IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 20, Issue 10 Ser.6 (October. 2021), PP 37-42
www.iosrjournals.org

Clinical Profile and Outcomes of Covid 19 Patients with Comorbidities.

Dr.K.L.CHERMISHA NAIDU[1], Dr. V.N.RAJU[2], Dr. A. GAYATRI DEVI[3], Dr.B. PADMAJA[4].

[1](Postgraduate, Department of Pulmonary Medicine, Government Hospital for Chest and Communicable Diseases, Andhra Medical College, Visakhapatnam)
2(Professor, Department of Pulmonary Medicine, Government Hospital for Chest and Communicable Diseases, Andhra Medical College, Visakhapatnam)
3(Associate professor, Department of Pulmonary Medicine, Government Hospital for Chest and Communicable Diseases, Andhra Medical College, Visakhapatnam)
[4](Assistant professor, Department of Pulmonary Medicine, Government Hospital for Chest and Communicable Diseases, Andhra Medical College, Visakhapatnam)

Abstract:
BACKGROUND
Emergence of SARS COV 2 pandemic from china since December 2019 has endangered all human lives. COVID 19 is an acute respiratory disease that can lead to respiratory failure and death. COVID 19 patients with diabetes, COPD, CAD, hypertension, and other comorbidities develop a life threatening situation. The main objective of this study is to describe clinical characteristics and final outcomes for patients with COVID 19 infection and comorbid illness.
MATERIAL AND METHODS
Cross sectional observational analysis of 122 patients who are COVID 19 positives with comorbid illness admitted at Government Hospital for Chest and Communicable diseases, Andhra Medical College, Visakhapatnam, between July 2020 to November 2020. Main outcomes of study were mortality, need for mechanical ventilation, and ICU admission(sepsis, shock, organ failures) . Comorbid illness like COPD, asthma, diabetes, hypertension ,lung cancer , ILD , and previous history of tuberculosis were included in the study. CT scan was collected when ever available and CT severity score is used to asses severity.
RESULT
S*out of 122 patients, 85 were males and 37 were females with mean age group is 51.68 years , during the stay in hospitalisation , 12.28 % died , 39.3% required mechanical ventilation and 23.4 % needed ICU admission . most of the patients presented with ground glass opacities on chest CT scan and moderate severity.*
CONCLUSION
Patients with comorbid illness are utmost risk of COVID 19 infection hence , vigilant preventive measures should be taken to protect from infection.

Key Words: *covid 19,comorbidities , outcomes.*

Date of Submission: 04-10-2021 Date of Acceptance: 18-10-2021

I. Introduction

World is amidst a pandemic that is presenting as one of the greatest public health challenges. .This new disease , coronavirus emerged in December 2019 in Wuhan , China and early infected patients were associated with local wholesale fish market. The virus is officially called as SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS COV 2) and disease it caused as coronavirus disease 2019 or COVID 19.

The cluster of patients presented with respiratory symptoms of pneumonia like fever, cough, shortness of breath and ARDS. Patients having chronic conditions and comorbidities like diabetes, hypertension, and chronic lung disorders like COPD, previous history of PTB ,asthma ,lung cancer, had worse prognosis. Smoking is also detrimental to the immune system and its response to various infections. Studies have delineated the implications of increased risk of infections among smokers. SARS COV 2 utilises ACE -2 receptors found at the surface of the host cells to get inside the cells. Certain comorbidities are associated with a strong ACE-2 receptor expression and higher release of proprotein convertase that enhances the viral entry into host cells. Comorbidities lead to the COVID 19 into a vicious infectious circle of life and are substantially

associated with significant morbidity and mortality. The main objective of this study is to describe the clinical characteristics and outcomes like mortality, need for mechanical ventilation, and ICU admission (disease progression, shock, organ failures, invasive ventilation) and explores if smoking is associated with severe disease outcomes in covid 19 patients.

MATERIAL AND METHODS
STUDY DESIGN: cross sectional observational study
STUDY LOCATION: government hospital for chest and communicable diseases, Visakhapatnam.
STUDY DURATION: July 2020 to November 2020.
SAMPLE SIZ: A total of122 patients confirmed with lab confirmed COVID 19 infection are included in the study.

INCLUSION CRITERIA:
- Age > 18 years
- Nasopharyngeal / oropharyngeal swab for RTPCR / TRUNAAT positive for COVID 19.
- Patients with comorbidities like diabetes, hypertension , smoking status .
- Patients with chronic lung disorders like COPD ,asthma , lung cancer , ILD .

EXCLUSION CRITERIA :
- Age < 18 years
- Patients without comorbidities
- Patients with nasopharyngeal /oropharyngeal swab negative
- Patients who are pregnant , surgery patients .
- Patients who are transferred to outside facility for further management.

II. Methodology:

The subjects were selected from the population of patients by simple random sampling. After excluding date with missing values , 122 patients were selected for study who visited government hospital for chest and communicable diseases, between JULY 2020 to NOVEMEBER 2020 were included . Clinical history regarding pre existing comorbidities , smoking status , chronic lung disorders , were taken carefully and searched through clinical notes . prior chronic lung disorders like COPD, asthma , ILD, lung cancer , previous history of tuberculosis, were included in this study . Comorbidities like diabetes , hypertension , coronary artery disease were included in this study .

Data regarding radiographic abnormalities during hospitalisation, initial chest x ray and chest CT scan were also collected whenever available, CT severity score was used to assess the severity of disease. Positive smoking status was established based on documented smoking history at the time of admission categorisation of smokers into current , former and never smokers based on the history .

Outcomes:

Demographic data like age, sex are also included. outcomes of this study are mortality , need for mechanical ventilation , ICU admission (disease progression , sepsis , shock , failures of other organs) , were included .

III. Results:

The study included 122 patients , out of which 85 (69.7%) are males , and 37 (30.3%) are females . the predominant age group in the study is 51.68 years. out of 122 patients, 72.6%(89) had fever, 51.7%(63) had cough, 46.4%(57) had shortness of breath, 10.7%(13) had myalgias, 4%(5) had anosmia and 21.9%(27) had other symptoms like vomiting, diarrhoea, chest pain .

Out of 122 patients , 27.8% of patients have previous history of tuberculosis , 18.03% have COPD , 4.9% have lung cancer , 9.8% have ILD , 12.2% have asthma , 31,1% have hypertension , 17.2% have diabetes , and 6.5% have CAD . out of all patients, 53.27% are former smokers , 16.39% are current smokers , and 30.3% are never smokers.

Outcomes:

Total mortality in this study is 12.29% (n = 15). Out of those who died , 11 are males (73.3%) and 4 are females (26.6%).During the course of hospitalisation , 39.3% of patients (n = 48) required mechanical ventilation and 23.4% needed ICU admission . 48.3% of all patients survived covid 19 infection (n=59). In the survivor group of patients, 37 were males (62.7%) and 11 were females (18.6%) .

Chest CT scan is available only in 92 patients out of 122. Out of 92 patients , 64.1%(59) had ground glass opacities , 15.2% had pulmonary infiltrates(u/l or b/l) , 11.9% had consolidation , 8.6% had interstitial or reticular patterns . CT severity score was assessed for all 92 patients , out of which 26.08% have mild disease , 59.7% have moderate disease, and 14.13% have severe disease .

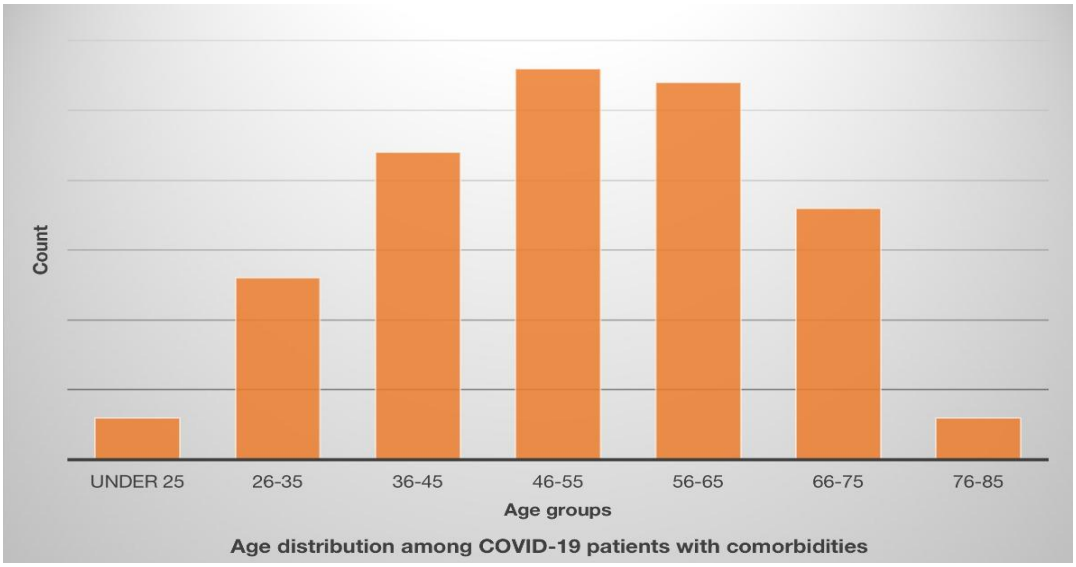


Figure 1: age distribution among covid 19 patients with comorbidities , with mean age at 51.6 years.

SEX	
MALES	85 (69.7%)
FEMALES	37(30.3%)

Table 1: gender variation among covid 19 patients , males have high predominance.

SMOKING STATUS	
CURRENT SMOKERS	16.39% (20)
FORMER SMOKERS	53.27% (65)
NEVER SMOKERS	30.3% (37)

Table 2: smoking status among covid 19 patients.

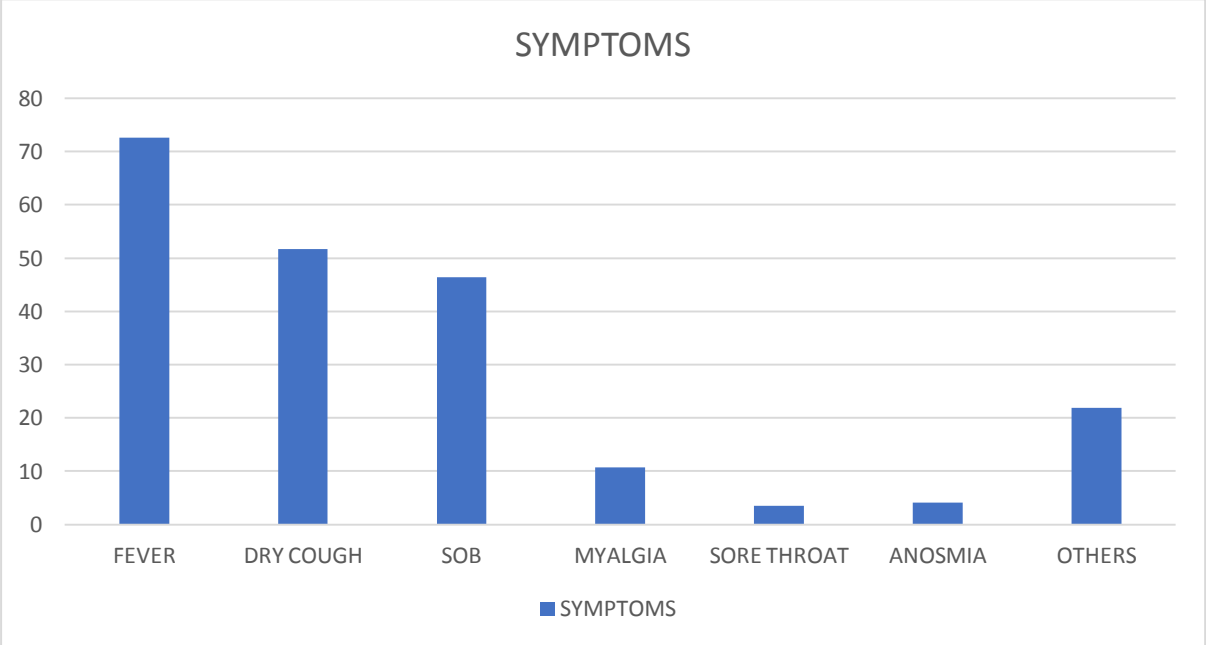


figure 2: symptoms of covid 19 patients at the time of hospital admission.

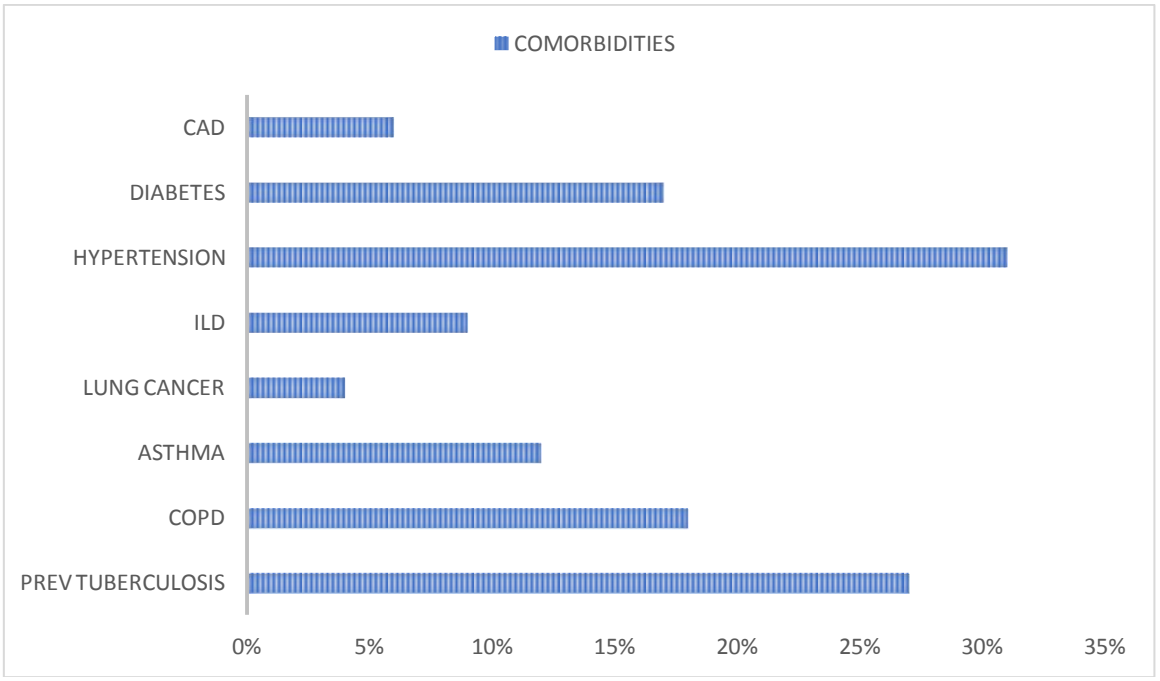
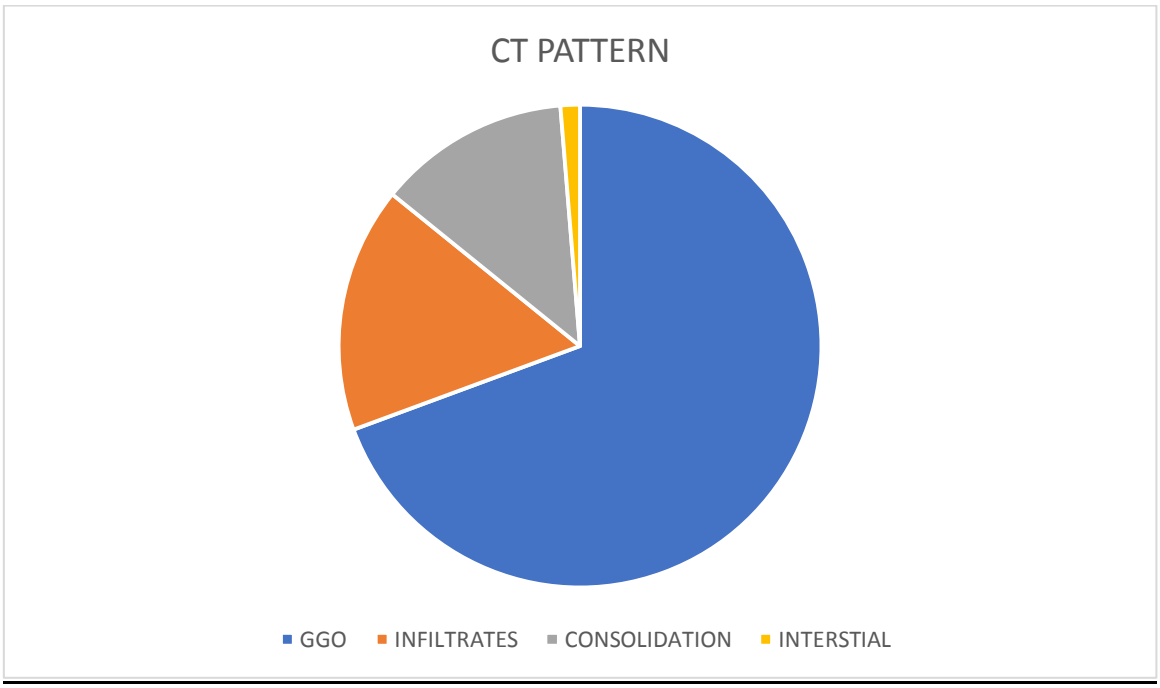


Figure 3 : prevalence of comorbidities in covid 19 patients with hypertension being highest.

CHEST CT FEATURES	
GROUND GLASS OPACITIES	59 (64.1%)
PULMONARY INFILTRATES	14 (15.2%)
CONSOLIDATION	11 (11.9%)
INTERSTITIAL / RETICULAR	8 (8.6%)

Table 3: radiographic features on chest CT scan in covid 19 patients at time of admission.



CT SEVERITY SCORE	
MILD	24(26.08%)
MODERATE	55(59.7%)
SEVERE	13(14.13%)

Table 4: CT severity score in covid 19 patients .

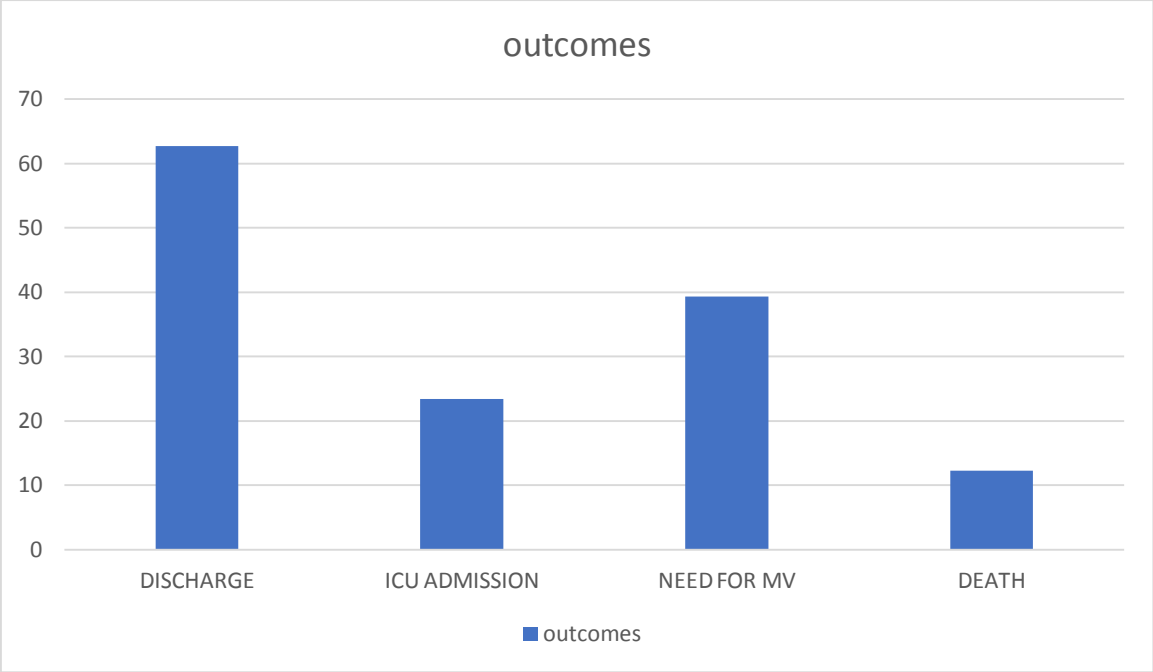


Figure 4: outcomes of covid 19 patients during stay in hospital.

IV. Discussion:

This is a cross sectional observational study conducted on SARS COV 2 infected patients. comorbidities have always been a risk factor for many diseases including pandemic SARS, MERS, community acquired pneumonia. In this study, mean age group is 51.68 years with male predominance (69.7%). The most prevalent comorbidity among the patients is hypertension (31.1%) , followed by prior tuberculosis (27.8%) and COPD (18.03%). Mortality in this study is 12.29% and 39.3% requiring mechanical ventilation. Most of patients presented with ground glass opacities in chest CT scan and had moderate disease according to CT severity score. Patients with underlying comorbid illness, in general, show worse outcomes than the otherwise healthy patients and have low resistance to fight against infection.

In a study conducted by Chan yuan ye et al., in 856 patients, median age of patients was 46 years . male predominance is more than females. Most common morbidity in this study was found to be hypertension followed by diabetes. out of all patients, 18% patients reached composite endpoint (mechanical ventilation, ICU admission). The study concluded that the patients with comorbid illness have rapid disease progression and worse outcomes.

In a study conducted by Ashkan bara Daran et al., mean age group was 51 years ,with male to female ratio is 55to 45 . the most prevalent finding in the confirmed COVID 19 patients was hypertension (21%), diabetes (11%), CAD(5.8%) and chronic pulmonary diseases in 2%. The study concluded that risk of symptomatic and severe disease might be higher due to higher age accompanied with comorbidities.

In a study conducted by Prateek lohia et al., in total of 1871 patients , mean age group is 64.11 years. Males were found higher than females in number. During the stay of hospital, 32.8% patients died (613) , 26.1% needed mechanical ventilation (489) and 31.6% required ICU admission (592). This study also showed that comorbidities in covid 19 patients cause rapid disease progression.

Another metanalysis study of the published global literature also assessed the interaction of patients with comorbidities with COVID 19 severity and mortality. It identified that COPD, CAD, type 2 DM, malignancy and hypertension were most significantly with covid 19 severity.

The limitations of the study are small sample size , cross sectional study design , single facility study and study is based on clinical notes and history at the time of admission.

SARS COV 2 affected globally a large population with pneumonia like symptoms and patients with comorbid illness are utmost at the risk of infection. These individuals must undertake vigilant preventive

measures to protect themselves from infection hence, these individuals should be prioritised for vaccination against SARS COV 2 infection.

Acknowledgements

The correspondence author would like to guarantee that the manuscript is not, either in part or whole, under active consideration by any journal , will not be submitted for review to another journal, and has not been published in any other journal. Dr.k.l.chermisha naidu had full access to the data in the study and taken full responsibility for the integrity of the study. All co-authors (Dr. V.N.RAJU M.D., Dr.A. GAYATRI DEVI M.D., and Dr. B . PADMAJA M.D.,)have made a substantial contribution to the design , data collection and analysis of the research and the drafting of the manuscript and have reviewed and accepted the contents of the manuscript before its submission. The authors are grateful to all participants who participated in the study.

References

[1]. Lohia, P., Sreeram, K., Nguyen, P., Choudhary, A., Khicher, S., Yarandi, H., Kapur, S. and Badr, M., 2021. Preexisting respiratory diseases and clinical outcomes in COVID-19: a multihospital cohort study on predominantly African American population. Respiratory Research, 22(1).

[2]. Ye, C., Zhang, S., Zhang, X., Cai, H., Gu, J., & Lian, J. et al. (2020). Impact of comorbidities on patients with COVID- 19: A large retrospective study in Zhejiang, China. Journal Of Medical Virology, 92(11), 2821-2829. doi: 10.1002/jmv.26183.

[3]. Alkhathami, M., Advani, S., Abalkhail, A., Alkhathami, F., Alshehri, M., Albeashy, E., & Alsalamah, J. (2021). Prevalence and mortality of lung comorbidities among patients with COVID-19: A systematic review and meta-analysis. Lung India, 38(7), 31. doi: 10.4103/lungindia.lungindia_497_20.

[4]. Ejaz, H., Alsrhani, A., Zafar, A., Javed, H., Junaid, K., & Abdalla, A. et al. (2020). COVID-19 and comorbidities: Deleterious impact on infected patients. Journal Of Infection And Public Health, 13(12), 1833-1839. doi: 10.1016/j.jiph.2020.07.014.

[5]. World Health Organization. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected. Interim guidance. Pediatria i Medycyna Rodzinna. 2020;16(1).

[6]. Aktar, S., Talukder, A., Ahamad, M., Kamal, A., Khan, J., & Protikuzzaman, M. et al. (2021). Machine Learning Approaches to Identify Patient Comorbidities and Symptoms That Increased Risk of Mortality in COVID-19. Diagnostics, 11(8), 1383. doi: 10.3390/diagnostics11081383.

Dr.K.L.CHERMISHA NAIDU, et. al. "Clinical Profile and Outcomes of Covid 19 Patients with Comorbidities.." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(10), 2021, pp. 37-42.