

Prevalence and Outcomes of Rheumatoid Arthritis with Pregnancy: A Systematic Review Article

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ABSTRACT

Background: The medical practitioner looking after women with rheumatoid arthritis (RA) may find pregnancy challenging. The challenges that females with RA have when trying to get pregnant are less well understood, both in terms of fertility, pregnancy outcomes, and medication safety.

Objectives: This study aimed to assess current evidence regarding pregnancy outcomes in pregnant women with rheumatoid arthritis.

Methods: Information services from the PubMed database were used to choose the articles on rheumatoid arthritis, pregnancy, inflammatory disease. In our review, all pertinent articles related to both our topic and other articles were used. Other articles that have nothing to do with this subject were not included. The group members looked through a certain format in which the data had been extracted.

Conclusion: According to the findings of the included studies, pregnancies in women with RA are linked to higher relative risks for a range of negative effects on both the mother and the unborn child. Remission of the disease is recommended prior to conception. RA patients who are expecting should receive the same information and encouragement to schedule pregnancies with their doctors as other individuals with morbid diseases.

Keywords: Rheumatoid arthritis, Pregnancy, Inflammatory disease.

INTRODUCTION

Pregnancy could be difficult for the medical professional caring for women with rheumatoid arthritis (RA). There are some RA patients who experience a recurrence and require ongoing medication, even though many find that their joint pain and inflammation naturally reduce during pregnancy ⁽¹⁾.

Since RA disease activity affects TTP and pregnancy outcomes in RA patients, it is essential to accurately monitor severity of RA disease through pregnancy. However, this is difficult since pregnancy impacts a number of metrics used to assess the severity of an illness or its components ⁽²⁾.

In order to strike a compromise between the need to quit using teratogenic drugs like MTX and LEF with maintaining disease management, rheumatologists must modify the treatment regimen for RA patients who desire to become pregnant. There is a little knowledge in the rheumatological community about the use of anti-TNF medications in RA women prior to conception or throughout pregnancy ⁽³⁾.

It's essential to tailor the treatment such that the sickness is stabilised before conception and to select medications that can be used without causing harm to the unborn child or nursing mother. Less is known regarding the difficulties that men with RA have when trying to get pregnant, in fertility, pregnancy outcomes, and medication safety ⁽⁴⁾. The latest research on the progression of severity of RA disease through pregnancy is summarized in this article.

Study Methods:

Between July 1 and October 30, 2022, a qualitative systematic evaluation was carried out. Rheumatoid arthritis, pregnancy, inflammatory disease, and other key words were used in diverse combinations during an electronic systematic search on PubMed. The research used to create the report comprised clinical studies, cohort studies, prospective studies, and retrospective investigations.

The inclusion criteria were all pertinent studies with goals comparable to those of our investigation. Due to a lack of translation resources, the time and language constraints were set at 10 years and English only. All studies unrelated to our subject and articles published ten years ago or more were excluded from consideration.

Following the extraction of qualitative data, the authors provided the names of the authors, the year, the type of study, the methodology, and the findings. The data analysis process used no software. On a Microsoft Excel Worksheet, the data were retrieved based on a specific form. The group members looked over these data to ascertain the preliminary conclusions and the approaches for using the surgical method. To verify validity and reduce errors, each member's results underwent a second round of revision.

RESULTS

The selection and identification of research are shown in figure (1). A total of 314 studies were found after searching the aforementioned databases, which were then

used for title screening, 211 of them were included for the abstract screening, which resulted in 189 articles being excluded. The full texts of the remaining 22 publications were examined. Due to differences in study objectives, the full-text revision resulted in the elimination of 17 studies, and 5 were enlisted for final data collection (Table 1).

The five included studies reported adverse pregnancy outcomes and post-partum complication. According to **Bobircă et al.** ⁽⁶⁾, 4.9% of participants had intrauterine growth restriction, 1.2% had stillbirths, 1.2% had eclampsia, and 18.3% of participants had spontaneous abortions. Preterm deliveries occurred in 11.0% of cases, small for gestational age newborns in 7.3% of cases, spontaneous abortions in 18.3% of cases,

and preterm deliveries in 11.0% of cases. Women with RA were more inclined to experience gestational diabetes, pre-eclampsia, and eclampsia, placental abruption and placenta previa according to a study by **Aljary et al.** ⁽⁶⁾. **Tsai et al.** ⁽⁷⁾ and **Al Rayes et al.** ⁽⁸⁾ reported low birth weight, prematurity, small for gestational age and fetal distress.

Eudy et al. ⁽⁹⁾ discussed postpartum problems. According and reported that half of RA-suffering women got worse after giving birth. According to **Aljary et al.** ⁽⁶⁾, postpartum RA-complicated pregnancies were linked to thromboembolisms and wound problems. Neonates of RA-suffering mothers were more likely to have congenital abnormalities, small for gestational age babies, and preterm births.

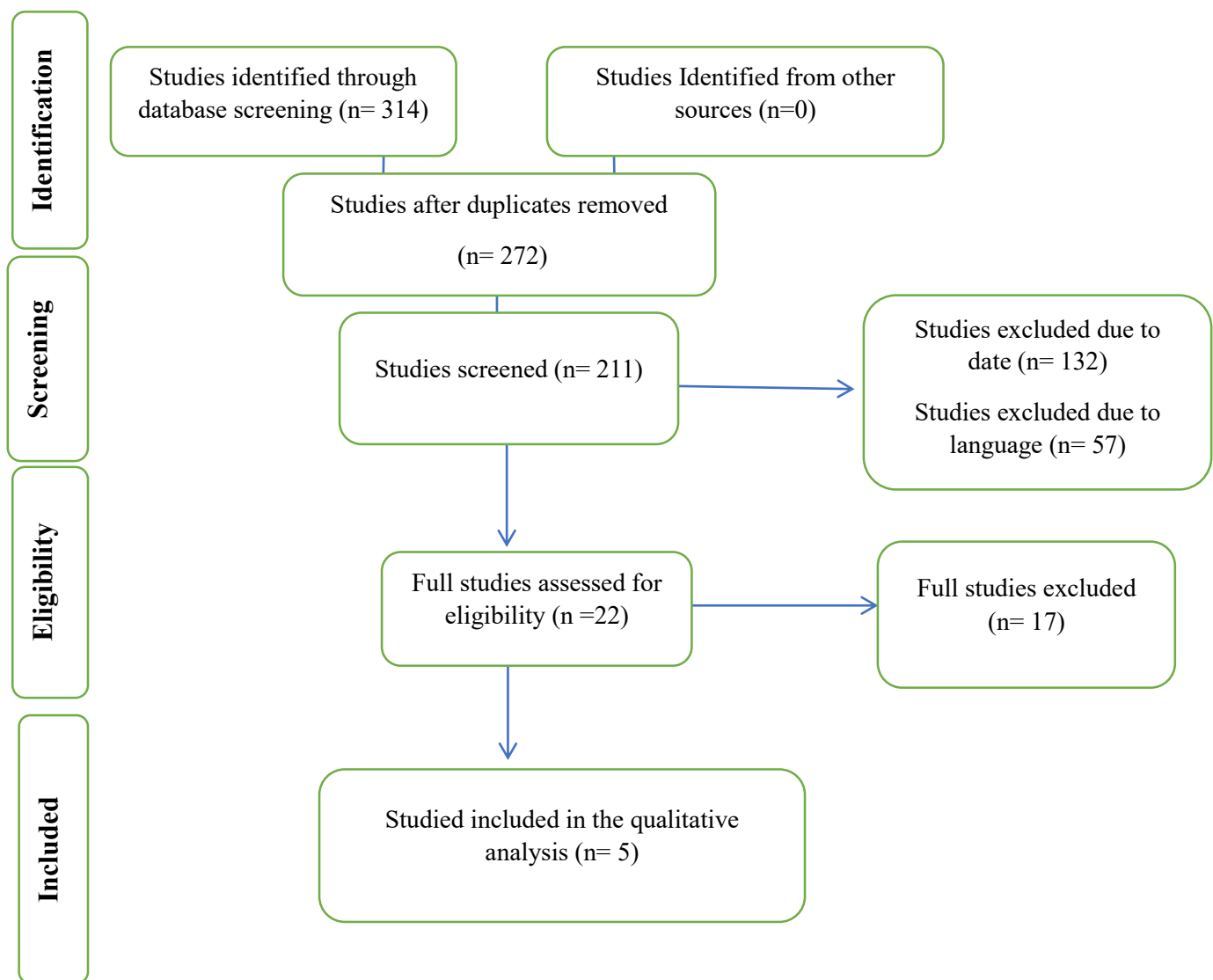


Figure (1): PRISMA chart of included studies

Table (1): Summary of study characteristics

Author, Year	Study type	Sample size	Mean age	Disease Duration	Pregnancy outcomes	Post-partum complications
<i>Bobircă, A. et al., 2023</i> ⁵	A case-control prospective study	299 pregnancies from the general obstetric community and 82 prospectively tracked pregnancies in RA	31.50 ± 4.5 years	Mean 8.96 ± 6.3 years	Negative pregnancy outcomes occurred in 41.5% of RA patients. In addition to spontaneous abortions, there were also preterm deliveries, stillbirths, 7.3% small-for-gestational-age infants, 4.9% intrauterine growth restriction, 1.2% stillbirths, and 1.2% eclampsia cases in 18.3%, 11.0%, and 7.3% of women, respectively. Every trimester saw an improvement in disease activity, and the second trimester saw improvements in about 20% of cases.	N/A
<i>Aljary, Hissah, et al. 2020</i> ⁶	A retrospective population-based cohort study	6,068 of the 8,417,607 births in the cohort involved women with RA.	-	-	Women with RA were more likely to experience placental abruption, placenta previa, gestational diabetes, pre-eclampsia/eclampsia, caesarean delivery, and present with PPROM.	Wound problems and thromboembolisms were linked to postpartum RA-complicated pregnancies. Preterm deliveries, small for gestational age newborns, and congenital abnormalities were more common in the neonates of moms with RA.
<i>Tsai, Yun-Chen et al. 2022</i> ⁷	A population-based cohort study	922 RA pregnancies, either live births or stillbirths, were carried by 1 468 318 women during the course of 2100143 singleton pregnancies.	31.3 years	-	There were reports of low birth weight, premature birth, tiny for gestational age, and foetal discomfort.	Compared to women without RA, antepartum haemorrhage, caesarean deliveries, and disseminated intravascular coagulation were more common during pregnancies in women with RA.
<i>Al Rayes, Hanan et al. 2021</i> ⁸	A prospective multicenter study	250 healthy pregnant females of same age and 77 pregnant RA patients	Ages for RA patients were 32.78 0.69 and for controls were 30.32 0.84.	Mean 9.16 ± 0.55 years	Age at conception, premature labour, NICU hospitalisation, and low birth weight were all substantially greater in RA patients compared to healthy controls in terms of statistics.	N/A

<p>Eudy, Amanda M., Gary McDaniel, and Megan EB Clowse. 2018⁹</p>	<p>A cross-sectional, retrospective study</p>	<p>75 pregnant patients with RA and 75 healthy controls</p>	<p>32 years</p>	<p>-</p>	<p>Most pregnant women with RA had no (20%) or mild (34%) arthritis, with 30% reporting that their arthritis worsened during pregnancy. There were no variations in pregnancy outcomes across the groups. There were comparable rates of caesarean births and newborn abnormalities reported in RA and patients controls. When compared to controls, females with RA reported experiencing preeclampsia more frequently.</p>	<p>For 50% of women with RA, their arthritis got worse after giving birth. Just over 50% of females with RA used treatment in pregnancy, with TNF-inhibitors or prednisone being the most popular choices.</p>
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DISCUSSION

Information about RA in pregnancy has been published ever since it was discovered that many RA sufferers experienced "remission" during pregnancy before experiencing flare-ups after giving birth in the 1930s. Immunosuppressants that are used to treat the disease may now be mediating the lack of substantial changes in RA activity found in more recent research. More accurate measurements of arthritis activity and effective therapy outside of pregnancy may be to blame for the variation in perceived disease activity shifts⁽⁹⁾.

There was conflicting data regarding disease severity during pregnancy. One of the included studies in our results reported that disease is improved in the 2nd and 3rd trimester⁽⁵⁾, while the other study reported that arthritis symptoms worsened during pregnancy⁽⁹⁾. In order to establish the influence of pregnancy on RA disease activity, 140 pregnant people with RA were prospectively investigated in the UK by **Barrett et al.**⁽¹⁰⁾. From the third trimester of pregnancy until six months after birth, patients were observed. Retrospective reports of reduced discomfort and swelling during the pregnancy were made by 65% of the patients. Nevertheless, only 16% of patients experienced full recovery in the 3rd trimester, which was indicated by the absence of swollen joints and no antirheumatic medication. **de Man et al.**⁽⁴⁾ carried out the PARA-study, a large-scale prospective cohort research in the Netherlands, to learn more about how pregnancy affects the disease's progression and how RA and drug use affect the pregnancy's prognosis. 48% of the 52 people with an initial DAS28-CRP (3) 3.2 improved throughout pregnancy, as measured by the European League against Rheumatism's response criteria. Improvements were made despite the fact that all women who wished to become pregnant had to quit taking specific medications, like the DMARDs that were not recommended.

As for pregnancy outcomes, spontaneous abortions, stillbirth, small gestational age infants, preterm deliveries, intrauterine growth restriction, and eclampsia were reported⁽⁵⁻⁹⁾.

Large cohort studies have revealed that pregnant RA patients often have less favourable outcomes than pregnant members of the general healthy community. Since deviations from the general population are frequently negligible, it is difficult to say if the discovered changes will have any clinical effects on the particular patient⁽²⁾.

According to a recent study by **Brouwer et al.**⁽¹¹⁾, women with RA had a miscarriage risk of 17%, which is similar to the general population's risk of 11-22%. They do, however, point out that the miscarriage rate among RA patients may be underestimated. The individuals in their samples did not take any prescription drugs, such as MTX, which is associated with an increased risk of miscarriages, because their pregnancies were planned. They also point out that compared to the overall population, this cohort had fewer individuals who smoked and greater numbers of patients with better levels of literacy.

Preeclampsia risk was higher in 114 women with rheumatic disease than in unaffected women (8.8% vs. 2.3%), according to **Wolfberg et al.**⁽¹²⁾. 1199 women with RA who gave birth for the first time to a singleton between 1994 and 2006 were the subjects of a sizable combined Swedish and Danish prevalence study. According to **Norgaard et al.**⁽¹³⁾, preeclampsia risk increased somewhat in RA-affected women, rising from 3.4% to 5.0%. Caesarean births were more common in RA patients. Women with RA had a higher risk of preterm delivery than healthy controls in the forementioned studies^(12, 13). According to **Bharti et al.**⁽¹⁴⁾, preterm birth

is related with high illness severity. Prednisone use was linked to a shorter gestational of the offspring at delivery in the study by de Man *et al.* ⁽⁴⁾.

CONCLUSION

In conclusion, pregnancies in females with RA are linked to greater comparative risks for a range of negative consequences for the mother and the foetus. Prior to conception, disease remission is indicated. Pregnant RA patients should receive the same education and encouragement as other patients with chronic conditions to plan their pregnancies with their doctor.

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