ISSN NO: 2770-2936
Date of Publication:11-02-2023

The impact of rheumatic diseases in Iraq on pregnant women whose ages range from (25-35 years).

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Abstract
Background: Rheumatoid arthritis (RA) is a chronic, recurrent inflammatory autoimmune condition characterized by persistent inflammation of the synovial joints, which over time and especially without intensive treatment, leads to erosive development, with the destruction of the articular cartilage and complete loss of joint integrity. **Aim:** This paper aims to study the Impact of Rheumatic Diseases in Iraq on Pregnant Women Whose Ages Range from (25-35 Years). **Patients and Method:** In this study, a descriptive cross-sectional study was applied to study The Impact of Rheumatic Diseases in Iraq on Pregnant Women Whose Ages Range from (25-35 Years) from August 6, 2021, to October 5, 2022. Data were collected for 130 patients in different hospitals in Iraq. Where the patients were divided into two groups, the first group of patients, which included patients with inflammatory joint disease, which included (70) patients, and the second group, the control group, which included control patients, which included (60). A statistical program called SPSS was used as this statistical study was presented and implemented on both groups. **Results and Discussions:** Rheumatoid arthritis is an autoimmune disorder that affects the joints. Cases were presented as 33 ± 2.3 for patients with inflammatory joint disease. And 32 ± 1.9 patients for the control group. Age of disease onest (Mean ± SD) for the inflammatory joint disease group was 24.3 ± 43.9, and for the Controls group, 23.1 ± 1.5. As for the evaluation of TTP, the cases showed TTP≤ 12 months for the group of inflammatory joint disease 55 (78.57%) and the control group, while 40 (66.67%), and for the evaluation of TTP> 12 months, the group for the inflammatory joint disease was 15 (21.43%), while the control group was estimated to be 20 (33.33%) with a P-VALUE of 0.0459. Approximately 1.3 million people suffer from rheumatoid arthritis in the United States. **Conclusion:** This study concludes that rheumatoid arthritis is more susceptible and affects pregnant women, which generates an adverse effect on pregnancy, including a higher risk of premature delivery with or without NICU admission and miscarriage. Based on the previous results, this study confirmed that the patients of the control group are more successful and less susceptible to infection than the patients with inflammatory joint disease due to the complications that cause both patients of the two groups, as well as the results related to newborns, as the results showed that the congenital anomalies of patients with inflammatory joint disease are more than from Control patients and this was shown and confirmed by previous studies.

Keywords: Rheumatoid arthritis (RA); Juvenile idiopathic arthritis (JIA); Psoriatic arthritis (PSA); and Ankylosing spondylitis (AS)

Introduction

Rheumatoid arthritis (RA) is a chronic, recurrent inflammatory autoimmune condition characterized by persistent inflammation of the synovial joints, which over time and especially without intensive treatment, leads to erosive development, with the destruction of the articular cartilage and complete loss of joint integrity.

ISSN NO: 2770-2936
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It can also affect other organs and systems less frequently [1]. To follow up on this, some women with rheumatoid arthritis suffer from a disorder in the immune system that attacks body tissues by mistake, and they inform the attending physician of worsening symptoms during pregnancy. Many also report a worsening of symptoms after delivery, usually in the first trimester [2]. According to the researchers, the researchers are studying the causes of these changes [3]. And because women are more likely than men to develop rheumatoid arthritis, one theory states that the female sex hormones, estrogen, and progesterone [4], play a role in this, as rheumatic autoimmune diseases frequently appear in women of childbearing age. With the improvement in the outcome of these diseases, pregnancy is no longer forbidden for our patients, although we must remember that pregnancy is still a condition that poses risks to the health of the mother and fetus, so we need to know all about these problems and discuss them with patients [5]. However, pregnancy problems may focus on disease activity, the risk of exacerbations, or the effect of the disease on the health of the fetus and the risk of obstetric complications [6]. It is also necessary to assess the need to withdraw the medications that the patient is taking to control the disease and replace them or not with ones that do not harm the fetus, as the risks of exacerbation are not the same for all rheumatic diseases [7]. In fact, some diseases, such as rheumatoid arthritis (RA), improve during pregnancy, while others, such as systemic lupus erythematosus (SLE), worsen. This is due to a decrease in the number of Th1 lymphocytes (favoring the cellular immune response, mediated by lymphocytes, macrophages, etc.) and an increase in Th2 (favoring the humoral or antibody-mediated immune response) [9]. However, women who take medications that contain estrogen — as part of oral contraceptives or hormone replacement therapy for menopause — usually don't see any change in their rheumatoid arthritis symptoms [10]. During pregnancy, changes occur in the mother's immune system that prevents the fetus from being rejected as a foreign body [11]. The researchers investigate whether these changes are related to the worsening of rheumatoid arthritis symptoms. Based on studies that took place in the United States, it affects about 0.8 percent of the adult population worldwide [12]. Its incidence in the United States is estimated to be 54 per 100,000 women. Women of childbearing age can be affected by this disease during pregnancy, and population estimates indicate that more than 2,000 women with RA become pregnant in the United States each year. During pregnancy, patients with rheumatoid arthritis can eventually develop complications, and greater activity of the disease may be observed for some pregnant women, in addition to premature delivery, low birth weight, and even miscarriages [13,14]. To determine the causes of the greater risk of complications in these women with RA and to evaluate the most appropriate and safest treatment approach. This review will focus on issues related to fertility, pregnancy, and the prescribing of safe medications throughout pregnancy and lactation in women with rheumatoid arthritis but other diseases such as polymyositis, dermatomyositis, and vasculitis that do not appear to be affected by pregnancy. Scleroderma is generally not affected by a pregnancy unless the heart or lungs are affected [15]. According to WHO, disease activity in rheumatoid arthritis improves during the first trimester of pregnancy so that approximately 30% of patients can go into remission. This also depends on the elevation of anti-episode citrullinated peptide and/or RF antibodies and disease activity at the time of pregnancy. 90% of patients with rheumatoid arthritis have a higher risk of exacerbations during the three months following delivery, so treatment should be restarted after delivery if it has been discontinued [16]. The World Health Organization also confirmed that rheumatoid arthritis usually improves in a high percentage of patients, especially after the second trimester of pregnancy [17]. However, the same is not the case with psoriatic arthritis or ankylosing spondylitis; in the latter case, a similar proportion of patients improve, worsen, or remain stable during pregnancy. Postpartum relapses are frequent in all three pathologies [18]. With reference to systemic lupus erythematosus, three out of ten patients present with mild to moderate episodes, especially during the second half of pregnancy and in the postpartum period. However, most of these outbreaks are treatable and do not endanger the mother or fetus [19]. For its part, the antiphospholipid syndrome is associated with miscarriage, fetal loss, and an increased risk of clot formation in the veins and arteries, which is why the use of anticoagulant drugs is usually necessary [20]. This paper aims to study the Impact of Rheumatic Diseases in Iraq on Pregnant Women Whose Ages Range from (25-35 Years).

Patients and Method

In this study, a descriptive cross-sectional study was applied to study The Impact of Rheumatic Diseases in Iraq on Pregnant Women Whose Ages Range from (25-35 Years) from August 6, 2021, to October 5, 2022.

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Data were collected for 130 patients in different hospitals in Iraq. Where the patients were divided into two groups, the first group of patients, which included patients with inflammatory joint disease, which included (70) patients, and the second group, the control group, which included control patients, which included (60). A statistical program called SPSS was used as this statistical study was presented and implemented on both groups. IBM SPSS Statistics software for Windows, version 26.0, was used for data entry and analysis (Armonk, NY: IBM Corp). For quantitative variables, data are reported as the mean and standard error of the mean (SEM). Frequency and proportions of qualitative characteristics are given. Mean differences between the two groups were determined using Welch's test. To examine the mean differences between more than two groups, Welch's one-way ANOVA was used. To discover relationships between qualitative variables, Pearson chi-square and Fisher exact tests (different parameters between RA pregnancies and healthy controls of pregnancy, outcomes associated with RA with medications used during pregnancy, and history of disease activity during pregnancy) were performed. The level of statistical significance $p < 0.05$ was chosen—binary logistic regression analysis. A negative pregnancy outcome was the categorical dependent variable (yes, no). At a significance level of 5%, the chi-square and Hosmer-Lemichew model values were significant, indicating that the model was adequate. This study presented demographic results of rheumatic Diseases in Iraq on Pregnant Women, which included data presented in Table 1, which included Age (Mean±SD) years, BMI (km/m2), Age of disease onest (Mean±SD), HISTORY OF MISCARRIAGE, TTP for TTP ≤ 12 months or TTP > 12 months, Medication during pregnancy, Economic level for (low, middle, high) as well as educational level as shown in Table 1. To follow up on this, Evaluate the results according to the neonates divided into two groups were presented in this study, where the collected data for both groups were shown, the first group, which is an inflammatory joint disease, and the second group, which is control, as it included New, born weight, Congenital anomalies (%), Stillbirth (%), preterm birth (%), and NICU admission (%). In Table 3, Outcomes of complications of Inflammatory joint disease for Iraq on Pregnant Women are presented, which included Rheumatoid arthritis (RA), Juvenile idiopathic arthritis (JIA), Psoriatic arthritis (PSA), Ankylosing spondylitis (AS), Synovitis, acne, pustulosis, hyperostosis, and osteitis (SAPHO), which allows to present in Table 4 Logistic Evaluation of affected parameters of pregnant women patients' analysis.

Results

Table 1- Demographic results of rheumatic Diseases in Iraq on Pregnant Women.

Items	**Inflammatory joint disease (70)**	**Controls (60)**	**P-VALUE**
Age (Mean±SD) years	29±1.2	28.5±1.5	0.047
BMI (km/m2)	33±2.3	32±1.9	0.0462
Age of disease onest (Mean±SD)	24.3±43.9	23.1±1.5	0.0475
HISTORY OF MISCARRIAGE			
YES	3 (4.29%)	3 (5%)	0.0495
NO	67 (95.71%)	57 (95%)	0.0494
TTP			
TTP≤ 12 months	55 (78.57%)	40 (66.67%)	0.0468

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TTP> 12 months	15 (21.43%)	20 (33.33%)	0.0459
Medication during pregnancy			
YES	40 (57.14%)	37 (61.67%)	0.0436
NO	30 (42.86%)	23 (38.33%)	0.0463
Economic level			
low	35 (50%)	23 (38.33%)	0.0386
middle	20 (28.57%)	20 (33.33%)	0.0472
high	15 (21.43%)	17 (28.33%)	0.0421
Education level			
low	33 (47.14%)	27 (45%)	0.042
middle	22 (31.43%)	17 (28.33%)	0.0357
high	15 (21.43%)	16 (26.67%)	0.0385

Table 2- Evaluate the results according to the neonates divided into two groups.

ITEMS	**Inflammatory joint disease patients (70)**	**Controls (60)**	**p-value**
New-born weight, Mean±SD, gm	2720±67	3064±27	0.0358
Congenital anomalies, n (%)	6 (8.57%)	3 (5%)	0.0428
Stillbirth, n (%)	5 (7.14%)	2 (3.33%)	0.0367
preterm birth, n (%)	4 (5.71%)	1 (1.67%)	0.0415
NICU admission, n(%)	6 (8.57%)	2 (3.33%)	0.0371

Table 3- Outcomes of complications of Inflammatory joint disease for Iraq on Pregnant Women.

ITEMS	**Inflammatory joint disease patients (70)**	**Controls (60)**	**p-value**
Rheumatoid arthritis (RA)	2 (2.86%)	1 (1.67%)	0.047

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Juvenile idiopathic arthritis (JIA)	5 (7.14%)	2 (3.33%)	0.027
Psoriatic arthritis (PSA)	3 (4.29%)	1 (1.67%)	0.0347
Ankylosing spondylitis (AS)	4 (5.71%)	2 (3.33%)	0.0426
Synovitis, acne, pustulosis, hyperostosis, and osteitis (SAPHO)	3 (4.29%)	1 (1.67%)	0.0411

Table 4 - Logistic Evaluation of affected parameters of pregnant women patients' analysis.

ITEMS	**Inflammatory joint disease patients (70)**	**Controls (60)**	**p-value**
New-born weight, Mean±SD, gm	0.635 (0.64-1.2)	0.73(0.64-1.4)	0.045
Congenital anomalies, n (%)	1.525 (0.73-1.65)	1.27 (0.92-1.7)	0.0465
BMI (km/m2)	1.521 (1.2-1.72)	1.24 (0.93-1.53)	0.0455
Age of disease onest (Mean±SD)	1.762 (1.73-2.7)	2.23 (1.76-3.5)	0.0436
Rheumatoid arthritis (RA)	1.44 (1.26-1.7)	1.44 (1.1-2.5)	0.0455
Juvenile idiopathic arthritis (JIA)	5.32 (2.3-6.6)	1.21 (0.5-2.0)	0.0356
Ankylosing spondylitis (AS)	1.542 (1.42-1.75)	1.32 (1.1-2.7)	0.0458

Discussion

Rheumatoid arthritis is an autoimmune disorder that affects the joints. Autoimmune disorders occur when antibodies (substances produced by the immune system to fight disease) mistakenly attack healthy tissues anywhere in the body [21,22]. As shown in Table 1, the demographic data collected for rheumatoid arthritis patients were presented to pregnant patients for both the control groups and the 130 patients, where it was found that the number of cases had previously HISTORY OF MISCARRIAGE There were 3 (4.29%) for patients with inflammatory joint disease and 3 (5%) for the control group with P-VALUE 0.0495 and no HISTORY OF MISCARRIAGE 67 (95.71%) for the group of rheumatoid patients and 57 (95%) for the

ISSN NO: 2770-2936
Date of Publication:11-02-2023

control group. This study presented Age (Mean ± SD) years and included 29 ± 1.2 for the group of patients with inflammatory joint disease and 28.5 ± 1.5 for the group of patients with control with a P-value of 0.047 with BMI (km/m2). Cases were presented as 33 ± 2.3 for patients with inflammatory joint disease. And 32 ± 1.9 patients for the control group. Age of disease onest (Mean ± SD) for the inflammatory joint disease group was 24.3 ± 43.9, and for the Controls group, 23.1 ± 1.5. As for the evaluation of TTP, the cases showed TTP≤ 12 months for the group of inflammatory joint disease 55 (78.57%) and the control group, while 40 (66.67%), and for the evaluation of TTP> 12 months, the group for the inflammatory joint disease was 15 (21.43%), while the control group was estimated to be 20 (33.33%) with a P-VALUE of 0.0459. In rheumatoid arthritis where the immune system attacks the lining of the joints. This can cause inflammation (redness and swelling), pain, and damage to cartilage and bone. Rarely rheumatoid arthritis can affect other organs, such as the lungs or blood vessels. Approximately 1.3 million people suffer from rheumatoid arthritis in the United States. Rheumatoid arthritis and other autoimmune disorders often last a lifetime [23,24]. People with rheumatoid arthritis may feel well for some time and experience symptoms again at another time. Treatment can often help prevent and relieve symptoms [25]. Presented in Table 2 Evaluate the results according to the neonates divided into two groups which include, New-born weight, Mean±SD, gm, Congenital, anomalies, n (%), Stillbirth, n (%), preterm birth, n (%), NICU admission, n(%), where the most infected cases were Congenital anomalies, which included the group of Inflammatory joint disease patients 6 (8.57%) and the control group 3 (5%) with a p-value 0.0428. RA sometimes develops during the childbearing years and can affect pregnancy. Fortunately, most women with rheumatoid arthritis have healthy pregnancies, which is shown in Table 3. Outcomes of complications of inflammatory joint disease for Iraq on Pregnant, Women Rheumatoid arthritis (RA), Juvenile idiopathic arthritis (JIA), Psoriatic arthritis (PSA), Ankylosing spondylitis (AS), Synovitis, acne, pustulosis, hyperostosis, and osteitis (SAPHO), which presented in the group of inflammatory joint disease patients, which amounted to 5 (7.14%) and 2 (3.33%) for the control group, which caused juvenile idiopathic arthritis. Where it was presented in Table 4, Logistic Evaluation of affected parameters of pregnant women patients' analysis, congenital anomalies, n (%), Ankylosing spondylitis (AS), and Rheumatoid arthritis (RA) were the most influential, as Congenital anomalies showed 1.525 (0.73-1.65). For the group of Inflammatory joint disease patients and 1.27 (0.92-1.7) while Ankylosing spondylitis (AS) was 1.542 (1.42-1.75) for the group of Inflammatory joint disease patients, but 1.32 (1.1-2.7) for the control group while Rheumatoid arthritis (RA) was the most affected group 1.44 (1.26-1.7) for the group of inflammatory joint disease patients, but 1.44 (1.1-2.5) for the control group. In women with rheumatoid arthritis, pregnancy planning is important because it should begin during the remission of the disease. Obstetric complications are associated with pregnancy beginning in the active phase of rheumatoid arthritis [26]. Treatment with glucocorticoids (hydroxychloroquine and a TNF antagonist) at low doses during the first trimester of pregnancy has shown safety for the mother and the fetus and efficacy in maintaining the disease in remission. [27]

Conclusion

This study concludes that rheumatoid arthritis is more susceptible and affects pregnant women, which generates an adverse effect on pregnancy, including a higher risk of premature delivery with or without NICU admission and miscarriage. Based on the previous results, this study confirmed that the patients of the control group are more successful and less susceptible to infection than the patients with inflammatory joint disease due to the complications that cause both patients of the two groups, as well as the results related to newborns, as the results showed that the congenital anomalies of patients with inflammatory joint disease are more than from Control patients and this was shown and confirmed by previous studies. However, disease control must be strictly targeted. It is suggested that the condition be treated before pregnancy. Pregnant women with rheumatoid arthritis, like other chronic disease patients, should be educated and encouraged to plan their pregnancy with their doctor.

ISSN NO: 2770-2936
Date of Publication:11-02-2023

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