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Original research article

Mortality indicators in covid 19

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Abstract

Background: The patients suffering from Covid-19 at first although were reported to have primarily admitted having pneumonia like symptoms but there were other signs and symptoms also that were increasingly observed. Some of the symptoms were headache, nausea, diarrhea, multiple organ dysfunction. Although some were being admitted with all these symptoms, others did not had any symptoms at all. Later it was understood that there was a spectrum of disease that was supposed to be understood. At one end of the spectrum patients were infected with negligible symptoms and would recover fully. At the other end of the spectrum patients were admitted with pneumonia and also other severe complications like sepsis, respiratory failure and other organ failures. Many have lost their lives. Then came a time when WHO effectively called it as a pandemic. The mortality rate is never understood completely but it in the range of 3 to 7 percent. This study puts in an effort to find one such difference if any between the survivors when compared to the non-survivors. This study makes an effort to find the Acute inflammatory protein levels in the two groups.

Keywords: Hepatic, enzymes, retrospective, covid-19

Introduction

It all started in Oct 2019 when many cases were reportedly admitted with pneumonia like symptoms in the hospital in Wuhan province of China [1]. It went on for many days and more number of patients was being admitted with similar symptoms in the same province. Things changed when the treating Doctors and nurses starting to have the same set of symptoms that the patients had earlier diagnosed. Many of them have been said to be admitted but recovered fully. The contagious property of the disease was found and it would be transmitted through droplet infection was later understood [2]. The patients although were reported to have primarily admitted having pneumonia like symptoms but there were other signs and symptoms also that were increasingly observed. Some of the symptoms were headache, nausea, diarrhea, multiple organ dysfunction [3]. Although some were being admitted with all these symptoms, others did not had any symptoms at all. Later it was understood that there was a spectrum of disease that was supposed to be understood. At one end of the spectrum patients were infected with negligible symptoms and would recover fully [4]. At the other end of the spectrum patients were admitted with pneumonia and also other severe complications like sepsis, respiratory failure and other organ failures. Many have lost their lives [5]. Then came a time when WHO effectively called it as a pandemic [6]. The mortality rate is never understood completely but it in the range of 3 to 7 percent [7]. This study puts in an effort to find one such difference if any between the survivors when compared to the non-survivors. This study makes an effort to find the Acute inflammatory protein levels in the two groups.

Aims and Objectives

To study the Acute inflammatory protein levels and their significance in Covid-19.

Materials and Methods

This study is a retrospective study in the Department of Medicine, Department of Chest and TB, Siddaganga medical college and research institute.

This study was done from Feb 2020 to June 2022.

One hundred thirty-four survivors and an equal number of non-survivors were selected.

The MRD was visited and the files were asked. The haematological and biochemical profile has been reported.

Inclusion criteria

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All the patients were selected in the age group of 20 to 60 years old.

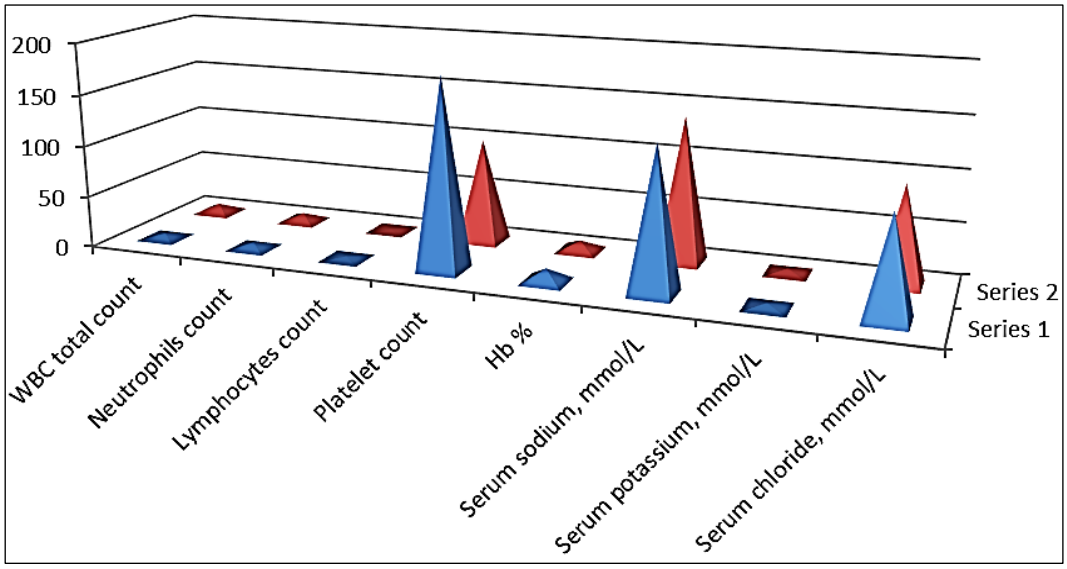
Exclusion criteria
Any patients with other co-morbidities were not selected to decrease the bias.

Patients with liver disease
Patients with history of jaundice within one year before the infection.

Statistics
All the statistical analysis was done using the latest version of the R software.

Results
Table to describe the haematological and biochemical profile in survivors and non-survivors

Markers	Survivor	Non-Survivor	Sig
WBC total count (10^9/L)	4.71 ± 2.39	9.28 ± 6.37	Not Sig
Neutrophils count (10^9/L)	5.37 ± 1.5	8.43 ± 1.38	<0.001 Sig
Lymphocytes count (10^9/L)	2.4 ±1.4	1.3 ±0.5	Not Sig
Platelet count(10^9/L)	184.07 ± 38.15	101.58 ± 70.27	<0.001 Sig
Hb %	12.81 ± 1.72	10.27 ± 1.29	Not Sig
Serum sodium, mmol/L	138.21 ± 2.38	140.35 ± 7.39	Not Sig
Serum potassium, mmol/L	4.12 ± 0.13	4.41 ± 0.92	Not Sig
Serum chloride, mmol/L	96.71 ± 6.18	94.49 ± 7.8	Not Sig
AST U/L	68.38 ± 34.29	90.8 ± 114.98	Not Sig
ALT U/L	49.82 ± 38.92	121.38 ± 187.48	Not Sig
LDH U/L	620.28 ± 318.09	1216.16 ± 1129.29	<0.001 Sig
Direct bilirubin, mmol/L	0.61 ± 1.23	0.79 ± 1.12	Not Sig
Indirect bilirubin, mmol/L	0.41 ± 1.17	0.75 ± 1.39	Not Sig
TBIL, mmol/L	1.11 ± 1.22	1.45 ± 1.92	Not Sig
CRP, mg/L	39.29 ± 57.12	116.26 ± 91.9	<0.001 Sig
D-dimer, ng/mL	682.00 ± 114.19	892.13 ± 412.38	<0.001 Sig
Ferritin ng/ml	249.91± 38.15	1006.16 ± 112.39	<0.001 Sig
SpO_2 on admission	93.82 ± 6.39	86.28 ± 6.0	Not Sig



Graph 1: To describe the haematological in survivors and non-survivors

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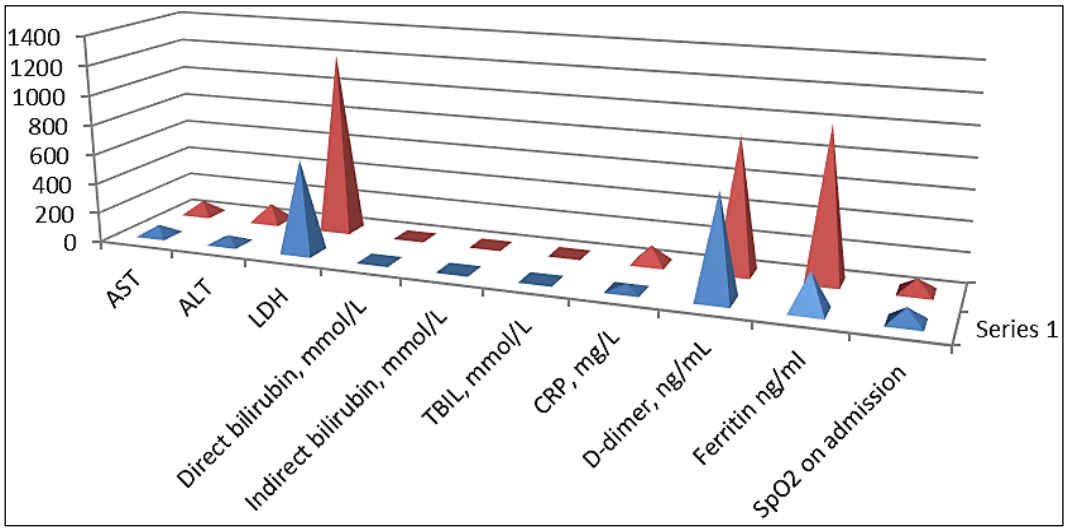

Graph 2: To describe the biochemical markers in survivors and non-survivors

Discussion

As earlier discussed this disease has a spectrum of signs and symptoms that can be presented. At one end of the spectrum patients were infected with negligible symptoms and would recover fully. At the other end of the spectrum patients were admitted with pneumonia and also other severe complications like sepsis, respiratory failure and other organ failures. Many symptoms is caused by the reactive inflammatory substances that are produced in the body. These inflammatory markers are known to attack the normal tissues of the body. The symptoms are also known to suddenly disappear at one end of the spectrum but also at the other end it is known to burst out of proportions. So, this disease has to be understood in detail and the spectrum has to be understood to effectively treat the patients and thus save lives [8]. Haematological and biochemical markers to identify the prognosis of the disease have already been reported by many studies [9]. There are other studies which covers the importance to study the inflammatory markers that are responsible for creating a cytokine storm [10]. CRP, ESR, IL-6 to name a few has been extensively studied. Their link has been known to be the difference between the life and death [11, 12]. But one of the most metabolic organ in the body and its role is poorly understood. So, this study is one such novel effort. This study successfully finds the difference.

Conclusion

This can be used as a prognostic tool. Majority of the study has been done in the east and none of them in this region. The pandemic is still not over and this study is one novel effort to find the difference so as to help the practicing physician to diagnose the severity earlier and be helpful in the treatment of the disease.

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