

Original Research Article

Relationship of CRP/Lymphocyte with prognosis and mortality in Covid 19

ABSTRACT

Background: The Covid 19 pandemic is a serious disease that has infected millions of people and died tens of thousands. The clinical findings of the disease range from asymptomatic to death, and abnormal pathological variety is findings in laboratory parameters.

Aim: To relation laboratory parameters with prognosis and mortality in the admission intensive care.

Study Design: Ersin Arslan Training and Research Hospital Covid Intensive-care unit between July 1, 2021, and September 30, 2021.

Methodology: The laboratory parameters (in the first 24 hours) of a total of 197 patients (113 male, and 84 female) hospitalized in the Covid 19 Intensive-care unit were examined. The relationship of these parameters with intubation and mortality was analyzed retrospectively, for Wilcoxon Signed-Rank test.

Results: The mean age was 64.6 years, and 57.3% were male, WBC values of the patients were 46.8% high and 53.2% normal. According to lymphocyte values; 55.3% lymphopenia, 43.6% normal lymphocytes, 1.1% lymphocytosis. Procalcitonin value were more than normal in 88.8% of patients. CRP values were more than normal in the first 24 hours in 98.9% of the patients. Normal reference range values are WBC 4-10 μ L, CRP 0-5 mg/L, Lymphocyte 0.8-4 μ L. According to normal reference ranges; WBC/Lymphocyte 1-12.5 and CRP/Lymphocyte 0-6.25 values were admitted normal ranges. Mortality rate of patients admitted in Intensive-care found as 54.8%.

[Mostrar os resultados estatísticos obtidos aqui.](#)

Conclusion: Intensive-care Unit admission patients is more often in male and over 60 years old. Mortality is more in female patients and between the ages of 21-60. WBC/Lymphocyte ratio has no significant relationship with mortality. A CRP/Lymphocyte ratio more than 100 is related with mortality in patients with and without a history of steroid treatment.

Keywords: Covid-19, laboratory, lymphocyte, mortality

1. INTRODUCTION

The Covid 19 pandemic is a serious disease that has infected millions of people and died tens of thousands. Although SARS-CoV-2 has responded to treatments in some countries, it continues to spread rapidly in many regions [1]. The clinical findings of the disease range from asymptomatic to death, and abnormal pathological variety is findings in laboratory parameters.

In this study, it was aimed to relation laboratory parameters with prognosis and mortality in the admission intensive care.

2. MATERIAL AND METHODS

A total of 197 patients (113 male, and 84 female) were examined at, Ersin Arslan Training and Research Hospital Covid Intensive-care Unit between July 1, 2021, and September 30, 2021.

White blood cell (WBC), C-reactive protein (CRP), lymphocyte and procalcitonin (PCT) values, treatment of steroid, intubation day and mortality status were recorded from the laboratory results of the patients within the first 24 hours. WBC values (normal reference range 4-10 μ L), Lymphocyte values (normal range 0.8-4 μ L), CRP (normal range 0-5 mg/L), PCT value (normal range 0-0.5 ng/ml). According to the lower and upper reference values; WBC/Lymphocyte (W/L): 1-12.5 and CRP/Lymphocyte (C/L): 0-6.25 values were admitted normal ranges.

Data were evaluated by the Wilcoxon Signed-Rank test, at xxx% significance.

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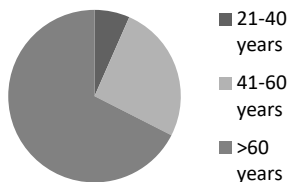
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3. RESULTS AND DISCUSSION

The mean age was 64.6 ± 2.16 (21-95) years, and 57.3% were male. Most of the patients were over 60 years old (67.5%) (Figure 1).

Figure 1. Distribution of the study population by age



WBC values of the patients were 46.8% high and 53.2% normal; 55.3% lymphopenia, 43.6% normal lymphocytes, 1.1% lymphocytosis. CRP results were 98.9% high, high PCT value was 26.3% of the patients, 86.8% had a history of steroid treatment, 58.3% intubated (in Intensive-care) and 54.8% died of the patients.

Male and over the age of 60 patients are admitted to more often intensive care units. Female gender and over 60 years are related with mortality ($p < 0.04$). Leukocytosis and lymphocytosis are not significantly related with mortality ($p < 0.1$). Although high PCT value is not related with intubation, it is related significant with mortality ($p < 0.0001$). High W/L value is not significantly related with mortality and intubation ($p < 0.1$). A CRP/L value more than 100 is related with both intubation and mortality in those with a history of steroid treatment ($p < 0.0001$) (Table 1).

Table 1. Statistical analysis results of the study

	n	SD	95% CI	
Gender				
Male	113	0.49	± 0.06	
Female	84			
Ages	64.6 (21-95)	15.3	± 2.17	
Mortality				
Paramaters	n	z	p<	ODSS
Female	84	-2.043	0.04	0.842
>60 years	133	2508	0.01	2.590
High procalcitonin	52	-5.070	0.0001	1.812
Yüksek W/L	100		0.1	
Low W/L	5		0.7	
History of steroids (Yes)				
CRP/Lymphocyte >100	171	-4.862	0.0001	1.623
History of steroids (No)				
CRP/Lymphocyte >100	26	-1.867	0.06	1.444

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Eosinopenia and lymphopenia have been reported in studies in Covid 19, and the reason for this may be the distribution variety of white blood cells as a result of cytokine storm by T cells [2,3]. In our study, although eosinopenia was rare, lymphopenia was more often. It has been reported that 77.8% of the patients are between the ages of 30-69 and 2.4% younger the age of 18 in Covid 19 [4]. The lymphopenia has been reported to be related with mortality [5]. C-reactive protein values are very important parameter in detecting infection and response of treatment [6].

4. CONCLUSION

Intensive-care Unit admission patients is more often in male and over 60 years old, and mortality is more in female patients and between the ages of 21-60. WBC/Lymphocyte ratio has no significant relationship with mortality, and a CRP/Lymphocyte ratio more than 100 is related with mortality in patients with and without a history of steroid treatment.

Fazer uma frase para fechar o seu estudo dizendo sobre a sua importância para o tratamento desta doença.

ETHICAL APPROVAL

Republic of Turkey Ministry of Health 2021-09-18T22_38_39, numbered and Gaziantep University Medical Ethics Committee 2021/322 numbered approval have been received.

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6. W-j G, et al. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med. 2020;382(18):1708-1720.

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