

Health outcomes in patients with rheumatoid arthritis in pregnant women

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Abstract

A cross-sectional study was conducted at different hospitals in Iraq to find out health outcomes in patients with rheumatoid arthritis in pregnant women

In this study, 170 patients were collected and divided into two groups (90 patients diagnosed with pregnancy and rheumatoid arthritis) (observing 80 patients diagnosed with pregnancy and without rheumatoid arthritis or mild activity to the disease) with a period from 1 Nov 2019 to Aug 2020

Rheumatoid arthritis (RA) is a type of arthritis that mainly affects the joints, which means that the immune system does not work as well as it should, causing inflammation in the joints. Symptoms may include swelling, stiffness, discomfort, and pain and may cause restricted movement

The statistical analysis program IBM SPSS SOFT 25.0 was used, where the statistical values and relationships between the patient group and the disease activity were presented, in addition to

Evaluate the final outcomes for the patients of this study in terms of complications and antepartum outcomes, Intrapartum outcomes, and Postpartum outcomes

the result which found were DAS28-CRP mean (SD) 4.99 (1.6) and for control 1.1 (0.9), Age at pregnancy, mean \pm SD, years 33.99 ± 0.44 , and for control 29.99 ± 1.1 with p value 0.01, Preterm birth, n (%) 30 (33.3), for control 10 (12.5). NICU admission, n (%) for patient 9 (10) and for control 0 (0).

the results according to Postpartum outcomes were seven patients and for control were 3 cases, Postpartum infection for five patients and for control 3 cases with a p-value of 0.09, and about Wound complications for seven patients and for control 1 case with a p-value <0.001

The coexistence between pregnancy and systemic autoimmune diseases is not uncommon, as rheumatoid arthritis is the second most common during pregnancy, so knowledge of this pathological condition in relation to pregnancy was found to be a statistical relationship between disease activity and the increase in complications

Keywords : Pregnancy, Autoimmune, Rheumatoid arthritis, CRP, NICU, Statistical relationship.

Introduction

Rheumatoid arthritis is an idiopathic inflammatory immune disease with a systemic effect. The main clinical manifestation is persistent synovitis in small spongy joints, although it can also affect large joints, with a generally symmetrical pattern. Extra-articular involvement of the disease can damage various organs and systems [1,2].

RA is more prevalent in women, and although it is rare in women under 40 and the cumulative risk increases after that age, it is increasingly common for pregnant women to be diagnosed with this disease, and there is no doubt that the advanced maternal age and assisted reproductive technologies contribute to this increase. [3,4,5]

Although the progression of rheumatoid arthritis during pregnancy decreases, there are patients who remain with active disease. [7]

In these cases, an increased risk of first-trimester miscarriage, prematurity and pre-eclampsia, intrauterine growth restriction, and an increased rate of caesarean sections have been reported. [8]

The desire to conceive is a real challenge for clinicians who care for patients with chronic inflammatory diseases such as rheumatoid arthritis. [9] Therefore, a rigorous assessment of the potential risk of reactivating rheumatic diseases during pregnancy is required; Assess risks in pregnancy outcomes, fetal development, and action of different ant-rheumatic drugs in order to maintain optimal control of disease activity and avoid any teratogenic event. [10]

It has been suggested that there is a protective effect of pregnancy on the development of rheumatoid arthritis. Case-control studies have shown a higher risk of RA among the unborn population and, moreover, a lower likelihood of RA initiation during pregnancy than outside of it. [11] Oral contraceptive use also appears to protect against the development of rheumatoid arthritis, with an effect as well as that of pregnancy. [12] As a result, unborn patients without a history of oral contraceptive use had a risk, expressed as an odds ratio, four times higher for developing RA than those with at least one pregnancy and a history of use contraceptives. [13]

It has long been known that signs and symptoms of rheumatoid arthritis improve spontaneously during pregnancy and only worsen postpartum. [14] Although the mechanisms underlying this phenomenon are still not fully understood, there is growing interest in the immunological changes that occur during a healthy pregnancy. As a possible explanation and because the maternal immune system must adapt during pregnancy to accept the fetus, it has been hypothesized that this normal pregnancy-induced changes in regulatory cells of the maternal immune system

May have the additional benefit of controlling immune pathology and disease activity. [15]

Patient and method

In this study, 170 patients were collected and divided into two groups (90 patients diagnosed with pregnancy and rheumatoid arthritis) (observing 80 patients diagnosed with pregnancy and without rheumatoid arthritis or mild activity to the disease) with the period from 1 Nov 2019 to Aug 2020

The average age of patients in this research ranged between 22-40 years.

In this study, medications were taken to control inflammation and prevent or reduce joint damage. People with rheumatoid arthritis are more likely to have problems during pregnancy. If rheumatoid arthritis was well controlled in the 3 to 6 months before conception, you usually have a lower chance of having pregnancy complications than people with more active rheumatoid arthritis

Regarding the relationship between pregnancy and rheumatoid arthritis, the study indicated that there is an increased risk of premature birth, gestational diabetes, pre-eclampsia in the mother, and delayed fetal growth. In addition, it has been observed that there is a higher frequency of cesarean deliveries in women with rheumatoid arthritis.

During pregnancy, approximately half of patients experience an improvement in the disease. However, once delivery, the disease is usually reactivated, so treatment must be resumed.

Results

Table 1- Descriptive statistics of characteristics of patient study

	Patient, 90	Control, 80	P-value
Age, yrs, mean (SD)	35 (4.4)	30 (3.5)	0.01
BMI mean (SD)	31 (3.2)	29 (2.5)	0.67
Comorbidities (%)	40 (44.4)	30 (37.5)	0.05
RA duration, yrs, mean (SD)	9 (2.1)	--	0.43
DAS28-CRP mean (SD)	4.99 (1.6)	1.1 (0.9)	0.0055
Prednisone use during pregnancy	45 (50)	---	0.00235
Type of hospital			
Rural	60	55	
Urban	30	25	
Anti-rheumatic drugs received at the time of conception, n			
MTX	7 (7.7)	--	0.001
SSZ	8 (8.7)	--	
CSs	5 (5.6)	--	
HCQ	4 (4.4)	--	
ESR before conception	19.1 ± 2.4	18.88±2.5	
CRP before conception	12.1 ± 1.4	11.9 ± 1.66	

Table 2- Examination of pregnancy-related outcomes

	Patient, 90	Control, 80	P-value
Age at pregnancy, mean ± SD, years	33.99 ± 0.44	29.99 ± 1.1	0.01
New-born weight,	2888.44 ± 96.8	3100.09 ± 23.3	0.05
Fetal mortality rate	2 (2.2)	1 (1.25)	0.567
Preterm birth, n (%)	30 (33.3)	10 (12.5)	0.24
NICU admission, n (%)	9 (10)	0 (0)	0.001

Table 3- Outcomes of Disease Activity Score-28 for Rheumatoid Arthritis with CRP

	Patient	Control	P-value
Before pregnancy	5.2±1.3	3.7±1.1	0.001
During pregnancy	6.1±1.5	3.6±1.0	0.004

Table 4- Evaluate the final outcomes for the patients of this study in terms of complications and antepartum outcomes, Intrapartum outcomes, Postpartum outcomes

Variable	Patient	Control	P-value
Antepartum			
Gestational Hypertension	4	1	0.04
Preeclampsia/eclampsia	3	2	0.9
Gestational diabetes	1	1	0.00
Intrapartum outcomes			
Chorioamnionitis	10	8	0.5
Spontaneous vaginal delivery	45	59	0.05
Caesarean section	35	13	0.01
Postpartum outcomes			
Postpartum hemorrhage	7	3	0.033
Postpartum infection	5	3	0.09
Wound complications	7	1	<0.001

Table 5- Assessment outcomes Disease Activity Improvement Deterioration Improvement

Variable	Improvement	Patient	Control
R correlation	1	-0.93**	+0.43
s-sig	--	0.012	0.55
N	170		

Discussion

A cross-sectional study was conducted at different hospitals in Iraq to find out health outcomes in patients with rheumatoid arthritis in pregnant women.

In this study, 170 patients were collected and divided into two groups (90 patients diagnosed with pregnancy and rheumatoid arthritis) (and control 80 patients diagnosed with pregnancy and without rheumatoid arthritis).

In this research, patients whose ages ranged from 22 years to 40 years were recruited. The patients' age values were analyzed according to to mean (SD).

Mean (SD) for the age of the patients was 35 (4.4), while for the control group, it was 30 (3.5).

Evaluation of rheumatoid disease activity is of fundamental importance for making therapeutic decisions and for determining prognosis in patients with this disorder. Although this assessment has traditionally been done as a guide only based on the patient's impression, various tools have been developed in recent decades and validated extensively for this purpose [16].

The high DAS28-CRP mean (SD) for the patients' group was found to be 4.99 (1.6), while for the control group, it was 1.1 (0.9), and a statistically significant relationship was found for the group of patients and DAS28-CRP

There was a multidisciplinary follow-up of the pregnancy in the Department of Obstetrics, Endocrinology, and Clinical Immunology. In laboratory analyzes in the first trimester, gestational hypothyroidism has been reported.

This clinical case reveals three important aspects regarding the association between rheumatoid arthritis and pregnancy: 1) the importance of diagnosing the disease prior to pregnancy, 2) the importance of establishing optimal treatment in terms of efficacy and safety for the mother, patient, and fetus in both the pre-conception and prenatal stages, and 3) the need to develop specific, individualized follow-up guidelines [17].

Final outcomes for the patients of this study in terms of complications and antepartum outcomes, Intrapartum outcomes, and Postpartum outcomes [18]

In rheumatoid arthritis during pregnancy is well described (affects about 60% of women). Perhaps this situation is due to the physiological adaptations of the mother's immunity during pregnancy, which occur so that the mother's immune system does not reject the fetus. [19]

Fetal antigens and high concentrations of progesterone, estrogen, and chorionic gonadotropin are factors that enhance maternal and fetal immune tolerance, which also have systemic effects. [20]

Pro-inflammatory factors are reduced during pregnancy to allow normal placental development and proper fetal development, in part due to increased innate immune activity, which reduces the incidence of RA.

Postpartum haemorrhage, fetal growth disorders during pregnancy, Postpartum infection, and Wound complications have been reported

Norgaard and colleagues found a 5% risk of pre-eclampsia in pregnant women with rheumatoid arthritis versus 3.4% in the healthy population. Similarly, the incidence of fetuses of small gestational age is 10% in affected patients versus 3% in healthy women. The risk of intrauterine growth restriction is also higher in patients with RA (odds ratio: 1.93; 95% confidence interval: 1.81-2.05).patient in the case presented here did not suffer from any of these complications.

Conclusion

Pregnancy planning is essential in women with rheumatoid arthritis, as it should begin during the remission of the disease. Obstetric complications are associated with pregnancy beginning in the active phase of rheumatoid arthritis. Treatment with low doses through the first trimester of pregnancy has been shown to be safe for the mother and the fetus, as well as effective in keeping the disease in remission.

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