AMERICAN JOURNAL OF MEDICAL AND CLINICAL SCIENCES, 2026
VOL 11, NO. 3, PAGE 1 – 6

RESEARCH ARTICLE

Open Access

Epidemiological, Clinical Aspects and Management of Systemic Diseases and Pregnancy in the Obstetrics and Internal Medicine Departments at the Teaching Hospital of Point G. Bamako / Mali with Limited Resources

Ibrahim Ousmane Kanté[1]*, Mamadou Sima[1], Amadou Bocoum[2], Soumana Oumar Traoré[3], Seydou Fané[2], Ahmadou Coulibaly[1], Mamadou Traoré[1] and Tiounkani Théra[1]

[1]Gynecology-Obstetrics Department, Teaching Hospital Point G, Bamako, Mali.

[2]Gynecology-Obstetrics Department, Teaching Hospital Gabriel TOURE, Bamako, Mali.

[3]Gynecology-Obstetrics Department Referral Health Center of Commune V, Bamako, Mali.

ABSTRACT

Objective: To determine the epidemiological, clinical aspects, and management of systemic diseases and pregnancy.

This was a cross-sectional and analytical study conducted from January 1, 2004, to November 31, 2020 or 16 years in the obstetrics department of the Teaching Hospital of Point G. All pregnant women diagnosed with a systemic disease during the study period, based on the diagnostic criteria for various autoimmune diseases, were included. Pregnant women without systemic diseases were excluded. Data were collected from obstetric records, consultation records, hospitalization records, maternal and infant health records, and antenatal consultation and delivery records. Data were entered and analyzed with SPSSS 12.0 software. Means were calculated using Pearson's Chi-squared (χ^2) test with a significance level < 0.05.

Results: We collected 374 cases of pregnancy in the context of systemic diseases. The frequency of systemic diseases and pregnancy was 0.85%, and different conditions were as follows: 29.7% (11/374) for rheumatoid arthritis, 17% (66/374) for systemic lupus erythematosus, 15% (56/374) for systemic scleroderma, 13.4% (50/374) for antiphospholipid syndrome, 11.2% (42/374) for Sjögren's syndrome, 11.2% (38/374) for myasthenia gravis, and 2.9% (11/374) for Behçet's disease. The 30-34 age group was represented with 28.9%. The main fetal complications were, respectively, intrauterine growth restriction (26.7%) and prematurity (16.3%), intrauterine fetal death (8.8%), and spontaneous miscarriages (97.6%).

Conclusion: Systemic diseases and pregnancy were frequent and leading to maternal and fetal complications.

ARTICLE HISTORY

Received 05 April 2026
Accepted 07 May 2026
Published 12 May 2026

KEYWORDS

Systemic diseases, Pregnancy, Maternal and fetal complications.

Introduction

Autoimmune diseases (AIDs) encompass all pathologies in which autoantibodies are directed against the components of any cell in the body; it is therefore an attack on the body by its own immune system [1]. Connective tissue diseases constitute a heterogeneous group of diseases that share a common feature: diffuse, inflammatory, and chronic involvement of connective tissue [2].

The majority of these diseases occur during the reproductive years, which explains their link to pregnancy under the influence of sex steroids [3]. They include rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), scleroderma, antiphospholipid syndrome (APLS), Sjögren's syndrome (SS), myasthenia gravis, Behçet's disease, Takayasu's arteritis, ANCA-associated vasculitis, macroscopic PAN, etc. [4].

They are characterized by progressive flare-ups and their clinical polymorphisms; the pathophysiology of these diseases involves variable mechanisms [3]. Their epidemiology varies from one pathology to another.

The prognosis is improved by better management and better coordination between the different teams. This explains why pregnancies are increasingly frequent in the course of these diseases. Pregnancies must be considered high-risk due to possible obstetric complications and the potential risk of exacerbation of the AID [5]. The combination of pregnancy and systemic diseases (SD) is a high-risk pregnancy for maternal and fetal complications, involving several specialists, including obstetricians, internists or rheumatologists, pediatricians, nephrologists, and intensivists [6].

Contact: Ibrahim Ousmane Kanté, Gynecology-Obstetrics Department, Teaching Hospital Point G, Bamako, Mali, Tel: (00223) 76316993/ 66982617.

This study was initiated due to a lack of data on the influence of these conditions on pregnancy in the two departments.

Research Problem

- Systemic diseases complicate pregnancy

Research Questions

- Do systemic diseases cause complications during pregnancy?
- Is their association common?
- Is their management complicated?

Research Hypotheses

- Connective tissue diseases and pregnancy are common
- Connective tissue diseases have an impact on pregnancy
- Appropriate management requires the involvement of multiple specialists

Therefore, our objective is to study the epidemiological, clinical aspects, and management of systemic diseases and pregnancy.

Methods and Patients

Our study took place in the obstetrics and internal medicine departments of the Teaching Hospital Point G. It was a retrospective analytical study conducted from January 1, 2004, to December 31, 2020, or a period of 16 years. The study included all pregnant women seen in the obstetrics department of the Teaching Hospital Point G during the study period. A non-probability sample was used for convenience. The inclusion criteria were pregnant women with a known SD or diagnosed during pregnancy over the study period. The diagnosis was based on the diagnostic criteria for various AIDs.

Pregnant women without SDs before or during their pregnancies, pregnant women with SDs seen outside the study period, women with irregular pregnancies, and women with incomplete records were excluded from our study. Data were collected from obstetric consultation and hospitalization records, maternal and child health records, and prenatal and delivery records. Data were entered and analyzed using SPSSS 12.0 software. Means were calculated using Pearson's chi-squared test with a significance level < 0.05.

Data confidentiality was guaranteed. The names of the pregnant women would not appear in any document relating to the results of this study. This work was operational research. Therefore, the results obtained will be made available to all stakeholders in the field of maternal and child health, for the benefit of pregnant women with SDs.

Results

Frequency and Socio-demographic Factors

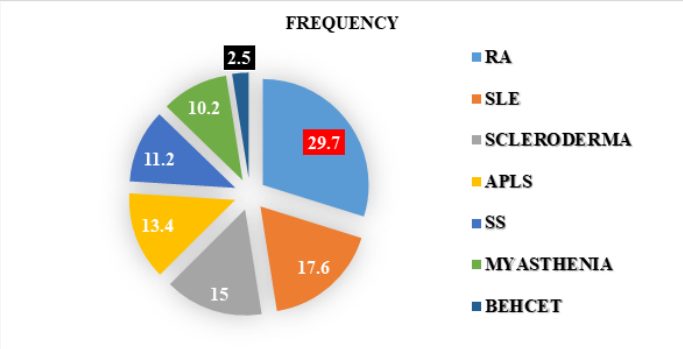
Of the 43,904 pregnant women seen in the two departments, we diagnosed 374 with SDs, representing a frequency of 0.85%.

The 30-34 age group was the most represented with 28.9% (108/374), with a range from 14-42 years. The majority of our pregnant women were married 92.8%, (347/374) and housewives 65.2% (244/374).

Clinical Aspects

Ninety-three percent (255/374) of our patients came from Bamako, and the majority 58.3% (218/374) were referred from Internal Medicine. Only 22.2% (83/374) of patients were transported by ambulance, 43.3% (162/374) arrived by public transport, and 15% (56/374) used their own means of transport. A referral form was issued in 68.2% (255/374).

Figure 1: Distribution of pregnant women according to the type of systemic disease.



SLE (Systemic Lupus Erythematosus); APLS (Antiphospholipid Syndrome); Sjögren's Syndrome (SS); Myasthenia Gravis (M G); Behçet's Disease.

RA and SLE were the most dominant systemic diseases during pregnancy with 29.7% (111/374) and 17.6% (66/374) of cases respectively followed by Scleroderma, APLS, SS, MG, and Behçet's disease representing respectively 15% (56/374), 13.4% (50/374), 11.2% (42/374), 10.2% (38%) and finally 2.9% (11/374).

Patients' gravidity

Patients with a gravidity between 6 and 18 pregnancies were the most prevalent, representing 76.5% (286/374), followed by those with 1-5 pregnancies, or 23% (88/374).

Table 1: Relationship between false spontaneous infections / types of systemic diseases.

	Types of systemic diseases							Total
	Behçet	SS	SLE	Myasthenia	RA	APLS	Scleroderma	
0	5	0	0	0	0	0	0	5
1 to 3	1	0	0	0	0	0	0	1
3 to 6	5	42	6	38	0	50	56	197
6 to 10	0	0	60	0	111	0	0	171
Total	11	42	66	38	111	50	56	374

Chi-square: 550.53; df: 18; p: 0.00.

Behçet's disease: 1.6% (6/369); Sjögren's syndrome (SS): 11.3% (42/369); SLE: 17.7% (66/369); Myasthenia gravis: 10.2% (38/369); RA: 30% (111/369); APLS: 13.5% (50/369); Scleroderma: 15.1% (56/369).

History of spontaneous miscarriages

A history of spontaneous miscarriages (SMC) was observed in 97.6% (365/374) of patients, while those without a history of SMC accounted for 1.3% (9/374).

The number of SMC

Patients with a history of 3 to 6 spontaneous abortions were the majority, with 52.7% (197/374), followed by patients with a history of 6 to 10 spontaneous abortions, representing 45.7% (171/374), and finally patients with 1 to 3 SMC representing 0.3% (1/374).

Management

Antenatal consultation (ANC) attendees

ANCs were conducted by 89.8% (336/374) of patients. Only 35% (131/374) of ANCs were performed by obstetricians, 40.1% (150/374) of pregnant women were followed by midwives, and the remaining 14.7% (55/374) were followed by other healthcare professionals (nurse-midwives, traditional birth attendants). 58% (217/374) of women had attended all four ANCs.

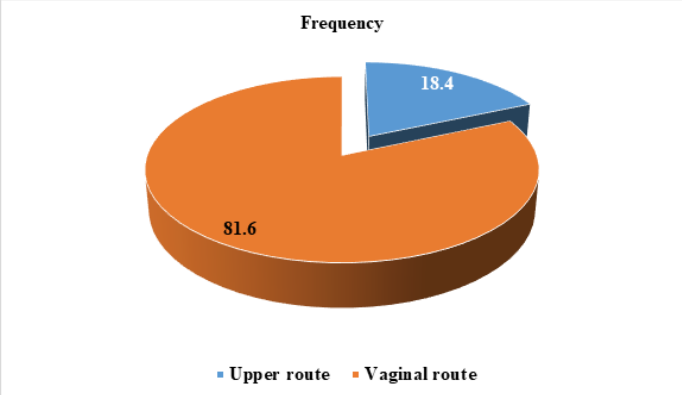
Table 2: Medication management

Drugs	Percentage	
Aspegic	1	0.3
LMVH	38	10.2
Hydroxychloroquine	**115**	**30.7**
Aspegic LMVH Hydroxychloroquine	**127**	**34.0**
Combination Warfarine Aspegic	15	4.0
Others	8	2.1
Corticoids	32	8.6
Calcium	38	10.2
Total	**374**	**100.0**

LMWH: low molecular weight heparin

Medication treatment consisted of hydroxychloroquine in 30.7% of cases; the combination of aspirin, low molecular weight heparin, and hydroxychloroquine was used in 34% of cases.

Figure 2: Distribution of pregnant women according to the mode of delivery.



Women who gave birth vaginally represented 81.6% of cases.

Prognosis

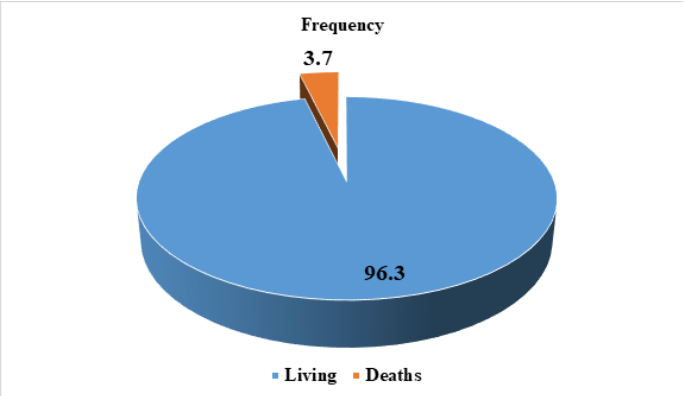
Table 3: Distribution of pregnant women according to perinatal complications.

Fetal complications	Number	Percentage
IUGR	46	12.3
AFD	23	6.1
IUFD	39	10.4
Prematurity	22	5.9
Perinatal death	3	0.8
No	236	63.1
Myasthenia NB	5	1.3
Total	374	100.0

IUGR: intrauterine growth restriction; AFD: Acute fetal distress; NB: newborn.

The frequency of perinatal complications was 26.7% (138/374). These complications were represented by IUGR: 12.3% (46/374); IUFD: 10.4% (39/374); AFD: 6.1% (23/374); prematurity: 5.9% (22/374); myasthenia gravis: 1.3% (5/374); and perinatal death: 0.8% (3/374).

Figure 3: Maternal complications.



Deaths represented 3.7% of patients, or 14/374.

- **Behçet's Disease**
  - IUGR: 10.8% (5/46)
  - Fetal distress: 4.3% (1/23)
  - Prematurity: 4.5% (1/22)
- **Sjögren's Syndrome (SS)**
  - IUGR: 4.3% (2/46)
  - AFD: 26% (6/23)
  - IUFD: 12.8% (5/39)
  - Prematurity: 4.5% (1/22)
- **Systemic Lupus Erythematosus (SLE)**
  - AFD: 60.8% (14/23)
  - IUFD: 33.3% (13/39)
  - Prematurity: 68.1% (15/22)
  - Perinatal death: 100% (3/3)
- **Myasthenia gravis**
  - AFD: 4.3% (1/23)
  - Myasthenia newborn: 100% (5/5)
- **Rheumatoid arthritis (RA)**
  - IUGR: 8.6% (4/46)
  - AFD: 4.3% (1/23)
  - IUFD: 53.8% (21/39)
- **Antiphospholipid syndrome (APLS)**
  - IUFD: 53.8% (21/39)

- Prematurity: 22.7% (5/22)

- **Scleroderma**
  - IUGR: 76% (35/46)

Comments and Discussion

During our study, we came across several difficulties, including the lack of archiving of records, lost records, and incomplete records. The lack of computerization of registers (delivery registers, C-section registers, and hospitalization registers) may also skew our study.

This was a retrospective, analytical study over a 16-year period, from January 1, 2004, to December 31, 2020.

Frequency

We collected 43,904 patient records from those seen in our department during the study period. Of these, we diagnosed 374 patients with SDs, representing a frequency of 0.85% (Figure 1). This frequency was higher than that of Omar, which was 0.26% [1].

Socio-demographic factors

The 30-34 age group was the most represented with 28.9% (108/374), with extremes of 14-42 years. Our patients were predominantly married in 92.8% (347/374) and housewives in 65.2% (244/374). According to Omar, the average age of their patients was 32 years, with extremes of 24 to 42 years [1]. Zarhae also reported an average age of 32 years, with a range of 24 to 42 years [7]. In the socio-demographic characteristics of Alexandra Benachi's study, the average age was 31.8 ± 5.1 years, with a range of 21.3 to 44.2 years. The number of pregnancies was 2.2 ± 1.17, with a range from 0 to 7 [8].

Clinical Aspects

Ninety-three percent (255/374) of our patients came from Bamako, and the majority were referred from the internal medicine department of the Teaching Hospital Point G, with a frequency of 58.3% (218/374).

Only 22.2% (83/374) of the patients were transported by ambulance, 43.3% (162/374) arrived by public transport, and 15% (56/374) arrived by their own means of transport.

The reference sheet was issued in 68.2% (255/374). According to our study, the frequency of connective tissue disease was 0.85%, which was distributed as follows: RA 29.7% (111/374), SLE 17.6% (66/374), scleroderma 15% (56/374), APLS 13.4% (50/374), SS 11.2% (42/374), myasthenia gravis 10.2% (38/374) and Behçet's disease 2.9% (11/374); Figure 1. The prevalence of SLE was 40 per 100,000 pregnant women according to the French National Authority for Health (or HAS) [9]; that obtained by Zarhea was 47% of cases of SLE, 25% of cases of RA, 19% of cases of Behçet's disease, and 3% of cases of scleroderma [7].

Omar pointed out a frequency of 0.26% for the association between AID and pregnancy in their series, which was distributed as follows: SLE: 46.8% of cases; RA: 25%; Behçet's disease: 18.7%; Scleroderma: 9.3% [1].

In our series, patients with a gestational age between 6 and 18 were the most prevalent, with 76.5% (286/374), followed by those with 1 to 5 pregnancies, representing 23% (88/374).

Table 4: Relationship between perinatal complications and types of systemic diseases.

Fetal complications	Types of systemic diseases							Total
	Behçet	SS	SLE	Myasthenia	RA	APLS	Scleroderma	
IUGR	5	2	0	0	4	0	35	46
AFD	1	6	14	1	1	0	0	23
IUFD	0	5	13	0	0	21	0	39
Prematurity	1	1	15	0	0	5	0	22
Perinatal death	0	0	3	0	0	0	0	3
NO	4	28	21	32	106	24	21	236
Myasthenia NB	0	0	0	5	0	0	0	5
Total	**11**	**42**	**66**	**38**	**111**	**50**	**56**	**374**

Chi-square: 414.35; df: 36; p: 0.00.

IUGR: intrauterine growth restriction; FAD: acute fetal distress; NB: newborn; SLE: systemic lupus erythematosus; RA: rheumatoid arthritis; APLS: antiphospholipid syndrome.

Table 5: Correlation between types of SD and causes of maternal death.

Type of SD	Living	Cause of deaths			Total
	Living	Preeclampsia Eclampsia	Thromboembolism	nephrotic SN RF	
Behçet	7	1	3	0	11
SS	37	2	1	2	42
SLE	62	2	1	1	66
Myasthenia gravis	38	0	0	0	38
RA	110	0	0	1	111
APLS	50	0	0	0	50
Scleroderma	56	0	0	0	56
Total	**360**	**5**	**5**	**4**	**374**

Chi2: 81.58; DOF: 18; P: 0.00

A history of SMC was observed in 97.6% (365/374) of our patients. Those with a SMC rate between 3 and 6 were the majority, accounting for 52.7% (197/374), followed by patients with 6 to 10 SMC: 45.7% (171/374), and finally, patients with 1 to 3 SMC: 0.3% (1/374). A significant relationship existed between SMC and AIDs (Chi-square: 550.53; df: 18; P: 0.00; Table 1). According to Omar, the average pregnancy rate was 2.86, with a maximum of 4 pregnancies and a minimum of one; the average parity rate of their patients was 2.2, with a significantly higher number of multiparous women [1].

According to Guillaume, 8.5% of the 165 pregnancies resulted in two SMCs before 10 WG, 7.9% in at least 3 SMCs before 10 WG, and 29.7% in at least one fetal loss after 10 WG [10].

Management

In our series, no patient received preconception counseling, and ANCs were performed in 89.8% (336/374) of patients. Only 35% (131/374) of these ANCs were performed by obstetrician-gynecologists, with the remainder conducted by midwives in 40.1% (150/374), and nurses/midwives in 14.7% (55/374). Of those who had attended all four ANCs as recommended by the protocols, standards, and procedures (PSP) in Mali, were 58% (217/374).

In our study, medication management was provided with hydroxychloroquine in 30.7% of cases; the combination of aspirin, LMWH, and hydroxychloroquine was used in 34% (see Table 2).

The medications used for SLE were corticosteroids, hydroxychloroquine, and azathioprine [11-13]. In Behçet's disease, some authors have recommended azathioprine, natalizumab, and calcium channel blockers in scleroderma [14,15].

According to Omar, all patients were on hydroxychloroquine; two patients were on corticosteroids after flares of SLE [1]. According to the same study, all pregnancies were monitored as high-risk pregnancies, with multidisciplinary follow-up [1].

In our series, 81.6% (305/374) of our patients delivered vaginally and 18.4% (69/374) by upper route (see Figure 3). According to current practice, vaginal delivery is the norm, and upper route is only indicated for obstetric reasons [16]. This has been confirmed by another study [1].

Prognosis

The course of the pregnancy was marked by fetal complications in 26.7% (138/374), which were distributed as follows: IUGR in 12.3% (46/374); IUFD in 10.4% (39/374); AFDs in 6.1% (23/374); prematurity in 5.9% (22/374); myasthenia of newborn in 1.3% (5/374); and perinatal death in 0.8% (3/374) (see Table 3). There was a relationship between AIDs and fetal, neonatal complications with a Chi-square value of 414.35; df: 36; and a p-value of 0.00 (Table 4).

IUFD was found out in 75.8% of cases. Connective tissue diseases generally expose fetuses to fetal death, prematurity, IUGR, preeclampsia, and also neonatal lupus in the presence of anti-SSA/SSB antibodies [17]. According to Omar, the pregnancy was marked by 10 cases of IUGR, 2 miscarriages, 3 threatened preterm labors, 2 IUFD, and 9 cases of prematurity [1].

In our study, maternal mortality was 3.7% (14/374) of women in labor; 96.3% (360/374) of women in labor were alive (Figure 3). We found out a significant relationship between connective tissue diseases and maternal death (Chi-square: 81.58; df: 18; P: 0.00; Table 5). Regardless of the underlying AID, three important factors must be considered to prevent maternal, fetal, and neonatal deaths when discussing pregnancy and AID: the immunological profile, disease activity, and its visceral impact [17].

Conclusion

Systemic diseases and pregnancy are common in Mali. Diagnosis should be made before pregnancy for its planning. These diseases make pregnancy high-risk with maternal and fetal complications, hence the need for multidisciplinary management.

Confidentiality

Confidentiality and anonymity were maintained throughout the computerized data management process of the study.

References

1. Omar Laghzaoui. Impacte des maladies immunitaires sur la grossesse expérience du Service de Gynécologie Obstétrique de l'hôpital Militaire Moulay Ismail. Pan African Medical Journal. 2016; 24(38). http://www.panafrican-med-journal.com/content/article/24/38/full/.
2. Leye YM, Ndiaye N, Diack ND, Ndour MA, Fall BC, et al. Epidemiological aspects and diagnostics of connective tissue diseases in the Internal Medicine Department of the Pikini Teaching Hospital: analysis of 287 cases. RAFMI. 2017; 4(2): 22-25.
3. El-Etr M, Vukusic S, Gignoux L, Durand-Dubief F, Achiti L, et al. Steroid hormones in multiple sclerosis. J Neurol Sci. 2005; 233(2): 49-54.
4. Robert R, Pourrat O. Systemic diseases in intensive care: practical aspects. Resuscitation. 2005; 14: 657-662.
5. Hachulla E, Launay D. Complications maternelles graves des maladies systémiques auto-immunesComplications of autoimmune diseases during pregnancy. Réanimation. 2007; 16(5): 393-402.
6. Miguel A, Saavedra S, Antonio BC, Castañeda ARC, Quezada LJJ, et al. Clinical practice guidelines for the management of pregnancy in women with autoimmune rheumatic diseases of the Mexican College of Rheumatology. Reumatol Clin. 2015; 11(5): 295-304.
7. Zahrae MA. Immune diseases and pregnancy: experience of the Moulay Ismail Military Hospital in Meknes (about 32 cases). Thesis No 116/17.
8. Benachi A, Luton D, Mandelbrot L, Picone O. Pathologies maternelles et grossesse. 2014.
9. French National Authority for Health (HAS). Systemic Lupus Erythematosus. National Diagnostic and Treatment Protocol. 2010.

10. Hanouna G, Morel N, Huong DLT, Josselin L, Vauthier-Brouzes D, et al. Catastrophic antiphospholipid syndrome and pregnancy: an experience of 13 cases. Rheumatology (Oxford). 2013; 52(9): 1635-1641.
11. Meyer O. Hormonal life in systemic lupus and other connective tissue diseases. Gynecol Obstet Fertil. 2003; 31(9): 746-756.
12. Costedoat-Chalumeau N, Amoura Z, Duhaut P, Huong DL, Sebbough D, et al. Safety of hydroxychloroquine in pregnant patients with connective tissue diseases: a study of 133 cases compared with a control group. Arthritis Rheum. 2003; 48(11): 3207-3211.
13. Ostensen M. Treatment with immunosuppressive and disease modifying drugs during pregnancy and lactation. Am J Reprod Immunol. 1992; 28(3-4): 148-152.
14. Amato MP, Portaccio E, Ghezzi A, Hakiki B, Zipoli V, et al. Pregnancy and fetal outcomes after interferon- β exposure in multiple sclerosis. Neurology. 2010; 75(20): 1794-1802.
15. Huong LTD, Wechsler B, Piette JC, Bletry O, Godeau P. French registry of lupus pregnancies. The balance sheet. Rev Med Internal. 1994; 15(5): 305-317.
16. Neunert C, Lim W, Crowther M, Cohen A, Solberg Jr L, et al. The American Society of Hematology 2011 evidence-based practice guideline for immune thrombocytopenia. Blood. 2011; 117(16): 4190-4207.
17. Sordet C. Pregnancy and connective tissue disease: Risks for mother and child. J Rheumatol. 2021; 88(1): 59-63.