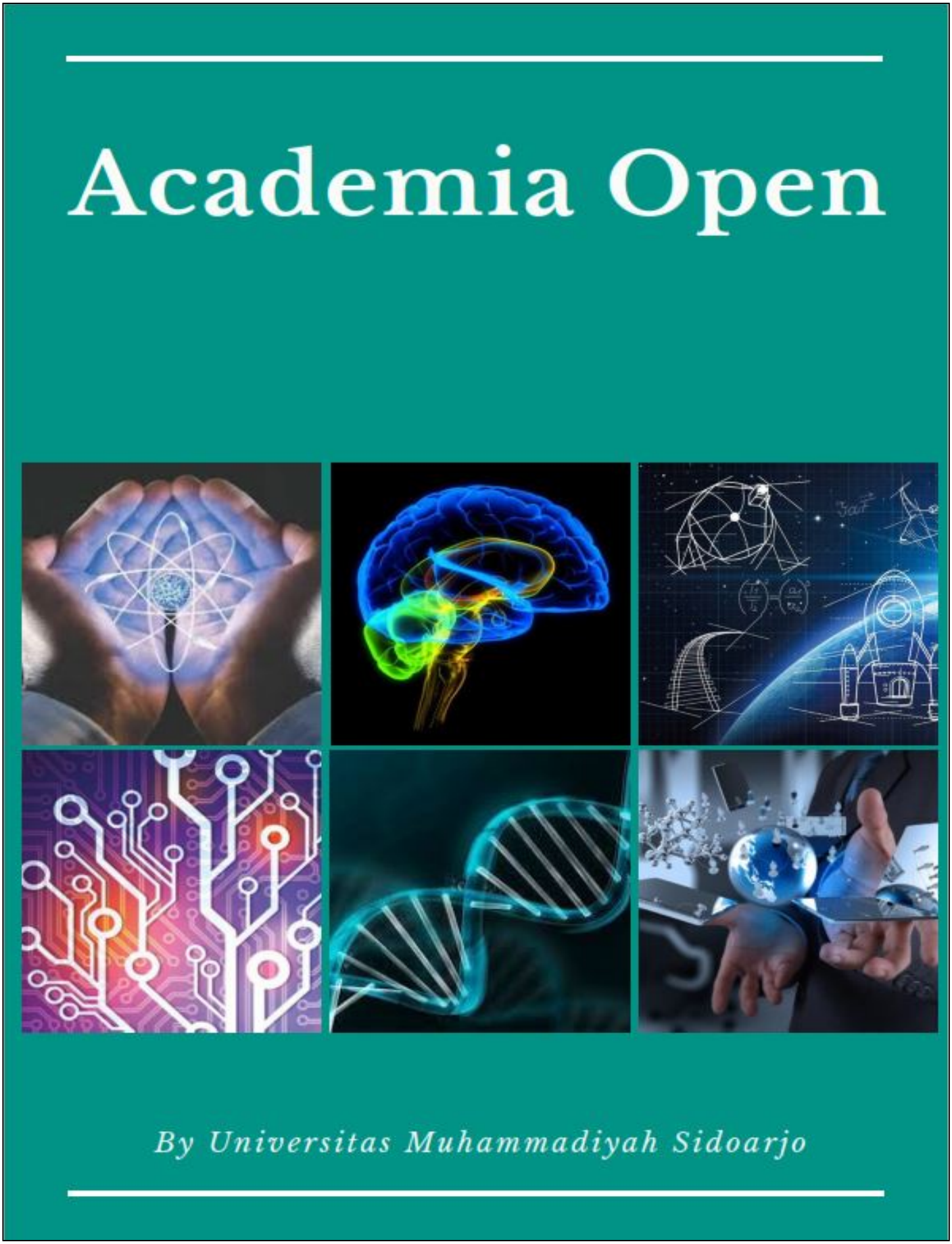

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Assessment Serum Level of Antibodies Igg and Igm in Aborted Women with Non-Abortive in AL-Khalis City

Penilaian Tingkat Serum Antibodi Igg dan Igm pada Wanita yang Diaborsi dengan Tidak Diaborsi di Kota AL-Khalis

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Abstract

The current study, which focused on women who had abortions and those who did not, was carried out in AL-Khalis city between April 2023 and August 2023. A survey was created to gather data on every instance that was part of the research. 155 blood samples were examined using a latex test, and the age group of 26 to 30 years old had the greatest abortion rate (31.57%). At the P≤0.05 level, there are notable variations. At 64.63%, the frequency was higher in urban areas, while the middle-class category had the highest rate (87.54%), followed by housewives (60.75%). Additionally, it was shown that women who experienced a first-period miscarriage had a higher infection rate (34.46%). At a rate of 60.97%, the abortion stage was either greater in the first trimester of pregnancy. At the P≤0.05 level, there are notable variations. Out of 155 instances, nine cases (3.44%) were found to be IgM positive for aborted women. The age group of 21–25 years old had the greatest percentage (5.71%). The age group of 26–30 years old had the highest infection rate (31.57%). Out of 155 cases, 5 were found to have both IgM and IgG antibodies, representing a rate of 1.88%. The age group of 21–25 years old had the highest prevalence of abortion, at 2.85%. When the latex test was used to diagnose both abortions, the study revealed a greater percentage of IgG antibody compared to IgM antibody ratios.

Keywords: IgG, aborted, non-abortive women , latex test

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Introduction

The pregnant mother's immune system adapts to prevent her body from rejecting the fetus, so inflammatory immune responses may help stimulate preterm labor. This is an immunological sign of preterm birth (1).

The STAT5 signaling pathway activity in CD4+T cells gradually increase throughout pregnancy on a precise schedule, reaching levels much higher than in non-pregnant individuals, according to the researchers, who also discovered several previously overlooked aspects of how the immune system changes. The differentiation of regulatory T cells, another subset of immune cells, is aided by the STAT5 pathway. It's interesting to note that earlier studies on animals have suggested that regulatory T cells play a crucial role in sustaining pregnancy. In order to create a comprehensive biological clock of pregnancy, we are now particularly interested in examining how the immune system interacts with other facets of the mother's biology, including her genetics, metabolism, and the body's microbial ecosystems (2).

Up to 20% of pregnancies are known to experience spontaneous abortion, which is defined as the termination of a pregnancy without outside assistance before 20 weeks of gestation. Threatened abortion, imperative abortion, incomplete abortion, missed abortion, septic abortion, complete abortion, and spontaneous recurrence are the different categories of spontaneous abortion. When an ectopic pregnancy cannot be ruled out, additional testing may be required, although abortion ultrasound imaging is helpful in diagnosing a spontaneous miscarriage. About half of cutaneous spongiform miscarriages are caused by chromosomal disorders. A number of additional factors might potentially be involved. (3,4). The most frequent outcomes of this global illness are miscarriages, fetal abnormalities, and stillbirths, which primarily affect pregnant women each year. (5). Due to the rise in infection rates and the ensuing repercussions, these diseases have been a health concern in recent decades. In Iraq specifically, as in the Middle East generally, they are the cause of numerous recurrent miscarriages (6). Nonetheless, the fetus is at risk when pregnant women contract the German measles virus since it can be transmitted through the placenta and result in fetal miscarriage.(7).

Pro-inflammatory cytokines like tumor necrosis factor-alpha and macrophage-rich infiltrates that build up in the intervillous space are linked to poor pregnancy outcomes caused by malaria. During pregnancy, the semi-allogenic fetus's cells and tissue come into close touch with the mother's immune system. In order to prevent the pregnant woman from rejecting her own fetus, certain systems must be in place to regulate the mother's immune system. (8 , 9). However, a number of issues, including preterm delivery, repeated spontaneous miscarriages, hypertension, and threatening abortion, can jeopardize the pregnancy (10). However, the Th1 type immune response, which exhibits strong expression and secretion of pro-inflammatory cytokines like TNF-α and IFN-γ along with low production of anti-inflammatory cytokines like IL-10, is likely to be the mechanism behind the vulnerability to recurrent miscarriages.(11).

The results showed that the aborted groups had significantly higher serum levels of toxoplasma IgG, IgM, and cortisol than the control group. Fetal loss occurs at a rate of 5% after a living embryo is found by ultrasonography in a healthy pregnant woman. However, the rate of loss following the discovery of embryonic heart activity is four to five times higher in women who experience repeated pregnancy loss (12).

Methods

Study samples

The current study was conducted on pregnant and non-abortioned women diagnosed by specialized doctors at Al-Khalis General Hospital for the period from April 2023 to August 2023. 155 samples of blood serum for women were collected at (82) A aborted woman, aged (15-40) years, and 73 samples of non-abortion women as a control group, aged (15-40) years. A questionnaire was prepared to collect information for each case.

Collection and Preparation of Samples:

5 ml of venous blood was withdrawn using sterile medical syringes after sterilizing the place of withdrawal with ethyl alcohol at a concentration of 70% **.** Then the serum was transferred to normal tubes at a speed of (5000) revolution-minutes and for a period of (10) minutes, and then the serum was transferred to normal tubes and it was lowered into a deep freeze at a degree of (**-**20) until immunological tests are carried out on it using a latex agglutination test IgM and IgG**.**

Statistical analysis

The results of the current study were analyzed using the t-test and chi-square test (X^2) using the statistical program known as the Statistical Package for Social Sciences (SPSS) under the probability level $p \leq 0.05$.

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Result and Discussion

Result

the situation	aborted samples	percentage %	non-abortive samples	percentage %	P≤
housing					P≤0.05
countryside	29	35..37	24	32.87	
city	53	64..63	49	67.12	
Economic situation					
poor	23	05.28	20	27.39	P≤0.05
medium	45	87.54	21	28.76	
good	14	07.17	32	43.83	
Occupation					
Officer	20	24.39	32	43.83	P≤0.05
Housewife	62	60.75	41	56.16	
The number of miscarriages					
1	38	34.46	0	0	P≤0.05
2	27	32..32	0	0	
3 ≥ miscarriage	17	73.20	0	0	
Stages of getting an abortion					
During the first period	50	97.60	0	0	P≤0.05
During the second period	20	39.24	0	0	
During the third period	12	63.14	0	0	

Table 1. *shows the aborted and non-abortive samples and the percentage distributed according to the factors affecting abortion using latex test*

Table (4-1) shows the relationship between abortion rates and the factors associated with abortion. The results recorded significant differences at the probability level of P≤0.05 for the place of residence, where the infection rate in the city was higher, reaching 64.63 while the infection rate among rural women amounted to 35.37%. The study recorded significant differences at the probability level of P≤0.05.

Regarding the economic situation, the highest rate of infection was within the medium economic situation, 87.54%. It was followed by the poor economic situation, which reached 28.05%, and the lowest percentage of the good condition was 07.17%. . Significant differences were recorded at the probability level of P≤ 0.05, and with regard to the profession, the highest infection rate was recorded among housewives, which amounted to 60.75.%, while the lowest percentage among female employees was 24.39%. Also, significant differences were recorded at the probability level of P≤0.05, and for the number of abortions, which amounted to the highest percentage among women who suffered from one miscarriage was.34.46%, and the lowest percentage among women who had suffered three or more miscarriages was 73.20%. The study also recorded significant differences at the probability level P≤0.05 for the stage of abortion, as the highest percentage reached 97.60% during the first trimester of pregnancy, followed by the abortion rate during the second trimester of pregnancy, it reached39.24%, and the lowest rate of miscarriage during the third trimester of pregnancy was 63, 14%.

Age group (year)	Examined samples	IgMj	%	IgGk	%	IgM+IgGl	%
15-20	32	1	2.38	9	21.42	1	2.38
21 – 25	37	4	5.71	17	24.48	2	2.85
26 – 30	50	2	3.50	18	31..57	1	1.75
31 – 35	25	2	4.00	11	22.00	1	2.00
36 – 40	11	0	0	13	41. 93	0	0
Total	155	9	3.44	68	27.50	5	1.88

Table 2. *shows the aborted and non-abortive samples distributed by age group and type of immunoglobulin using latex assay*

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The current study's findings, as presented in Table (4-2) for IgM antibody, indicated that the frequency of miscarriages varied significantly across age groups at the probability level of P≤ 0.05. The age group (21-25) years had the highest percentage, at 5.71%. Significant differences in the probability of repeating the abortion rates for the IgG antibody were also noted at the P ≤ 0.05 level in the age group of 40–36 years. The age group of 26–30 years had the highest abortion rate, at 31.57%, while the age group of 15–20 years had the lowest percentage, at 21.42%. Although the frequency of abortion rates for IgM + IgG antibodies did not differ significantly at the probability threshold of P≤0.05, the age group of 21–25 years old had the greatest infection rate, 2.85%, while the age group of 40–36 years old did not.

Discussion

The current study was registered the abortion rate is higher in the city than in the countryside, with a significant difference, as shown in the table(4-1). The results of the current study are in agreement with the study (13,14, 15) and the study (16) in Sulaymaniyah and agree with (17) in Mosul, because the abortion rate in the city is higher than in the countryside. The results of the study did not agree with (18) study in Erbil, as they did not find a relationship between abortion and place of residence. (19). The reason for the rise in abortion in the city may be due to the eating habits followed, the increase in environmental pollutants, and the population inflation compared to the countryside.

The current study found high abortion rates within the middle-income group of society, followed by the poor group, while the lowest abortion rates were recorded within the good group, as shown in Table (4-1). The high rates of abortion among the group with medium economic status, while the study did not agree with (20) that there are no significant differences between abortion and economic status. The current study found a high rate of abortion among housewives compared to female employees, as shown in Table (4-1). The current study agreed with the study (13,14,15) where they found a lower abortion rate among female employees compared with housewives.

As indicated in Table (4-1), the percentage of women who experienced one miscarriage increased in the current study with a significant difference. One abortion, but the current study disagreed with (3) since it failed to identify a connection between the number of abortions and the number of women who suffered. The current study disagreed with (21) because it discovered that the number of two-time abortions is higher than the number of one-time abortions. This could be because the pregnant mother's body's immunity is weakened, and the time of the abortion during pregnancy plays a significant role in determining the fetus's destiny.(22).

The length of pregnancy is determined by the fetus's level of resistance and the immunity it has spontaneously acquired through the placenta. As a result, the fetus is more susceptible to immune system failure during the first trimester of pregnancy, and antibodies are produced in the fetus's body after the third month of pregnancy. (23 ; Rabe et al., 2015). Regarding the age groupings, Table (4-2) indicates that the highest proportion of abortions occurred in the 26–30 age group, while the lowest rate occurred in the 15–20 age group. The present study concurred with the findings of Al-Ghazi (2012) (14) , Richardson (2001) (25) , and Begum (2012) (22) in Bangladesh, where the largest percentages were seen among those aged 39 to 35. The current study's findings, however, did not support Duffy and Fried's (2005) (23) findings because they failed to identify any noteworthy distinctions between age groups and abortion. The increased likelihood of pathogen exposure with age and the immune system's steady decline with age are the causes of the high incidence of abortion in the 26–30 age range (24). These factors also make these groups more susceptible to miscarriages. According to Table (4-2), the age group of 25–21 years old had the highest abortion rate of IgM antibody, while the age group of 26–30 years old had the largest percentage of IgG antibody. Additionally, the age group of 25–21 years old had the highest abortion rate of IgM + IgG antibody. This outcome is consistent with the research. (14,15).

While chronic abortion occurred in older age groups, indicating that she had previously had an abortion, acute abortion occurred in younger age groups because they are more fertile for childbirth and the weakened immune system allows for an abortion. As indicated in Table (4-2), the current study found that IgG antibody was high while IgM antibody was low. While the current study's findings are in agreement with the studies conducted in Turkey (13,14,15) and Diyala (16), where it was discovered that the pregnant group's IgM antibody proportion was 23.5% while the IgG antibody proportion was 8.6%, and Al Khashab (2009) (15), where the proportion of IgM was 58% while the IgG antibody proportion was 34%.

A defect in the placental transfer of IgG antibody causes the levels of this antibody to accumulate in the pregnant mother, which is the cause of the high levels of antibodies in women's sera, particularly IgG, the only antibody that is transferred from the mother to her fetus through the placenta. Since antibodies give the baby the protection it needs until its immune system reaches full maturity, her fetus passing through the placenta is, for some reason, one of the pathological factors linked to tissue disorders of the placenta (14).

Conclusion

1. When latex examination was used to diagnose both abortions, the study revealed a greater percentage of IgG antibody compared to IgM antibody ratios.

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2. When the diagnosis was performed by latex examination, the study revealed a greater percentage of IgG antibody compared to IgM antibody ratios for both abortions.

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