Volume 4 | Issue 3 | 2024

ISSN | 2771-019X

Journal of
Clinical & Medical Images
Case Reports

Open Access |Short Report

Acute flare of systemic lupus erythematosus: Importance of c-reactive protein and other laboratory markers in clinical practice

***Corresponding Author:** Chee Keong Chang*

Email: changdoc_1@yahoo.com

Chee Keong Chang*; Xin Jet Din

Tunku University, Abdul Rahman Hospital, Kampar, Perak, Malaysia.

Abstract

We would like to present this case to inform practicing clinician the importance of laboratory results in helping us to differentiate between infection and flare up in SLE patients. The initial presentation of fever might be difficult to clearly distinguish between these two but with the help of laboratory results clinician can confidently make a diagnosis. CRP and ESR are two common tests done for patients presenting with febrile illness. Generally, CRP is elevated in infection while ESR is elevated in inflammatory reactions like SLE flare up.

Received: Apr 25, 2024

Accepted: May 20, 2024

Published Online: May 27, 2024

Cite this article: Chang CK, Din XJ. Acute flare of systemic lupus erythematosus: Importance of c-reactive protein and other laboratory markers in clinical practice. J Clin Med Images Case Rep. 2024; 4(3): 1684.

Keywords: Systemic lupus erythematosus; Pancytopenia; Erythrocyte sedimentation rate; C-reactive protein.

Abbreviations: SLE: Systemic Lupus Erythematosus; CRP: C-Reactive Protein; ESR: Erythrocyte Sedimentation Rate

Case presentation

A 47 year old lady with medical background of SLE for 22 years, presented with fever, poor oral intake and lethargy for 2 days. On examination she appeared weak and was febrile. Her blood pressure was low with systolic pressure ranging 80 to 90 mmHg; heart rate of 115 per minute; temperate of 38.1°C. She was initially treated as septic shock and started on intravenous antibiotics. She was also given intravenous hydrocortisone as a treatment for SLE flare. Her blood results showed low CRP level, pancytopenia, low C3 and C4 levels, but high ESR (Figure 1).

Based on this we knew that this patient had SLE flare. She was given intravenous hydrocortisone and showed good response to this treatment. Her temperate and heart rate normalized within 2 days of treatment. Her appetite and general well being improved simultaneously. Blood cultures which were taken prior to commencement of antibiotic came out to be negative. Antibiotic treatment was stopped as soon as her blood culture results were out. Her steroid was converted to oral and tapered down. Pancytopenia improved significantly with steroid therapy (Figures 2 to 4). The patient's glucose levels were closely monitored and she did not develop hyperglycemia due to steroid therapy. She was discharged well.

Discussion

SLE is a common disease affecting women. Active SLE disease can present with fever and other associated symptoms. Similarly, infection in SLE also presents with fever. Infection accounts for a significantly high mortality among SLE patients, ranging 25% to 50% of overall mortality [1]. Distinguishing these two

Table 1: Important laboratory markers in this SLE patient.

	Result	Unit	Reference range
Complement C3	0.6	g/L	0.83-1.93
Complement C4	0.11	g/L	0.15-0.57
C-Reactive Protein	0.79	mg/L	<5
ESR	112		0-20

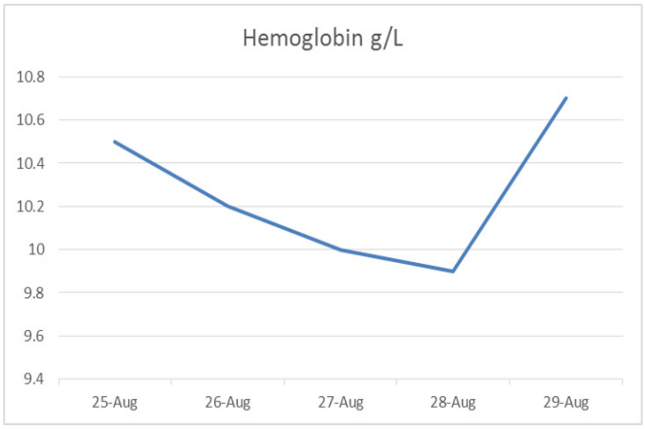

Figure 1: Hemoglobin trend improving.

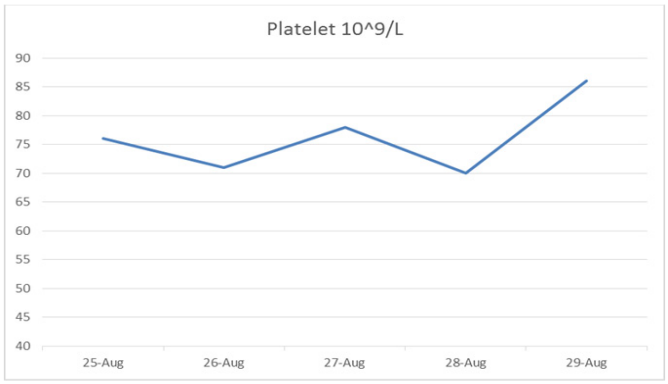

Figure 2: Platelet trend improving.

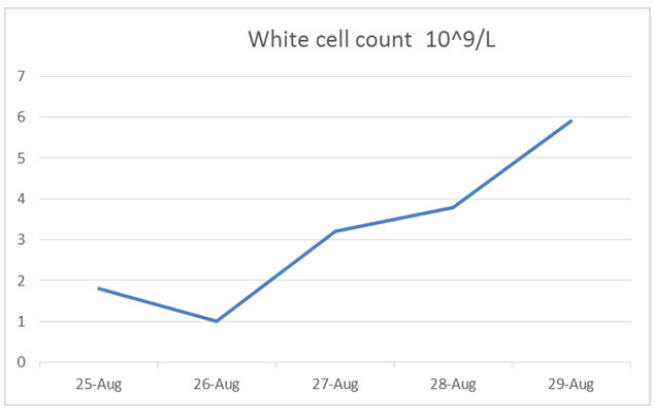

Figure 3: White cell count trend improving.

is important in clinical practice. It also prevents unnecessary use of antibiotics which will increase the risk of antibiotic resistance. Our patient presented with symptoms that resembles infection. However, the laboratory results strongly suggested the other way. The low CRP level and other markers were consistent with classic description of flare up [2-6]. It is also worth to highlight the markedly raised ESR in this patient, which suggested

Table 2: Timeline.

Day 1	Fever, poor oral intake, lethargy Tachycardia, low blood pressure, T 38.1^{O}C CRP low, Pancytopenia, raised ESR Diagnosis of SLE flare was made High dose intravenous hydrocortisone was started
Day 2	Further test results came out: Low C3 and C4 levels Blood pressure and heart rate responded to therapy: stable blood pressure, normal hear rate Improved appetite and felt better Fever resolved
Day 3 to day 6	Steroid therapy was converted to oral tablet prednisolone. Improving trend of pancytopenia Felt well Blood cultures: no growth Antibiotic therapy stopped
Day 7	Discharged well Put on oral prednisolone

ongoing inflammatory process. However, ESR is not specific and could not distinguish between infection and flare up [2,3,5]. The negative blood culture results in this patient also supports the diagnosis of SLE flare.

Conclusion

Laboratory markers are helpful in clinical practice especially when it is hard to decide whether there is concomitant infection.

References

1. Petri M. Infection in systemic lupus erythematosus. Rheum Dis Clin North Am. 1998; 24: 423-456.

2. Kim HA, Jeon JY, An JM, Koh BR, Suh CH. C-reactive protein is a more sensitive and specific marker for diagnosing bacterial infections in systemic lupus erythematosus compared to S100A8/A9 and procalcitonin. J Rheumatol. 2012; 39: 728-734.

3. Beca S, Rodriguez-Pinto I, Alba MA, Cervera R, Espinosa G. Development and validation of a risk calculator to differentiate flares from infections in systemic lupus erythematosus patients with fever. Autoimmun Rev. 2015; 14: 586-593.

4. Lacki JK, Leszczynski P, Kelemen J, Muller W, Mackiewicz SH. Cytokine concentration in serum of lupus erythematosus patients: the effect on acute phase response. J Med. 1997; 28: 99-107.

5. Suh CH, Jeong YS, Park HC, et al. Risk factors for infection and role of C-reactive protein in Korean patients with systemic lupus erythematosus. Clin Exp Rheumatol. 2001; 19: 191-194.

6. Suh CH, Chun HY, Ye YM, Park HS. Unresponsiveness of C-reactive protein in the non-infectious inflammation of systemic lupus erythematosus is associated with interleukin 6. Clin Immunol. 2006; 119: 291-296.