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INVESTIGATIONS OF ANEMIA IN LUPUS ERYTHEMATOSUS SYSTEMIC

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ABSTRACT

Background: Anemia is the most common haematological abnormality in systemic lupus erythematosus. Understanding the pathogenesis of anemia associated with Lupus Erythematosus Disseminated (LED) can optimize its management. We conducted a study to determine the explorations performed to manage anemia during SLE. **Patients and method:** Descriptive retrospective study, carried out on files of patients hospitalized in the CHUL internal medicine department from January 2021 to December 2022. Included: any patient hospitalized for SLE with a hemoglobin level below: 13g/dl (Men) .12g/dl (Women). The diagnosis of SLE was made based on the existence of at least four ACR criteria. **Results:** Of the 36 files studied, The blood count-form revealed anemia in 24 patients or 66.7% of cases. They were 21 women and 3 men (Sex-ratio=0.14). The average age at the time of diagnosis was 28 years with extremes ranging from 17 to 54 years. The discovery of anemia was concomitant with the diagnosis of SLE in 11 cases and observed during the evolution in 13 patients. Clinically, anemia was well tolerated in 8 patients and symptomatic in 15 patients. Anemia was severe in 11 patients with an average Hb level of 6.76g/dl; microcytic hypochromia in 10 patients, microcytic normochromia in 7 patients and normocytic normochromia in 7 patients. Reticulocytes had been performed in 9 cases, inflammatory assessment in 19 cases, hemolysis assessment in 7 cases and iron assessment in 4 cases. The digestive and gynecological explorations had been made respectively in 3 and 2 cases. None of the patients had undergone a myelogram or a search for vitamin B12 and folic acid. **Conclusion:** Anemia is a common biological abnormality in SLE and can be severe. Our study showed that more than half of lupus patients had anemia and that this was under-explored.

KEYWORDS: Anemia, SLE, explorations.

1. INTRODUCTION

Anemia is a condition in which the number of red blood cells or the level of hemoglobin they contain is lower than the normal value.[1] Hemoglobin is used to transport oxygen and when red blood cells are present in too few quantities or are abnormal, or when there is not enough hemoglobin, the ability of the blood to transport oxygen to the tissues of the body will be reduced.[1] It is the most common hematological condition in SLE[2,3] and accounts for approximately 58.9% of hematological damage.[2] Its causes are diverse, including nutritional deficiencies, especially iron deficiency, although folate, vitamin B12 and vitamin A deficiencies are also important causes. There are also haemoglobinopathies and infectious diseases such as malaria, tuberculosis, HIV infection and parasitosis.[1] The causes frequently found in lupus are: inflammation, chronic renal failure, autoimmune hemolytic anemia (AIHA) or even iron deficiency.[2] The low socio-economic status of most patients living in Africa[4] very often leads practitioners to put the efficient management of anemia in the background when it is associated with another pathology. This can have the consequence, in SLE, of the delay or the difficulty of obtaining a complete remission linked in part to the manifestations of anemia when these are not controlled. The aim of our work is to evaluate the explorations made to investigate anemia in patients with SLE at the University Hospital of Libreville.

2. PATIENTS AND METHOD

2.1. Study designs, setting and population

We conducted a descriptive retrospective study involving all consenting patients who had been hospitalized for SLE in the internal medicine department of the University Hospital Center of Libreville (CHUL), and covered a period of activity of 2 years: January 01, 2021

to December 31, 2022. The CHUL is a tertiary care hospital located in Libreville, capital of Gabon (approximately 703,940 inhabitants).[5] The internal medicine department of the CHUL is the main reference center for diseases of the system in Libreville. Data were sought from the records of patients hospitalized for SLE during this period and collected on a form.

2.2. Data gathering

Patients who had been hospitalized for SLE, regardless of gender and aged 16 years or older, were included. All patients without a complete blood count were excluded. Patient demographics were collected. Hemoglobin level was obtained from complete blood count. The diagnosis of SLE was made based on the existence of at least four ACR criteria.[6]

For SLE, the diagnostic criteria according to the ACR[6] are: Malar eruption; Discoid lupus; Photosensitivity; Oral ulcers; Non-erosive arthritis; Effusion (pleurisy-pericarditis); Kidney damage (proteinuria > 0.5 g/d-cylinders); Neurological impairment (comitiality-psychosis); Haematological abnormality (haemolytic anemia or- leucopenia < 4,000 or- lymphopenia < 1,500 or- thrombocytopenia < 10,000); Immunological disorder (LE + or- anti-native DNA or- anti- S m or- false syphilitic serology cells); Antinuclear antibodies (in the absence of inducing drugs) and Antinuclear antibodies.

Patients were classified as anemic according to World Health Organization (WHO) criteria (Hb <12 g/dl for women and <13 g/dl for men).[8] Based on mean corpuscular volume (MCV), anemia was classified as microcytic (MCV <80 fl), normocytic (MCV between 80 and 100 fl), or macrocytic (MCV >100 fl). Mean corpuscular hemoglobin concentration (MCHC) has been used to characterize anemia as hypochromic (MCHC <32 g/dl) or normochromic (MCHC ≥ 32 g/dl).[9]

It was mild if Hb in women between 10.9 and 11.9 g/dl and in men between 10.9 and 12.9 g/ dl, moderate if Hb between 8 and 10.9 g/dl and severe if Hb <8g/dl.

Anemia was considered symptomatic in the presence of signs such as asthenia, feeling weak, extreme pallor, fainting, dizziness, increased thirst, sweating, weak rapid pulse, and rapid breathing.[1,7]

The complementary examinations retained to explore the anemia were: the level of reticulocytes, the C-reactive protein (CRP); fibrinogen, lactate dehydrogenase (LDH); haptoglobin, bilirubin; serum iron, serum transferrin, serum ferritin, iron saturation coefficient, serum creatinine, glomerular filtration rate, folic acid, vitamin B12, myelogram; digestive explorations (upper or lower digestive fibroscopy) and gynecological explorations (mainly pelvic ultrasound).

2.3. Statistical analyzes

THE Data were presented as mean and standard deviation for continuous variables and as counts and percentages for categorical variables. We did not include patients with missing data in the statistical analysis.

3. RESULTS

Of the 36 files that we identified, 24 cases of anemia were found (66.7%).

3.1 Age, sex, mode of discovery and form of anemia

Of the 24 cases of anemia found, 21 patients were women and 3 were men, giving a Sex -ratio of 0.14.

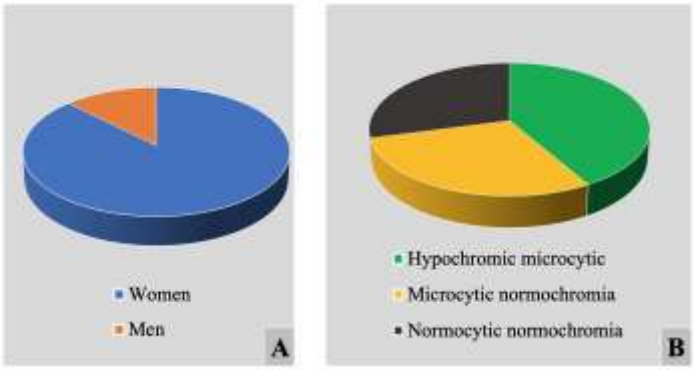

Figure 1: Distribution of patients by sex (A) and type of anemia (B).

Table 1: Distribution of patients by age group and by severity of anemia.

		Effective	%
Age (years)	[16-30]	12	50.0
	[30-45]	8	33.3
	[45-55]	4	16.7
Form	Severe	11	45.9
	Moderate	8	33.3
	Lightweight	5	20.8

The average age of these patients was 28 years with extremes ranging from 17 to 54 years.

The discovery of anemia was concomitant with the diagnosis of SLE in 11 cases and observed during the evolution in 13 patients. Clinically, anemia was well tolerated in 8 patients and symptomatic in 15 patients.
Anemia was severe in 11 patients with an average Hb level of 6.76g/dl; moderate in 8 patients and mild in 5 patients.

3.4. Characteristics of anemia

It was microcytic hypochromic in 10 patients, microcytic normochromic in 7 patients and normocytic normochromic in 7 patients.

3.5. Investigations for anemia

Reticulocytes had been performed in 9 cases, inflammatory assessment in 19 cases, hemolysis assessment in 7 cases and iron assessment in 4 cases. The digestive and gynecological explorations had been made respectively in 3 and 2 cases. None of the patients had undergone a myelogram or a search for vitamin B12 and folic acid.

Table 2: Distribution of patients according to explorations carried out to investigate anemia.

Examination carried out	Staff /24	%
Reticulocytes	9	37.5
CRP inflammatory assessment	19	79.17
Fibrinogen	0	0
Haptoglobin haemolysis assessment	7	29.17
Bilirubin	2	8.33
LDH	7	29.17
Serum iron deficiency	4	16.67
Ferritin	4	16.67
Transferrin	2	8.33
Siderophilin saturation coefficient	0	0
Other deficiencies		
Folic acids	0	0
Vitamin B12	0	0
Digestive exploration	3	12.50
Gynecological exploration	2	8.33
Myelogram	0	0

4. DISCUSSION

Anemia is common in SLE patients and has a negative impact on their well-being.[9] It also impairs ability to work, reduces quality of life[10] and worsens cardiovascular health. In our study, we found a hospital frequency of 66.7%. This frequency is close to and slightly above that found by other teams, in particular Rachidi et al (57.11%) and Somai et al (58.9%). Zbadi's thesis, on the other hand, found a higher one (93.7%). The latter could be explained by the methodology of the said study, which is prospective, whereas our work and that of the two other teams were carried out on patient files and therefore retrospective.

The predominant female sex in our study is in agreement with the data of other authors.[2,3,11] The majority age bracket corresponding to women of childbearing age can also be superimposed on these studies.

The management of anemia during lupus must be essential and must take into account not only its correction by transfusion of red blood cells in the event of severity or supplementation with deficient substrates but also the search and treatment of its etiology. . During SLE, anemia is the most commonly encountered hematological condition and due to the lack of financial means, the management of SLE is put forward and we are often content to correct the anemia without seeking and treating the possible cause.

Our work shows, in general, a lack of performance of examinations aimed at investigating this anomaly in most patients, which may be linked to a lack of prescription on the one hand and the financial precariousness of our patients on the other.

Inflammatory assessment, in particular CRP, is systematically requested during SLE, both at discovery and after follow-up, which justifies its high percentage in our work. He probably wasn't asked to explore anemia.

The under exploration of anemia in our work is also supported by a small proportion of deficiency research analyses, in particular iron deficiency, the quantity of which is in line with the percentage of microcytic hypochromic anemias (4/10). The main etiology of this type of anemia being iron deficiency.

The 7 cases of hemolysis (can be attributed to autoimmune origin) in agreement with the proportion of normochromic normocytic anemia whose main etiologies are hemolysis and bleeding. However, other studies find a low frequency of autoimmune hemolytic anemia against a rather high proportion of the normochromic normocytic nature of anemias: 3/25[2]; 13/44.[11] This suggests the multifactorial nature that anemia can have, especially in our African countries, hence the need to prescribe all possible examinations for efficient diagnostic research.

We recognize the following potential limitations of our study: despite the fact that it was conducted in a tertiary care hospital, the results may underestimate the investigations made to investigate anemia, especially in patients followed on an outpatient basis who are not not necessarily subject to the financial urgency of care. Furthermore, we had a relatively small sample of patients with SLE.

5. CONCLUSION

Anemia is a fairly common haematological abnormality in SLE and can vary in severity and may delay remission in affected patients. Our study showed that more than half of lupus patients had anemia and that this was under-explored. We suggest, by the results of this work, that all the explorations necessary to investigate anemia during SLE be systematically carried out. Furthermore, the results raise questions regarding the additional economic burden for diabetic patients attributable to anemia.

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ABBREVIATIONS

ACR: Amercan College Rheumatologic; CHUL: Libreville Hospital Center; CRP: C Reative protein ; eGFR : estimated glomerular filtration rate ; Hb : hemoglobin ; SLE: Lupus Erythematosus Disseminated ; LES: Lupus Erythematosus Systemic; MCHC: Corpuscular hemoglobin concentration ; MCV: Mean Corpuscular Volume

REFERENCES

1. WHO 2023. 14.02.20 Welcome to the Rh I.
2. Rashdi I; Ben Abdelhafidh N; Ajili F et al. Anemia in systemic lupus erythematosus; 27th congress of the French Society of Rheumatology, 2014.
3. Zbadi R Bono W; Hematological manifestations during lupus: prospective study (About 39 cases), 2012 Concept Note.
4. UNFPA Regional Office for West and Central Africa (WAROC), Delivery Unit Agenda, https://wcaro.unfpa.org/14.02.2023
5. Directorate General of Statistics, overall results of the 2013 general census of population and housing in Gabon (RGPL-2013), Libreville, 2015; chII 7.
6. National Protocol for Diagnosis and Care (PNDS). Systemic Lupus, January 2017; (updated February 2020).
7. Evan M. Braunstein , Anemia Assessment , Johns Hopkins University School of Medicine, Medical Exam, Jul 2022.
8. World Health Organization . Nutritional anemias . Report of a WHO scientific group. World Health Organ Tech Rep Ser., 1968; 405: 5–37.
9. Levey AS, Bosch JP, Lewis JB, Greene T, Rogers N, Roth D. A more accurate method to estimate glomerular filtration rate from serum creatinine: a New prediction equation. Ann Intern Med., 1999; 130: 461–70.
10. Monday AP. Quality of life: subjective and objective improvements with recombinant human erythropoietin therapy. Semin Nephrol, 1989; 9(1,1): 22–9.
11. M. Somaï, F. Daoud, I. Rachdi, H. Zoubeidi, Z. Aydi, B. Ben Dhaou, F. Boussema; Haematological involvement in systemic lupus erythematosus: about 134 cases; Journal of Internal Medicine, 2018; 39(1): A157.