ORIGINAL RESEARCH

A Retrospective Clinical Study Of Pregnancy Outcomes In Women With Psoriasis And With Active Treatment Regimen

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ABSTRACT

Background: Pregnancy may not be ideal due to the persistent systemic inflammation linked to psoriasis, which raises the possibility of unfavorable results. Does psoriasis or exposure to systemic therapy for moderate-to-severe psoriasis have an impact on pregnancy outcomes?

Objective: To report pregnancy outcomes observed in the women with moderate to severe psoriasis and actively taken therapies <30 before conceiving and during any of the trimester.

Methods: This was a retrospective observational registry, based on illness, that assessed clinical results and long-term safety. Pregnancy outcomes data from 98 women who became pregnant during the research period were analyzed after data from 135 psoriasis-affected women between the ages of 18 and 45 were gathered. In particular, exposure to biologic therapy is documented for medications licensed to treat psoriasis in India, such as cyclosporine, methotrexate, in fliximab, and etanercept. Documentation was kept on birth outcomes, which included stillbirths, spontaneous abortions, elective terminations, and full-term or preterm deliveries, adverse events in the neonate, and congenital abnormalities.

Results: For the therapy of their psoriasis disease, enrolled patients were using etanercept (n=30), infliximab (n=26), methotrexate (n=23), and cyclosporine (n=19). Out of the 98 pregnancies, 89 births (90.81%) were achieved, comprising of 2 stillbirths after receiving methotrexate and in fliximab separately, 4 spontaneous abortions, and 5 elective terminations. Patients treated with etanercept had a low birth rate followed by patients treated with methotrexate, in fliximab, and cyclosporine. Six out of the 89 infants had congenital abnormalities, and two had neonatal problems.

Conclusion: Pregnancy results in this case have not changed from earlier reports. Overall, live birth rates and overall health outcomes were comparable to those of the general population; however, infants delivered to these women had greater rates of congenital anomalies and required longer and more intensive medical treatment. All studied drugs have overall similar pregnancy outcomes.

Keywords: Psoriasis, Pregnancy, Outcomes, Biologics, Conventional therapy

INTRODUCTION

Psoriasis is a persistent immune-mediated inflammatory disease (IMID) that impacts around 1%–3% of the global population [1]. The prevalence of the condition is comparable across males and females, and it often manifests prior to the age of 40 [2]. A significant proportion of women within the age range suitable for childbearing may necessitate biologic medication for the purpose of managing their medical condition. The course of psoriasis throughout pregnancy and after is characterized by its unpredictable nature. The course of psoriasis may exhibit variability during pregnancy because to fluctuations in hormone levels. It has been shown that up to 23% of women with psoriasis may encounter episodes of exacerbation or heightened disease activity [3].The pathophysiological mechanisms involve dysregulation of cytokines and chemokines, particularly an increase in tumour necrosis factor (TNF)-alpha levels, which may contribute to an increased susceptibility to preterm birth, intrauterine growth restriction, and miscarriage [4].Therefore, it is imperative to administer the best treatment regimen for both the mother and the infant. The use of biologics is expected to effectively manage these adverse effects by inhibiting the key proinflammatory cytokine pathways that play a significant role in the immunopathogenesis of the illness. Except for ciclosporin, which is not advised for the treatment of psoriasis unless the possible benefit to the mother

outweighs the possible harm to the fetus, the majority of non-biologic systemic medications used to treat these disorders are contraindicated during pregnancy [5]. There is increasing evidence in the literature that using biologics during pregnancy does not negatively impact pregnancy outcomes; however, there are no clinical studies in this population, and there is still a dearth of information on the outcomes of women exposed to newer classes of biologics, like interleukin (IL)-17 inhibitors [5,6]. Consequently, it is imperative to comprehend the possible ramifications of biologics on the processes of conception and pregnancy. Nevertheless, the process of making decisions about the initiation or continuation of biologic therapy during pregnancy remains intricate due to the scarcity of information regarding its safety. Due to ethical considerations, pregnant women are typically not included in prospective controlled clinical trials. Consequently, the amount of safety information available is restricted to case reports of inadvertent exposures in clinical trials, retrospective case series, observational patient registries, and the extrapolation of findings from other immune-mediated inflammatory diseases (IMIDs), such as rheumatoid arthritis or inflammatory bowel disease. The numerical value provided by the user is 6. The situation described gives rise to substantial ambiguity in the context of clinical decision-making when women who have received appropriate treatment and have shown positive therapeutic outcomes with biological interventions get pregnant. Consequently, the discontinuation of treatment frequently occurs due to insufficient safety data. The primary objective of this study was to fill the existing knowledge gap by examining the pregnancy outcomes in women with psoriasis who were exposed to biologics either before conception or during pregnancy. Specifically, the study aimed to characterize the prevalence of spontaneous, elective, and total abortions, as well as congenital malformations in this population.

MATERIALS AND METHODS

Study design: This was retrospective disease-based, observational registry evaluating long-term safety and clinical outcomes for patients receiving or eligible to receive treatment for psoriasis with biologics and/or conventional systemic therapies. Of 330 enrollees, 180 were women, and 135 women were of childbearing age (18-45 years). Out of 135 women, 98 women became pregnant during the period from June, 2020, to June, 2023. We have collected retrospective data from these women and analyzed.

Selection criteria: Patients with psoriasis who were pregnant or planning to conceive were included in the study. The present analysis includes all pregnancy outcomes from that assessment plus additional data through June, 2023. Intervention: Exposure to biologics indicated for treating psoriasis in the 3 months before or any time during pregnancy.

Assessments: The period of data analysis was June, 2020, to June, 2023. Exposure to biologic therapy is recorded particularly for etanercept, infliximab that are approved to treat psoriasis India. We also evaluated the pregnancy outcomes in women treated with methotrexate and cyclosporine. Data pertaining to demographic and clinical variables were gathered by observation for every woman within the reproductive age range. Birth outcomes (births, stillbirths, spontaneous abortions, and elective terminations) and live-birth features (full-term [≥37 weeks] or preterm [<37 weeks], adverse events in the neonate, and congenital defects) were documented for women who got pregnant.

RESULTS

Demographic characteristics: A total of 98 women became pregnant during the follow-up period. Women were aged 18 to 35 years. Severity of psoriasis was assessed by measuring Physician Global Assessment score. Mean Physician Global Assessment score was 2.3 at enrolment and 2.1 at most proximal to the pregnancy. Patients enrolled in the study were having psoriasis of mild to severe conditions (scores range from 0 to 5, with higher scores indicating greater severity). In these women we also found some other clinical conditions such as psoriatic arthritis (n=26, 11.8%), obesity (n=54, 55.1), depression (n=13, 13.1%), diabetes (n=15, 15.3%), hypertension (n=10, 10.2%), hyperlipidemia (n=5, 5.1%) and thyroid dysfunction (n=8, 8.2%) (Table 1). Among women of childbearing age, the annual fertility rate was 18.9 per 1000 women.

Pregnancy Outcomes

Data were available for 98 pregnancies in 135 women of childbearing age enrolled analysed for this retrospective study (Table 2). These patients were receiving etanercept (n=30), infliximab (n=26), methotrexate (n=23) and cyclosporine (n=19) for the treatment of their psoriasis condition. The 98 pregnancies resulted in 89 births (90.81%) (including 2 stillbirths in infliximab and methotrexate each), 4 spontaneous abortions (4.1%), and 5 elective terminations (5.1%). Percentage of birth was low in etanercept treated patients (86.6%) followed by methotrexate (91.3%), infliximab (92.3%) and cyclosporine (94.7%). No elective terminations were known to derive from a congenital anomaly or other medical issue. Congenital anomalies were observed in 6childrennout of 89 and neonatal complications were seen in 2 children. Some children required prolonged infant hospitalization (15/89) and extra medical therapy (18/89).

Table 1: Baseline Characteristics

Characteristics	
Age, mean (SD), y	28.2 (3.4)
Age at pregnancy outcome, mean (SD), y	29.1 (3.7)
Age category, y	
18-24	32 (32.5)
25-30	40 (40.8)
30-35	26 (26.5)
Weight, mean (SD), kg	55.26 (8.7)
Duration of psoriasis, mean (SD), y	11.73 (3.23)
Physician Global Assessment score, mean (SD)	
At enrollment	2.3 (0.9)
Most proximal to the pregnancy	2.1 (0.8)
Body Surface Area, mean (SD), %	
At enrollment	9.3 (5.3)
Most proximal to the pregnancy	4.9 (7.8)
Relevant medical history	
Psoriatic arthritis confirmed by a joint specialist	26 (11.8)
Obesity	54 (55.1)
Depression	13 (13.2)
Diabetes	15 (15.3)
Hypertension	10 (10.2)
Hyperlipidemia	5 (5.1)
Thyroid dysfunction	8 (8.2)

Table 2: Pregnancy Outcomes by Time of Exposure to Biologic and Nonbiologic Therapies

Pregnancy Outcomes	Drug Interventions			
	Etanercept (n=30)	**Infliximab (n=26)**	**Methotrexate (n=23)**	**Cyclosporine (n=19)**
Gave birth	26 (86.6)	24 (92.3)	21 (91.3)	18 (94.7)
Birth outcome				
Healthy newborn	23/26 (88.5)	20/24 (83.3)	18/21 (85.7)	17/18 (94.4)
Congenital anomaly	1/26 (3.8)	2/24 (8.3)	2/21 (9.52)	1/18 (5.6)
Neonatal adverse event	1/26 (3.8)	1/24 (4.2)	0	0
Stillbirth	0/26	1/24 (4.2)	1/21 (4.8)	0
Prolonged infant hospitalization	4/26 (15.4)	3/24 (12.5)	5/21 (23.8)	3/18 (16.7)
Required extra medical therapy	3/26 (11.5)	5/24 (20.8)	6/21 (28.5)	4/18 (22.2)
Elective termination	2/30 (6.7)	1/26 (3.8)	2/23 (8.69)	0
Spontaneous abortion	2/30 (6.7)	1/26 (3.8)	0	1/19 (5.3)

DISCUSSION

Women with moderate-to-severe psoriasis are susceptible for abnormal pregnancy outcomes because of active treatment for the management of psoriasis. Psoriasis can increase the risk of experiencing adverse effects during pregnancy. Changes in the hormonal and immune systems during pregnancy may change the way psoriasis affects someone at this time. Doctors usually advise women to avoid systemic and biological medication during pregnancy or breastfeeding, except where there is a clear medical need that outweighs any risk to the fetus. There is evidence to suggest that the following systemic medications such as oral retinoids, etanercept, infliximab, methotrexate and cyclosporine are not safe to use during pregnancy. Biologics are an emerging class of medications that target the underlying cause of psoriasis by affecting specific parts of the immune system. In the present study we observed we retrospectively studied the pregnancy outcomes in women with psoriasis and who received treatment of etanercept, infliximab, methotrexate and cyclosporine <3 months before the conceiving of the pregnancy and during any of the trimester. In 46.6% of pregnancies, exposure to biologic treatment happened during the prenatal stage. The 98 pregnancies resulted in 89 births (90.81%) (including 2 stillbirths in infliximab and methotrexate each), 4 spontaneous abortions (4.1%), and 5 elective terminations (5.1%). Percentage of birth was low in etanercept treated patients followed by methotrexate, infliximab and cyclosporine. No elective terminations were known to derive from a congenital anomaly or other medical issue. Results for live births among participants were largely favorable and in line with prospective data that is currently available for women who have been exposed to biologics [7]. Compared to the US yearly incidence of almost 3%, the observed rate of

congenital abnormalities was higher at 6.1% [8]. The rates of spontaneous abortion and preterm birth in this study were in line with those found in the US population as a whole [9]. Birth outcomes for pregnancies exposed to a biologic were comparable to those of pregnancies exposed to a nonbiologic, and pregnancy outcomes were usually consistent among biologic cohorts. The literature on the possible hazards that biologic therapies for psoriasis may pose to expectant mothers and their unborn children is restricted to a few studies involving these medications in patient populations other than those with psoriasis, such as those with rheumatoid arthritis and inflammatory bowel disease, as well as a few small case series [10,11]. Overall, the study's findings are in line with research showing no appreciable variations between the general population and psoriasis-affected pregnant women who received biologics during pregnancy in terms of the quantity of live births, spontaneous abortions, elective terminations, or congenital abnormalities [12,13]. Nevertheless, medical history is only recorded at baseline in the current study. Consequently, information that could be pertinent and impact fertility and pregnancy outcomes—such as the date of the previous menstrual cycle, a restricted medical history recorded on the registry, or non-psoriasis medications—may not be gathered. The results of pregnancies among PSOLAR women with moderate-to-severe psoriasis are in line with previously published data and the general population. To further describe the relationship between psoriasis and treatment results and birth outcomes, pregnancy-specific registries are required, preferably with a larger sample size of psoriasis-affected pregnant women than PSOLAR.

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