Journal of Midwifery & Reproductive Health

JMRH.mums.ac.ir

Pregnancy Outcomes in Patients with Systemic Lupus Erythematosus

Mohammad Hassan Jokar (MD)[1*], Mina Jokar (MD)[2]

[1] Associated professor, Department of Internal Medicine, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran
[2] Medical student, Faculty of Medicine, Mashhad Branch, Islamic Azad University, Mashhad, Iran

ARTICLE INFO

Article type:
Original article

Article History:
Received: 28-Jun-2017
Accepted: 14-Aug-2017

Key words:
Abortion
Pregnancy
Systemic lupus erythematosus

ABSTRACT

Background & aim: Pregnant women with systemic lupus erythematosus (SLE) are considered to be at high risk regarding fetal complications and adverse outcomes. The aim of this study was to evaluate the fetal outcomes in pregnant women with the SLE.

Methods: This retrospective study was conducted on a total of 125 patients with the SLE referred to the Clinic and Department of Rheumatology of Imam Reza Hospital in Mashhad, Iran from January 1 in 1997 to December 31 in 2017. The patients were classified according to the criteria of the Systemic Lupus International Collaborating Clinics classification for the SLE. The data were obtained, including age, personal background, and pregnancy outcomes from medical records and discharge reports of the cases.

Results: There were 217 pregnancies in 125 patients with the SLE. The mean age of the subjects was 27.25±5.08 years at pregnancy time. Among all, 86 (36.9%) pregnancies were reported as full-term deliveries. The incidence of fetal wastage in the patients was observed as 49.3%. Abortion, prematurity, and stillbirth were announced in 114 (52.5%), 12 (5.5%), and 5 (2.3%) pregnancies, respectively. Neonatal death was noticed in 8 (3.6%) pregnancies and neonatal lupus was reported in 3 neonates (1.3% of the pregnancies).

Conclusion: The risk of fetal complications and adverse outcomes were very high in the patients with SLE. In geographical region under study, the subjects with the SLE continued to have high-risk pregnancies and consultation with their doctors should be considered.

▶ *Please cite this paper as*:
Jokar MH, Jokar M. Pregnancy Outcomes in Patients with Systemic Lupus Erythematosus. Journal of Midwifery and Reproductive Health. 2019; 7(2): 1610-1614. DOI: 10.22038/jmrh.2019.24590.1264

Introduction

Systemic lupus erythematosus (SLE) is an autoimmune multi-system disease that is mainly observed in the women of childbearing age (1). Almost every organ can be involved in lupus, leading to a wide variety of clinical manifestations and symptomatology (2). Lupus is a serious disease with significant rates of morbidity and mortality. The patients suffering from lupus experience several incidents of hospitalizations and need multidisciplinary care.

Moreover, end organ damage and treatment-related side effects result in considerable disability (3). Lupus-infected women often worry about becoming pregnant and their ability to fulfill maternal responsibilities. There is a high risk of complications and detrimental fetal outcomes in pregnant women with lupus. In addition, pregnancy can trigger lupus disease activity, which requires maternal immunosuppressive intervention (4).

The risk of adverse fetal outcomes has been proven to increase in pregnancies complicated by lupus. There are a number of fetal and neonatal problems, which are associated with lupus. The frequency of fetal loss in the SLE pregnancies has been reported in the past to reach as high as 50%, including stillbirth, prematurity, and spontaneous abortion (miscarriage) (5-14). The results of a recent study carried out on the analysis of long-term data over the past 40 years showed a

* *Corresponding author:* Mohammad Hassan Jokar, Department of Internal Medicine, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran. Tel: 09155178351; Email: jokarmh@mums.ac.ir

decrease in spontaneous abortion rate from 50% to less than 20% (14). With this background in mind, the aim of this study was to investigate the pregnancy outcomes in the patients with the SLE.

Table 1. Definitions of adverse pregnancy outcomes

Pregnancy outcome	Definition
Abortion	To end pregnancy prior to 20th week of gestation
Spontaneous abortion (Miscarriage)	Natural fetal death before end of 20th week of gestation
Therapeutic abortion	Abortion following a diagnosis of medical necessity
Recurrent abortions or recurrent miscarriages	≥3 Spontaneous abortions
Stillbirth	Fetal death after 20th week of pregnancy
Fetal wastage	Sum of spontaneous abortions and stillbirths
Preterm birth or prematurity	Neonate birth between 20th and 37th weeks of gestation
Full-term deliveries	Neonate birth after 37th week of gestation
Live birth	Birth of a live neonate
Neonatal death	Death of neonate in first 28 days after birth
Perinatal death	Sum of stillbirths and neonatal deaths

Materials and Methods

In this retrospective study, the medical records of all patients diagnosed with the SLE at the Clinic and Department of Rheumatology of Imam Reza Hospital in Mashhad, Iran from January 1 in 1997 to December 31 in 2017 were reviewed. The subjects were classified according to the criteria of the Systemic Lupus International Collaborating Clinics classification for the SLE (15). All the data, including age, personal background, and pregnancy outcomes were obtained from medical records and discharge reports of the subjects.

The first trimester, second trimester, third trimester, and puerperium were defined as from conception to the end of the 12th week, the 13th week to 27th week, from the 28th week until delivery, and 4 weeks post-partum or after abortion, respectively. Furthermore, fetal outcomes are defined in table 1. Prior to pregnancy, disease activity was assessed using the SLE activity index (SLEDAI). The disease was considered active if the SLEDAI>4. The pregnancies were divided into two groups, including (A) the patients with active disease and (B) the subjects with inactive disease.

The data were analyzed using SPSS software (version 20). The numerical variables were described by mean score and standard deviation. The clinical and laboratory findings were compared between the two groups using the Fisher's exact test for qualitative variables and Student's t-test or the Mann–Whitney U test for quantitative variables (according to the nature or distribution of the variables). P-value less than 0.05 was statistically considered significant.

Results

There were 217 pregnancies in 125 patients. The mean age of the subjects was reported as 27.25 ±5.08 years at pregnancy time. The fetal outcomes of the patients are summarized in table 2. Table 3 tabulates the comparison between the demographic characteristics, laboratory features, and medications between the two groups. No neonate was noticed with

Table 2. Pregnancy outcomes in studied patients

Pregnancy outcome		Number (%)
Live birth		95 (43.8)
Full-term deliveries		86 (36.9)
Prematurity	Total	12 (5.5)
	Spontaneous	9 (75)
	Therapeutic	3 (25)
Abortion	Total	114 (52.5)
	Spontaneous abortion	102 (47.0)
	Therapeutic abortion	12 (5.5)
Stillbirth		5 (2.3)

Neonatal death	8 (3.6)
Fetal wastage	107 (49.3)
Perinatal death	13 (5.9)

Table 3. Comparison of baseline variables between group A (active disease) and group B (inactive disease)

Variable	Total n=217	Group A (Active disease) n=153	Group B (Inactive disease) n=64	P-value
Mean age (year)	27.25±5.08	28.85±5.34	26.62±4.79	0.004 Independent t-test
Number of pregnancies	217	64	153	-
Antiphospholipid syndrome	115 (52.9)	74 (48.3)	36 (56.25)	0.452 Fisher's exact test
Prednisolone (mg/day) (before pregnancy)	5.48±9.47	9.75±13.53	3.5±6.22	0.002 Independent t-test
Hydroxychloroquine (before pregnancy)	167 (76.9%)	130 (84.9)	37 (57.8)	0.000 Fisher's exact test
Azathioprine (before pregnancy)	26 (12.6)	15 (23.4)	11 (7.2)	0.000 Fisher's exact test
Complicated pregnancy	131 (60.3)	43 (67.2)	88 (57.5)	0.002 Fisher's exact test

malformation. Neonatal lupus was observed in 3 neonates (all the newborns had complete heart block).

Discussion

The frequency of adverse pregnancy outcomes is higher in patients with the SLE, compared to subjects with any other rheumatic diseases. Despite the dramatic improvements in pregnancy outcomes in patients with SLE during the last several decades, the SLE is still regarded as a risk of potentially serious maternal and fetal complications. According to the literature, poor pregnancy outcome was reported in patients with the SLE (10-20). The frequency of fetal failure in pregnant women with the SLE has been reported in the past to be as high as 50%. The incidence of abortion and stillbirth in pregnant women with lupus ranges from 6%–35% and 0%–22%, respectively, which is higher than the rate among normal population (21, 22). The findings of a recent analysis of long-term data investigating last 40 years revealed a drop in spontaneous abortion rate from 50% to less than 20% (19).

In the present study, the incidence rates of fetal wastage and abortion in the patients were 54.8% and 52.5%, which were higher than those in most of the previous studies. The prevalence of spontaneous abortions in the subjects of this study was reported as 47%, which was a higher rate, compared to that in most of the studies. Perinatal death is attributed to both stillbirth (intrauterine fetal demise) and neonatal death, approximately 10 cases per 1000 in general population. The prevalence rate of perinatal death was estimated as 4.7% in the SLE patients. In the present study, the incidence of perinatal death was higher than that in most of the studies (6.4%) (23).

Neonatal death is common in pregnant women with the SLE, some of which were due to extreme prematurity or congenital heart block. During 2000 to 2005, there were 21 neonatal deaths among 1859 pregnancies that were 1.13% more than twice the general population rate (18). The rate of neonatal death was reported as 3.6% in the present study. Pregnancy loss (fetal wastage) is the combination of both spontaneous abortions and perinatal deaths. With the exclusion of elective (induced, therapeutic) abortions, the prevalence rate of pregnancy loss in patients with lupus in the last 5 years significantly decreased under 20%, compared to that in most of the studies (14). In this study, the pregnancy loss continued to remain high (49.3%).

The rate of fetal complications among the study population was very high. Two factors may be responsible for this high prevalence rate. The first one is that in Iran, children are considered very important for families and some divorces are due to not having a child; therefore, many patients become pregnant during the active

phase of the disease. The second one is that some patients stop their treatment due to the fear of side effects on the fetus.

Conclusion

In the geographical region under study, the risk of complications and adverse fetal outcomes in pregnant women with the SLE is still very high and it is suggested that the patients should consult with their doctors before pregnancy.

Acknowledgements

The authors would like to thank all people that helped in conducting this study, and this study could not be performed without their assistance.

Conflicts of interest

The authors declare no conflicts of interest.

References

1. Pons-Estel GJ, Alarcón GS, Scofield L, Reinlib L, Cooper GS. Understanding the epidemiology and progression of systemic lupus erythematosus. Seminars in Arthritis and Rheumatism. 2010; 39(4):257.
2. Rahman A, Isenberg DA. Systemic lupus erythematosus. The New England Journal of Medicine. 2008; 358(9):929-939.
3. Cervera R, Khamashta MA, Font J, Sebastiani GD, Gil A, Lavilla P, et al. Morbidity and mortality in systemic lupus erythematosus during a 10-year period: a comparison of early and late manifestations in a cohort of 1,000 patients. Medicine (Baltimore). 2003; 82(5):299-308.
4. Lateef A, Petri M. Managing lupus patients during pregnancy. Best Practice and Research Clinical Rheumatology. 2013; 27(3) 435-447.
5. Garsenstein M, Pollak VE, Kark RM. Systemic lupus erythematosus and pregnancy. New England Journal of Medicine. 1962; 267(4):165-169.
6. Grigor RR, Shervington PC, Hughes GR, Hawkins DF. Medical disorders of pregnancy: outcome of pregnancy in systemic lupus erythematosus. Proceedings of the Royal Society of Medicine. 1977; 70:99-100.
7. Petri M. Hopkins lupus pregnancy center: 1987 to 1996. Rheumatic Disease Clinics of North America. 1997; 23(1):1-3.
8. Ruiz-Irastorza G, Lima F, Alves J, Khamashta MA, Simpson J, Hughes GR, et al. Increased rate of lupus flare during pregnancy and the puerperium: a prospective study of 78 pregnancies. Rheumatology. 1996; 35(2):133-138.
9. Cortés-Hernández J, Ordi-Ros J, Paredes F, Casellas M, Castillo F, Vilardell-Tarres M. Clinical predictors of fetal and maternal outcome in systemic lupus erythematosus: a prospective stud of 103 pregnancies. Rheumatology. 2002; 41(6):643-650.
10. Urowitz MB, Gladman DD, Farewell VT, Stewart J, Mcdonald J. Lupus and pregnancy studies. Arthritis & Rheumatism. 1993; 36(10):1392-1397.
11. Morris WI. Pregnancy in rheumatoid arthritis and systemic lupus erythematosus. Australian and New Zealand Journal of Obstetrics and Gynaecology. 1969; 9(3):136-144.
12. Friedman EA, Rutherford JW. Pregnancy and lupus erythematosus. Obstetrics & Gynecology. 1956; 8(5):601-610.
13. Lima F, Buchanan NM, Khamashta MA, Kerslake S, Hughes GR. Obstetric outcome in systemic lupus erythematosus. Seminars in Arthritis and Rheumatism. 1995; 25(3):184-192.
14. Clark CA, Spitzer KA, Laskin CA. Decrease in pregnancy loss rates in patients with systemic lupus erythematosus over a 40-year period. The Journal of Rheumatology. 2005; 32(9):1709-1712.
15. Petri M, Orbai AM, Alarcón GS, Gordon C, Merrill JT, Fortin PR, et al. Derivation and validation of the systemic lupus international collaborating clinics classification criteria for systemic lupus erythematosus. Arthritis & Rheumatism. 2012; 64(8):2677-2686.
16. Cortés-Hernández J, Ordi-Ros J, Paredes F, Casellas M, Castillo F, Vilardell-Tarres M. Clinical predictors of fetal and maternal outcome in systemic lupus erythematosus: a prospective study of 103 pregnancies. Rheumatology. 2002; 41(6):643-650.
17. Urowitz MB, Gladman DD, Farewell VT, Stewart J, Mcdonald J. Lupus and pregnancy studies. Arthritis & Rheumatism. 1993; 36(10):1392-1397.
18. Smyth A, Oliveira GH, Lahr BD, Bailey KR, Norby SM, Garovic VD. A systematic review and meta-analysis of pregnancy outcomes in patients with systemic lupus erythematosus and lupus nephritis. Clinical Journal of the American Society of Nephrology. 2010; 5(11):2060-2068.
19. Stojan G, Baer AN. Flares of systemic lupus erythematosus during pregnancy and the puerperium: prevention, diagnosis and management. Expert Review of Clinical Immunology. 2012; 8(5):439-453.
20. Mintz G, Niz J, Gutierrez G, Garcia-Alonso A, Karchmer S. Prospective study of pregnancy in systemic lupus erythematosus. Results of a multidisciplinary approach. The Journal of Rheumatology. 1986; 13(4):732-739.

21. Georgiou PE, Politi EN, Katsimbri P, Sakka V, Drosos AA. Outcome of lupus pregnancy: a controlled study. Rheumatology. 2000; 39(9):1014-1019.
22. Soubassi L, Haidopoulos D, Sindos M, Pilalis A, Chaniotis D, Diakomanolis E, et al. Pregnancy outcome in women with pre-existing lupus nephritis. Journal of Obstetrics and Gynaecology. 2004; 24(6):630-634.
23. Nossent HC, Swaak TJ. Systemic lupus erythematosus. VI. Analysis of the interrelationship with pregnancy. The Journal of Rheumatology. 1990; 17(6):771-776.