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Systemic Lupus Erythematosus and Pregnancy Outcome- in a Tertiary Hospital

FATIMA WAHID[1], UMME KULSUM[2], NILUFAR ISLAM[3], AMINA ANJUM[4], MEHARA PARVEEN[5], TABASSUM PARVEEN[6], MURSHID JAHAN BINTE ALI[7], NAHREEN AKHTAR[8].

Abstract:

Women with Systemic Lupus Erythematosus (SLE) continue to face substantial risks during pregnancy due to the complex interactions between Lupus and pregnancy. Since SLE predominantly affects women of childbearing age, it is frequently encountered during pregnancy and is associated with increased maternal and fetal risks compared to pregnancies in healthy women. Adverse pregnancy outcomes in women with SLE include spontaneous miscarriage, fetal growth restriction, preeclampsia, sudden intrauterine death, and preterm delivery.

Methodology: *Discussion cross sectional study included 30 patients diagnosed with SLE in pregnancy from the Fetomaternal Medicine Department between January 2023 and August 2024. The study aimed to evaluate maternal and fetal outcomes in pregnancies complicated by SLE.*

Result: *This study examined 30 cases of pregnancy in women diagnosed with SLE, each pregnancy being considered as a individual case. Most patients were between the ages of 18-35, with 80% being nulliparous and a mean SLE disease duration of 3.93±2.23 years. Most patients were in clinical remission prior to pregnancy. Pregnancy complications included SLE flares in 3 (10%) cases, missed abortion in 3 (10%), premature rupture of membranes (PROM) in 1 (3.33%), preterm labor in 8 (26.67%), preeclampsia in 2 (6.67%), and intrauterine death in 3 (10%) cases. Additionally, 22 (73.33%) patients were admitted after reaching 37 weeks of gestation. Delivery was most frequently caused by cesarean section (70%), with 4 (13.33%) of the infants being low birthweight.*

Conclusion: *A multidisciplinary approach, including close medical, obstetric, and neonatal monitoring, is essential to optimize maternal and fetal outcomes in pregnancies affected by SLE*

Key Words: *maternal outcome, fetal outcome, fetal growth restriction*

Introduction:

Systemic Lupus Erythematosus (SLE) is a condition where the immune system attacks healthy cells and tissues throughout the body[1]. The global incidence and prevalence of SLE differ significantly, but it primarily affects women of childbearing age, making it relatively common during pregnancy. All pregnancies complicated by SLE are considered “High-Risk” due to the potential for maternal and fetal complications[2]. SLE is linked to a higher incidence of adverse outcomes such as spontaneous abortion, preeclampsia, fetal growth restriction, preterm delivery, low birth weight,

1. Associate Professor, Dept of Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh
2. Associate Professor, Dept of Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh
3. Associate Professor, Dept of Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh
4. Public Health Specialist, Dhaka, Bangladesh
5. Assistant Professor, Dept of Obstetrics and Gynecology, BSMMU, Dhaka, Bangladesh
6. Professor, Chairman of Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh
7. Assistant Professor, Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh
8. Professor, Dept of Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh

Address of Correspondence: Fatima Wahid, Associate Professor, Dept. of Fetomaternal Medicine, BSMMU, Dhaka, Bangladesh

and intrauterine fetal death[3]. The prognosis for both mother and child is optimal when the disease has been remission for at least 6 months before conception[4]. Successful outcomes require the involvement of a multidisciplinary team, including rheumatologists, obstetricians, and neonatologists [5]. Proper antenatal, intranatal, and postnatal care in a controlled environment is crucial for a positive neonatal outcome[6,7]. Fortunately, recent advancements in treatment have significantly improved disease control, leading to better quality of life for these patients, including improved pregnancy outcomes[8]. The present study aims to assess the maternal and fetal outcomes of pregnancies in women with SLE.

Methodology: This retrospective observational study was conducted in the Fetomaternal Medicine Department and included case of 30 pregnant women diagnosed with Systemic Lupus Erythematosus (SLE) who received care between January 2023 and August 2024. Each pregnancy was treated as an individual case for the purpose of data collection and analysis.

Medical records of these patients were reviewed to collect relevant clinical and obstetric information. Data were extracted on patient age, parity, duration of SLE prior to conception, disease status at the time of conception (remission or active disease), pregnancy course, and maternal as well as fetal outcomes. Particular attention was paid to the occurrence of SLE flares during pregnancy, obstetric complications (such as preterm labor, preeclampsia, and intrauterine fetal demise), and the mode of delivery.

All patients had a confirmed diagnosis of SLE based on the American College of Rheumatology (ACR)[9]. The gestational age at delivery, fetal birthweight, and neonatal outcomes were also documented.

Descriptive statistics were used to summarize the data. Categorical variables were presented as frequencies and percentages, while continuous variables were expressed as means with standard deviations

Result:

This study looked at 30 pregnancies in women with SLE, treating each pregnancy as an individual case. All pregnancies were conceived naturally. Eight patients (26.67%) were primigravida, while twenty-two patients (73.33%) were multipara. The mean age of the patients was 26.26 years ± SD 4.17 years (range: 18-35). During pregnancy, two patients (6.67%) had musculocutaneous involvement, four (13.33%) had hematological involvement, three (10%) had renal involvement, and one patient had a history of deep vein thrombosis (DVT). Sixteen patients (53.33%) had proper pregnancy counseling. One patient who had a renal biopsy two years prior to pregnancy was diagnosed with focal segmental proliferative glomerulonephritis. One patient had hypertension before pregnancy. Twenty patients (66.67%) were on Tab. Hydroxychloroquine (200mg/day) from their preconception period and continued it during pregnancy. Six patients (20%) were taking oral prednisolone (<7.5mg/day) along with hydroxychloroquine. Oral aspirin 75mg/day was prescribed in 26 patients (86.67%) during the first trimester. Low molecular weight heparin was given with aspirin in antiphospholipid (APL) positive patients. Clinical manifestations during pregnancy included SLE flare-ups in the third trimester.

Regarding their previous obstetric history, a total of 11 patients (36.67%) had previous abortions. Among them, 3 patients (10%) had recurrent pregnancy loss, and 4 patients (13.33%) had a history of bad obstetric outcomes (BOH). Co-morbidities included gestational diabetes on insulin in 5 patients (16.67%), chronic hypertension in 1 patient (3.33%), hypothyroidism in 2 patients (6.67%), obstetric cholestasis in 2 patients (6.67%), and bronchial asthma in 2 patients (6.67%). Autoantibody positivity was noted in 8 patients (26.67%) with anti-dsDNA, 2 patients (6.67%) with La/SSB, and 3 patients (10%) with antiphospholipid antibodies.

Effects of SLE on pregnancy outcomes: Maternal complications during the study period are detailed in Table III. A significant number of patients, 21 (70%), underwent cesarean sections, while 3 (11%) delivered vaginally without assistance, and 3 (11%) required induced deliveries. Three cases included induction at 24 weeks for FGR with anhydramnios, missed abortion at 26 weeks due to severe preeclampsia, and preterm PROM with anhydramnios at 23 weeks. The reasons for cesarean delivery included a prior cesarean section (73.33%), fetal growth restriction (FGR) 5(16.67%), preeclampsia 2 (PE) (6.67%), and a history of bad obstetric outcomes (BOH) (13.33%). No maternal deaths occurred in the study associated with SLE.

Effects of SLE on Fetal Outcome: There were three fetal losses at 16, 21, and 24 weeks of gestation, and

three instances of intrauterine fetal death (IUFD) at 30, 29, and 28 weeks, all of which were delivered vaginally. Two of the IUFD cases were associated with a positive antiphospholipid (APL) antibody. Among the live births, 22% were term births (after 37 completed weeks), while 8% were preterm (before 37 completed weeks). Additionally, there were 2 cases of low-birth-weight babies and 5 cases of fetal growth restriction.

Table-I

Distribution of patients by age, gravidity, mode of delivery, Gestational age category

Variables	Number (n)	Percentage
Age (in years)		
18-25	16	53.33%
26-30	9	30%
31-38	5	16.67%
Gravidity		
Primigravida	8	26.67%
Multigravida	22	73.33%
Mode of Delivery		
VD	3	11%
CS	21	78%
Induction of delivery	3	11%
Categorization by gestational		
Period	22	73.33%
Term	8	26.67%
Preterm		

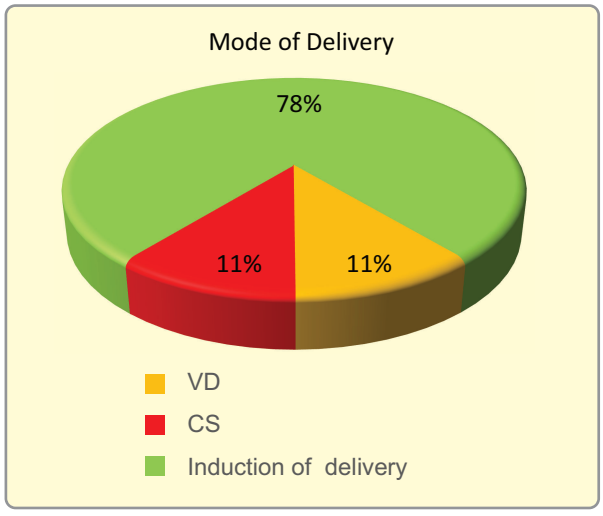

Figure 1: *Mode of Delivery*

Table-II

Distribution of patients based on Complications

Variables	Number (n)	Percentage
Lupus Nephritis	3	10%
Mucocutaneous	2	6.67%
Thrombocytopenia	2	6.67%
Anti SSB	2	6.67%
APS	3	10%

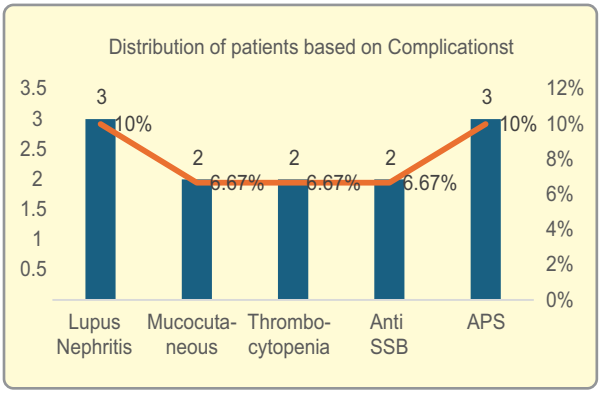

Figure 2: *Distribution of patients based on complication*

Table-III

Obstetric Complications of SLE patients

Complications	Number (n)	Percentage
Preeclampsia	2	6.67%
PROM	1	3.33%
Preterm labor	8	26.67%

Table-IV

Fetal Outcome of patients with SLE

Variables	Number (n)	Percentage
Live Birth	15	50%
IUD	3	10%
Missed abortion	3	10%
FGR	5	16.67%
LBW	4	13.33%

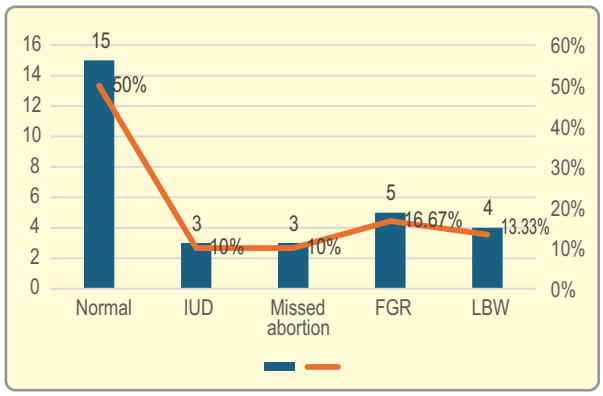

Figure 3: *Fetal Outcome of SLE patients*

Discussion:

Even with recent improvements in the therapy of SLE patients and the notable improvement in the fetomaternal outcome of pregnancies with SLE, the frequency of preterm, spontaneous abortion, FGR, IUFD, and preeclampsia remains higher[10,12].

We have detailed the features, course of the disease, and results of 30 pregnancies among 30 SLE patients during a 24-month period in a Bangladeshi tertiary care hospital. In most cases, SLE in remission was discovered before, during, and after pregnancy. Despite the generally low disease activity, the prevalence of maternal and perinatal complications, particularly the preterm birth rate, was nevertheless higher than in the general population[13,14].

A meta-analysis by Smyth et al. that included 37 studies with 1842 patients and 2751 pregnancies whose disease activity was not strictly controlled prior to pregnancy showed that the rate of fetal loss was as high as 23.4%[15], whereas our study showed that 10% of the pregnancies ended in fetal loss. These differing outcomes were found in a retrospective multicenter analysis on planned SLE pregnancies by Dongying Chen et al. wider public, notwithstanding the generally low level of disease activity.

There wasn't much information about lupus pregnancies in underdeveloped nations. Preterm birth, FGR, preeclampsia, live birth rate, and SLE flare were among the pregnancy problems associated with SLE that were compared across various studies in Figure 3. shown these different outcomes in pregnancies. broad public, even in the case of generally low disease activity[17,18,19]. Among several investigations on individuals in underdeveloped nations that matched our case series (6.67%), preeclampsia was found in 3-26.1% of cases (Figure 3).

According to our most recent study, 70% of our pregnant lupus patients required caesarean sections. The rate of CS was in line with many published statistics that demonstrated the majority of SLE pregnancies required surgical intervention for delivery due to the complex problems that both the mother and the fetus faced[19-22].

In our center, there was a high prevalence of fetal growth constraints (16.67%) and preterm delivery (26.67%). These numbers are all inconsistent with those from industrialized nations [16,20]. Despite being the top referral facility and guaranteeing a multidisciplinary team approach to patient care, the high complexity of lupus pregnancies made it susceptible to a few issues.

In comparison to our study, the recent prospective cohort study PROMISSE reported a reduced preterm birth rate of 9% [23]. The PROMISSE trial used the definition of preterm as gestational age <36 weeks and excluded individuals on medium or high dosages of glucocorticoids as well as those with significant comorbidities, such as diabetes mellitus or a urine protein-creatinine ratio more than 100 mg/g.

3 APL instances with SLE were found, however they did not fully fit the requirements for an APS diagnosis. There have been reports of other Asian lupus patients having same low frequency of APS[21,22].

We were able to present the pregnancy outcomes of the SLE population in a real-life setting because patients with other autoimmune diseases were not included in the case series, but no other exclusion criteria were established in the study regarding disease activity, medication use, or metabolic disorders like diabetes mellitus or hypothyroidism.

Conclusion:

This retrospective study of 30 naturally conceived pregnancies in women with systemic lupus erythematosus (SLE) found a higher prevalence of cesarean deliveries (70%), primarily due to prior cesarean sections, fetal growth restriction (FGR),

preeclampsia (PE), and adverse obstetric histories. Notably, more than one-third of the women had experienced previous abortions, with 10% reporting recurrent pregnancy loss and 13.33% having a history of bad obstetric outcomes (BOH). SLE flares were observed predominantly in the third trimester, while fetal complications included intrauterine fetal deaths (IUFD), fetal losses before viability, and instances of FGR and low birth weight.

Autoantibody positivity, particularly antiphospholipid antibodies, was associated with adverse fetal outcomes, including IUFD. These findings reinforce the critical importance of early detection, comprehensive pregnancy counseling, and continued immunological monitoring throughout gestation. The association between disease activity and poor outcomes underlines the need for a multidisciplinary and proactive approach to antenatal care.

In conclusion, this study underscores the considerable health risks that SLE poses to both mothers and their babies, with important clinical consequences. Identifying risks early, providing individualized care, and closely monitoring patients throughout pregnancy are crucial steps to enhance outcomes for both mother and child. To strengthen these findings and improve care for this high-risk group, further research involving larger populations and prospective study designs is recommended.

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Conflicts of Interest

There are no conflicts of interest to the writers.

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