



COVID-19 AND CO-MORBIDITIES; PREVALENCE AND BIOCHEMICAL ANALYSIS

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Abstract

Coronavirus 2 (SARS- CoV- 2) has been discovered as a probable cause of severe acute respiratory condition (SARS- CoV- 2) and viral illness. Covid 19 has put many people's lives at peril. Co-morbidities such as diabetes, hypertension, cardiovascular illness, HIV, and others have been demonstrated in studies to exacerbate the pathophysiology and treatment of Covid 19 infected individuals, potentially resulting in a life-threatening condition. In this study, we focused on 19 patients with comorbidities admitted to the “Shree Guru Gobind Singh Tricentenary Hospital and Research Centre”, which is situated in the rural district of Gurugram, Haryana. We measured several biochemicals along with hematological markers in 19 individuals with diverse co-morbidities and analyzed their changes.

Keywords: - Covid-19, Diabetes mellitus and Hypertension

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DOI:- 10.48047/ecb/2023.12.si5a.076

Introduction

There has been an outbreak of the 2019-nCoV novel coronavirus in China's Wuhan city, commonly called as COVID-19 since December 2019. Following the purpose of, the COVID-19 spreads rapidly all through China along with the rest of the earth. It may manifest as signs including fever, invasive lung tumors on both lungs, and breathing difficulties.¹

Contemporary classification of coronaviruses² includes eight of the fifteen qualifying taxa, and it makes 49 varieties from the Coronaviridae species, suborder Realm Riboviria, order Nidovirales and Cornidovirineae, distributed among 27 subgenera, five genera, and two subfamilies. 3-4

The Corona virus Study Group (CSG) of the "International Committee on Taxonomy of Viruses" is in charge of enhancing family categorization and taxonomic identification (taxonomy).⁵ Coronaviridae is a family of enclosed viruses with unusually large genomes. Coronaviruses (CoVs) have single-stranded RNA genetics allele that has been varying in dimension from 26 to 32 kilobases. 6

At the time, at least seven coronavirus orders could infect humans. Only the viruses HKU1, 229E, NL63 and OC43 cause a severe cold. The additional three viruses are lethal, including SARS-CoV, which caused the SARS epidemic in 2002 and 2003⁷ The Middle East respiratory diseases (MERS-CoV) is caused by coronaviruses and first appeared in camels in 2012, where it is still present today.⁸

Transmission of the virus

It is now known that SARS-CoV-2 can spread from person to person; although the fact that the majority of the earlier patients had prior interaction with Human Sea food promoter.⁹ A new coronavirus called SARS-CoV-2 has an unknown mode of transmission. The present accepting of SARS-CoV-2 spread is typically based on knowledge of other corona viruses that has been comparable to it, such as MERS-CoV and SARS-CoV, which spread from individual to individual through fomites, contact and droplets.¹⁰

Hypertension

Systemic arterial hypertension, also mentioned to as hypertension, is considered by determinedly high blood pressure (BP) in the systemic arteries.¹¹ 23.4% of 1099 COVID-19 patients who participated in the study had hypertension. Because ACE2 contributes to the emergence of hypertension and because ACE2 and SARS-COV-

2 are connected, many people believe hypertension is connected to the etiology of COVID-19.

Severe Anemia

When a people haemoglobin (Hb) percentage or RBC count is excessively low and inadequate to satisfy physiological requirements, this is referred to as anemia.¹³ Hb's critical function in oxygen release to the tissues accounts for the nearly all scientific signs of anemia, as well as fatigue, pounding pulses or palpitations, and conjunctiva. 14

AIM:

Covid-19 and co-morbidities: biochemical analysis and prevalence.

OBJECTIVES:

1. To compare the covid-19 patient's admissions by month in terms of distribution.
2. To assess the proportion of covid-19 patients compared to another patients.
3. To examine various biochemical variables in infected person with covid-19 who also have other co-morbidities.
4. To examine various hematological variables in the covid-19 patient who also has co-morbidities.

Material & Methods

Data from 19 patients with additional co-morbidities who were admitted to the "Guru Shree Gobind Singh Tricentenary Hospital" and Research Centre in Gurugram, Haryana have been collected and analyze. In the course of this analysis, data varied from patient admission to their release. We look at the clinical presentation, test data and outcome of 19 patients with additional co-morbidities. To create graphs, Microsoft Excel is used.

Result & Discussion

90 Covid19 suspected patients were admitted to "Shree Guru Gobind Tricentenary" (S.G.T.) Hospital, a tertiary care facility situated in the outlying region of Gurugram, Haryana, from June to November 2020. We looked at the reported covid19 cases' monthly distribution at the SGT hospital. The biggest number of patients admitted to hospitals occurred in June, as shown in Figure 1, followed by September and October. The smallest amount of patients was admitting to hospitals between the months of July and November.

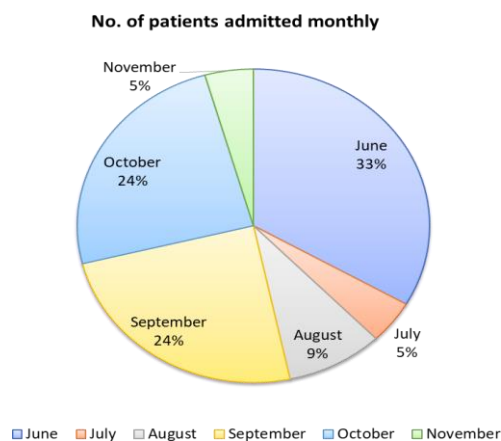


Figure 1 show the distribution of COVID patients who were admitted throughout various months of 2020.

Then it was determined how many patients had both additional co-morbidities and were covid

positive. We discovered that the majority of covid19 patients had no co-morbidities. After typhoid and hypertension, 8% of the population had diabetes mellitus (Figure 2). We also discovered a patient who had a history of severe anemia.

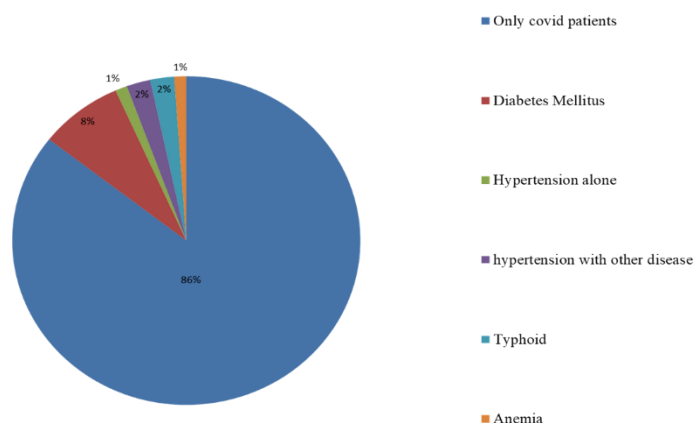
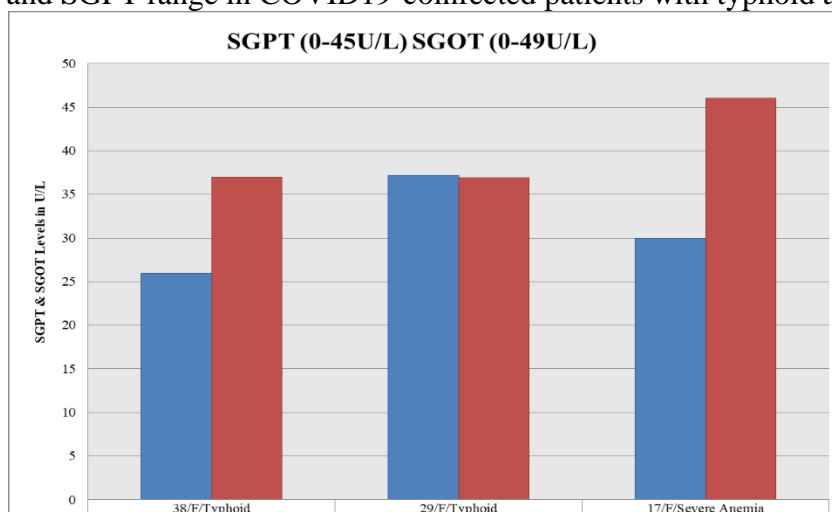


Figure 2.Percentage of patients with Covid-19 who also have other co-morbidities.

Then, excluding diabetes mellitus, we examined various biochemical markers in covid19 patients with co-morbidities. First, the patients' SGPT and SGOT levels were examined to see how well their livers were functioning. In typhoid and anemic

patients with Covid 19 infection, we discovered that the range of SGPT and SGOT were within normal limits (Figure 3).

Figure 3: SGOT and SGPT range in COVID19-coinfected patients with typhoid and severe anemia.



As shown in figure 4, we also examined the SGPT and SGOT levels in Covid 19 hypertension patients

and found that these values were higher than usual in these patients.

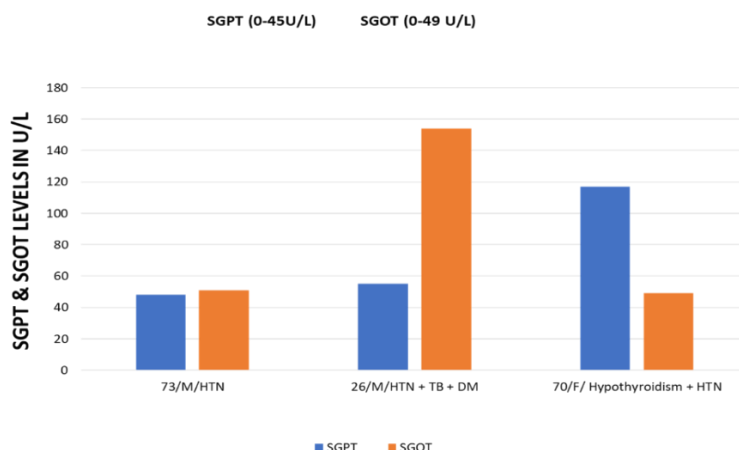


Figure 4. SGPT and SGOT levels in Hypertension infected person with covid-19.

The total protein range in covid19 infected patient with severe anemia was found to be lower than normal, although levels in one patient with typhoid who also had other co-morbidities were

higher than normal. We also looked at total protein range in covid19 patients with other co-morbidities. The remainder of the crowd fell within the normal range. (Note Figure 5).

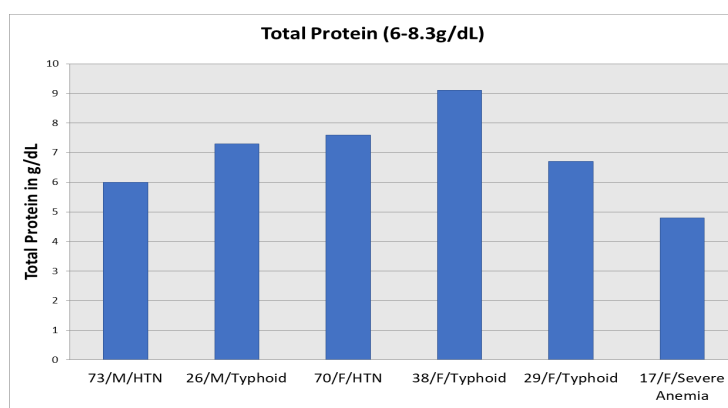


Figure5: Total Protein range of covid19 patients with other diseases

On the other hand, all of the patients' levels of alkaline phosphates were normal, with the

exception of the typhoid patient, whose level has been under the standard range. In Figure 6,

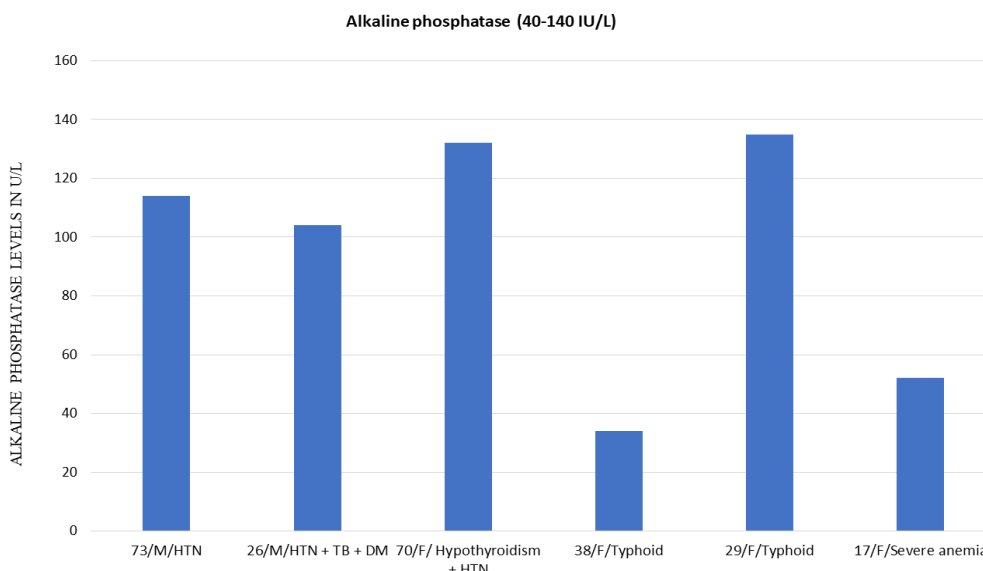


Figure 6: Alkaline phosphates range in Covid 19 patients with another co-morbidities

Conclusion

The appearance of the ongoing novel Covid19 deadly disease has been increased global risk and altered national and global community health perspectives.

We primarily concentrated on covid-19 patients admit to Shree Guru Gobind Tricentenary (S.G.T.) Hospital and Research Centre between June and November 2020, which has been recognized as the start of the first wave of Coronavirus in Haryana, India. Ninety patients in all were admitting to the clinic, with June recording the highest number of admissions relative to the other months. The most patients were admitted in the months of July and November.

We concentrated on examining various biochemical and hematological markers in these people because it has been shown that co-morbidities and covid 19 infections may affect a patient's pathogenesis and therapy.

We found that the majority of the patients had covid 19 as their only infection. Out of 90 patients, 1% had severe anemia and co-infected with covid19, 2% had typhoid, 2% had hypertension, and 2% had typhoid. The SGPT, SGOT, and alkaline phosphates levels were mainly within normal ranges when we looked at biochemical measurements in the Covid 19 patient with other co morbidities. The only hypertensive individuals with covid 19 who had abnormal SGPT and SGOT levels.

The levels of lymphocytes and polymorphs among the hematological markers were likewise within normal limits. However, the amount of polymorphs was elevated while the range of lymphocytes has been significantly below the standard limit in the Covid 19 patient who also had hypothyroidism and hypertension. It therefore demonstrates the disruption of these parameters, which may be caused by covid19's co morbidities with other disorders. Additionally, the levels of TLC count, serum globulin, and blood urea in this covid patient with hypertension and hypothyroidism were much higher than the normal range whereas they were normal in other patients. In one patient with severe anemia, the blood urea level was lower than typical, compared to normal in the other patients.

Overall, we noticed that biochemical and hematological markers altered in certain covid 19 patients who also have other co morbiditie

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