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Original Research Paper

Clinical Profile of Hospitalized patients died of COVID 19 – A Retrospective Study in Puducherry

Authors:

Suresh K[1], Ramesh Gopi B[2], Nandhini K[3]

[1]Professor and HOD, [2]Assistant Professor, [3]Post- Graduate,

Corresponding Author: Dr. Ramesh Gopi B, Assistant Professor, Department of General Medicine, Sri Venkateshwaraa Medical College Hospital and Research Centre.

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ABSTRACT:

Background: WHO declared COVID 19 as Pandemic in March 11, 2020. Since then, COVID 19 has become an unavoidable burden to entire health system. Both the pattern of disease and the risk factors are highly variable person to person. **Objectives:** 1. To assess the clinical profile of hospitalized patients died of COVID 19 infection between April 2021 to June 2021 2. To determine the association between Age and Gender with the immediate cause of death in the COVID 19 infected patients. **Methods:** This Retrospective Observational Study was carried out among the deceased Hospitalized COVID 19 patients admitted between April-June 2021 at Sri Ventkateshwaraa Medical College Hospital and Research Centre, Puducherry. The data were collected from the case records of the patients, 119 of the records became eligible to be taken in the study based on inclusion and exclusion criteria. Selected socio demographic parameters, symptom profile on admission, category of COVID 19 based on severity, presence of co-morbidity, immediate cause of death were noted from the records. Discrete variables were expressed in proportion, continuous variables were expressed in mean ± SD. Chi-square test was used to determine the significance of association, p value < 0.05 was considered significant. **Results:** Among the 119 patient records eligible for the study, majority of them were aged above 50 years, 87(73%) and most of them were males, 81(68%). Most of them had cough followed by breathing difficulty as the presenting complaint and Diabetes mellitus as the common co-morbidity. On determining the immediate cause of death, it was noted that, nearly half of them had died due to ARDS (47%) followed by Septic shock. Proportion of females and younger age group died of respiratory failure was more compared to other causes , however this was not statistically significant having a p value of >0.05. **Conclusion:** The present study concluded the common presenting complaint to be the cough and there is gender and age disparity contributing to the immediate cause of death. Younger population seem to be more affected with respiratory failure than the older age group, which is a matter of concern.

Key words: Clinical profile, COVID 19, Hospitalised patients

INTRODUCTION:

The new dreadful disease in the past three years can undoubtedly be COVID 19,having a high transmissibility with the etiological agent as corona virus (SARS-CoV-2), the disease corresponding to the infection emphasizing the year was named as COVID-2019, later known as COVID 19[1].WHO declared COVID 19 as Pandemic in March 11, 2020[2]. Since then,it has become an unavoidable burden to entire health system even in well developed countries[3]. The clinical spectrum of COVID 19 encompasses asymptomatic infection to severe form, even death[4].The disease has not just infected the elderly individuals but also the middle aged persons, specifically anyone with immune suppression, underlying metabolic, respiratory and/or cardiovascular disorders [5] . Young adult individuals were not just infected but were also at higher risk of becoming critically ill and and also to risk of death[6] Pondicherry, with population of around 16.92 lakhs[7] have been greatly affected with COVID 19, in spite of having more number of tertiary care centres as compared to the neighbouring states of the country. Studies from various countries have concluded that increasing age and the presence of co morbidities has a greater influence for becoming a high risk of COVID 19 and also for its complicated sequale[8,9].However, the prevalence of co morbidities like Diabetes Mellitus, Hypertension, Chronic Kidney Disease(CKD), Coronary Artery Disease (CAD),Chronic Obstructive Pulmonary Disease (COPD) in the COVID patients are highly

variable[10]. In spite of the well known fact that Lung being the most common organ damaged by COVID 19, organs like heart, kidneys, liver and also hematological abnormalities are not to be neglected for its significant impairment[8,11,12,13] and also very little is known about the sex variability in COVID 19 mortality[14] .

With all this above background the study was planned with the below mentioned objectives

OBJECTIVES:

1. To assess the clinical profile of hospitalized patients died of COVID 19 infection between April 2021 to June 2021
2. To determine the association between Age, Gender , risk factors with the immediate cause of death in the COVID 19 infected patients

MATERIAL AND METHODS:

After the Institutional Scientific and Ethical Clearence, this Retrospective observational study was conducted in Department of General Medicine at Sri Venkateshwaraa Medical College Hospital and Research Centre, Puducherry. This Private Tertiary care Hospital have served as a Nodal centre during the pandemic and have admitted around 1296 patients with COVID infection from April 2021 to June 2021. The data required for the conduct of the study was taken from the case sheets of the patients. Those patients who were admitted between April 1, 2021 to June 30,2021 having diagnosed with COVID 19 and died during the hospitalization were included. The diagnostic criteria for COVID 19 is positive Reverse Transcriptase-Polymerase Chain Reaction for COVID 19. Those who had symptoms suggestive of COVID 19 but did not fulfill the diagnostic criteria or those who were RT- PCR positive but have been discharged against medical advise during the course of Hospital stay, those case records which didn't have enough data required for the study purpose were excluded . Out of 175 patients died of COVID 19 during the mentioned study period, only 119 were eligible based on the inclusion and exclusion criteria. Selected parameters mentioned below were taken for the study purpose

1. Socio-demographic parameters: Age, Gender, Duration of symptoms, Travel history, Contact history
2. Risk factors
3. COVID-19 Severity:

(A) Mild: Individuals with any of the various signs and symptoms of COVID-19 (eg. Fever, Cough, Sore throat, Malaise, Headache, Muscle pain, Nausea, Vomiting, Diarrhoea, Loss of taste and Smell) but who do not have shortness of breath, dyspnoea or abnormal chest imaging

(B) Moderate Illness: Individuals who show evidence of lower respiratory disease during clinical assessment or imaging and who have peripheral capillary spo2 < 94 % on room air at sea level, respiratory rate $\geq$ 24/min.

(C) Severe illness : Individuals who have spo2 $\leq$ 90% on room air at sea level, those requiring mechanical ventilation, respiratory rate > 30 breaths/min.Critical Illness : Individuals who have respiratory failure, septic shock, and/or multiple organdysfunction [15]

4. Patients requiring oxygen or ventilator support on admission
5. Immediate cause of Death : ARDS or other causes

The operational definition for the clinical profile in the present study indicates the symptomatic profile of the patients at the time of admission. All the data retrieved from the case records have been entered in MS Excel and have been analyzed using SPSS 21. Discrete variables were expressed in Frequency and Proportion, where as continuous variables expressed in terms of Mean ± SD. Chi square test was done to determine the association between age and gender with immediate cause of death. The difference was considered to be statistically significant, if the obtained p value is <0.05.

RESULTS:

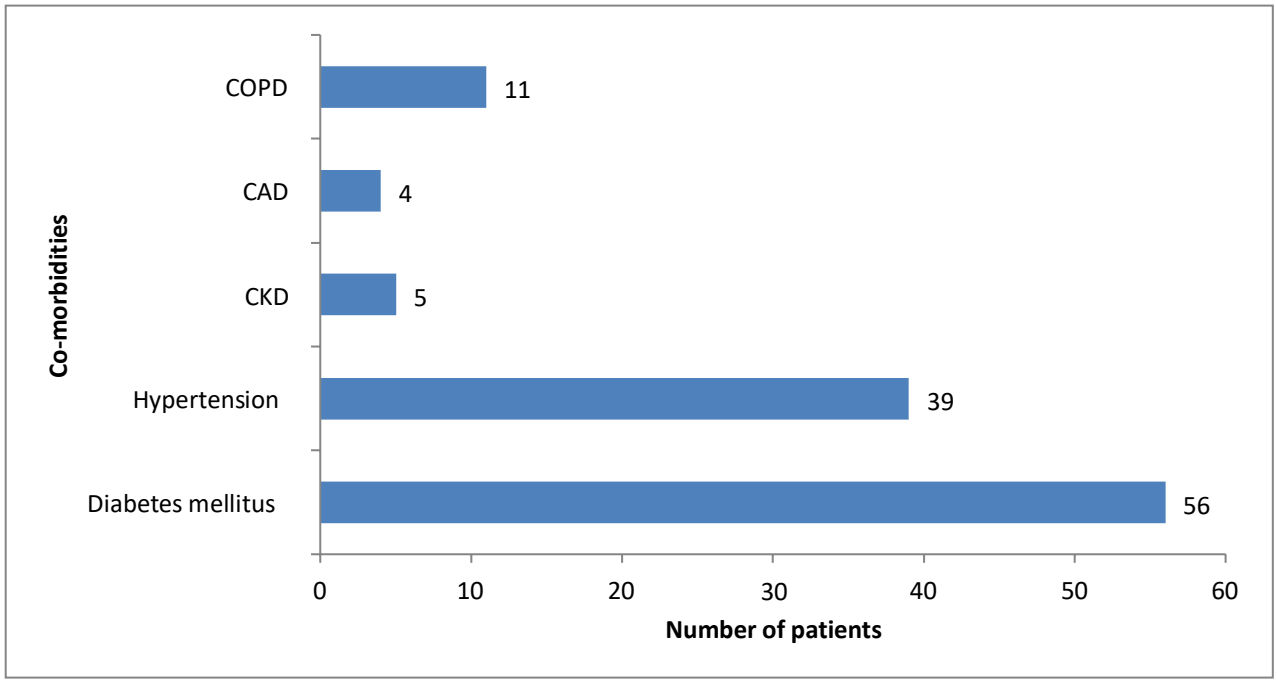
There was a total of 119 eligible patient records, the mean age of the participants was 59 ± 13.16years.

Table 1: Distribution of basic socio-demographic parameters (n=119)

PARAMETERS	FREQUENCY (%)
Age	
< 25 years	2(2%)
25-50 years	30(25%)
>50 years	87(73%)
Gender	
Male	81(68%)
Female	38(32%)
Contact History	
Present	73(61%)
Absent	46(39%)
Travel History	
Present	3(3%)
Absent	116(97%)

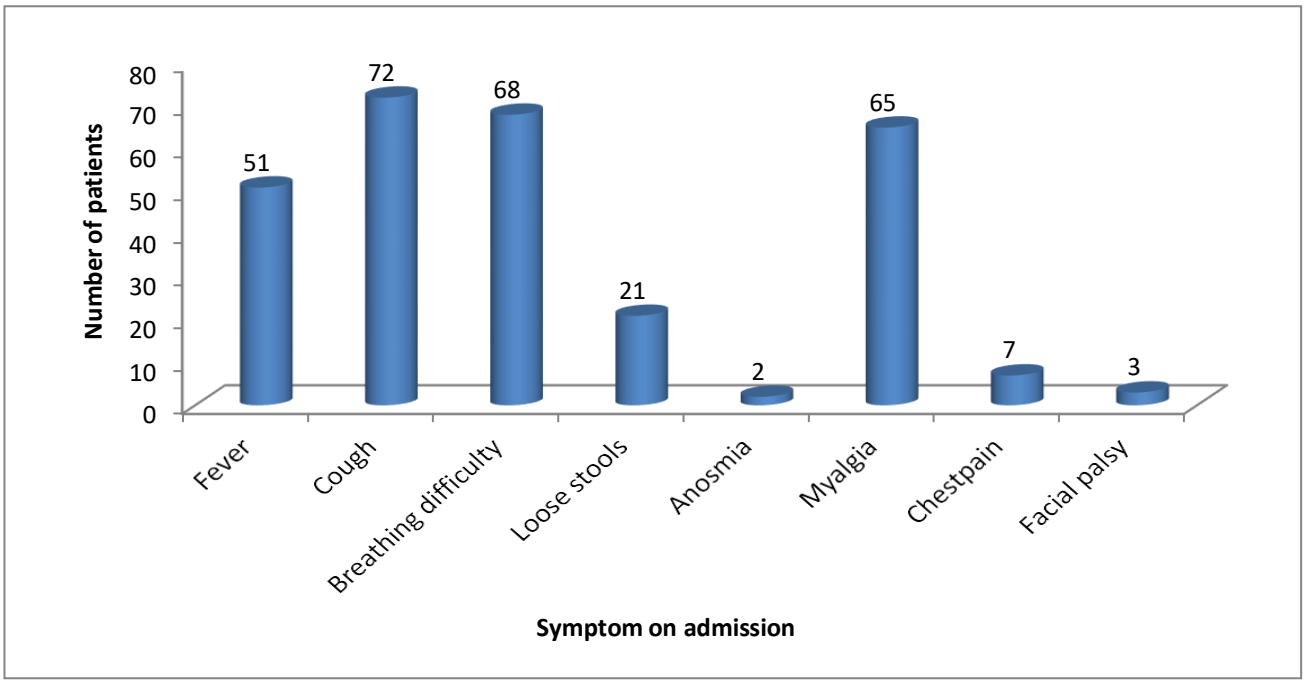
Among the 119 patient records eligible for the study, 73% were aged above 50 years and 68% of them were males. Two-third of the patients (61%) had contact history while only 3% of them had positive travel history [Table 1]

Figure 1 : Distribution of patients based on Co morbidities at time of Hospital Admission (n=119)



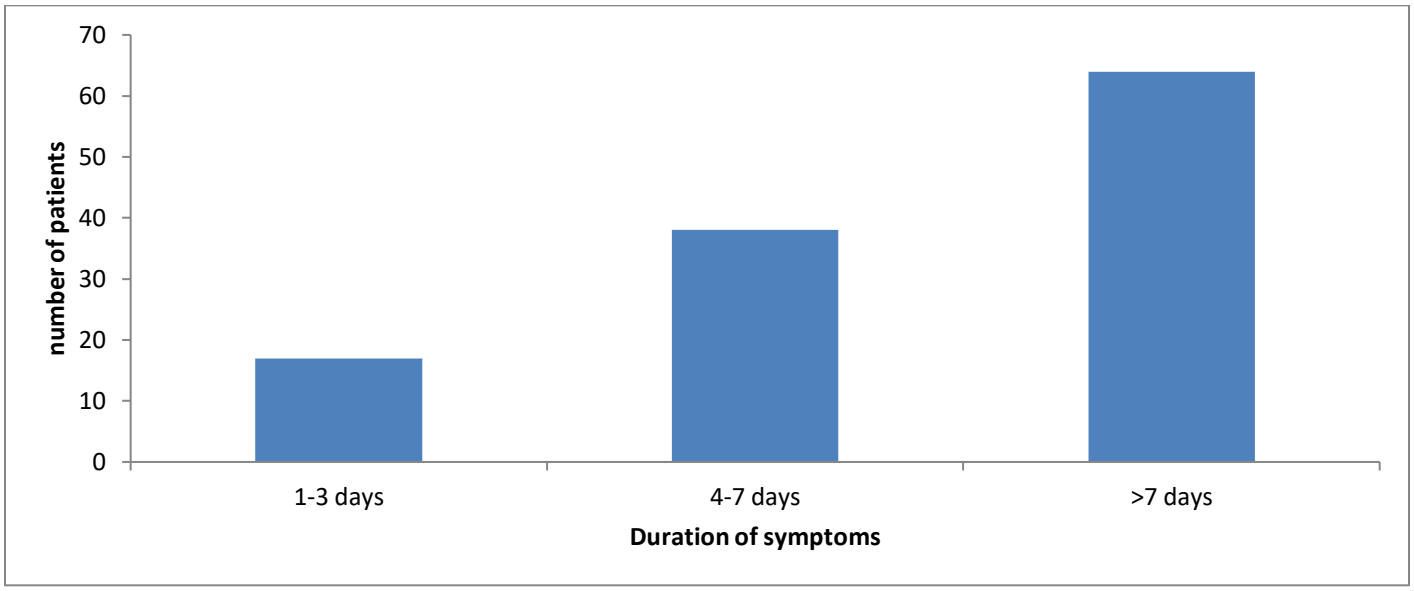
Among the hospitalized patients, it was also noted that 47% of the patients had Diabetes mellitus followed by Hypertension (33%), COPD (9%), CKD 5(4%) and CAD (3%). [Figure 1]

Figure 2: Distribution of patients based on Symptoms on Admission at Hospital (n=119)



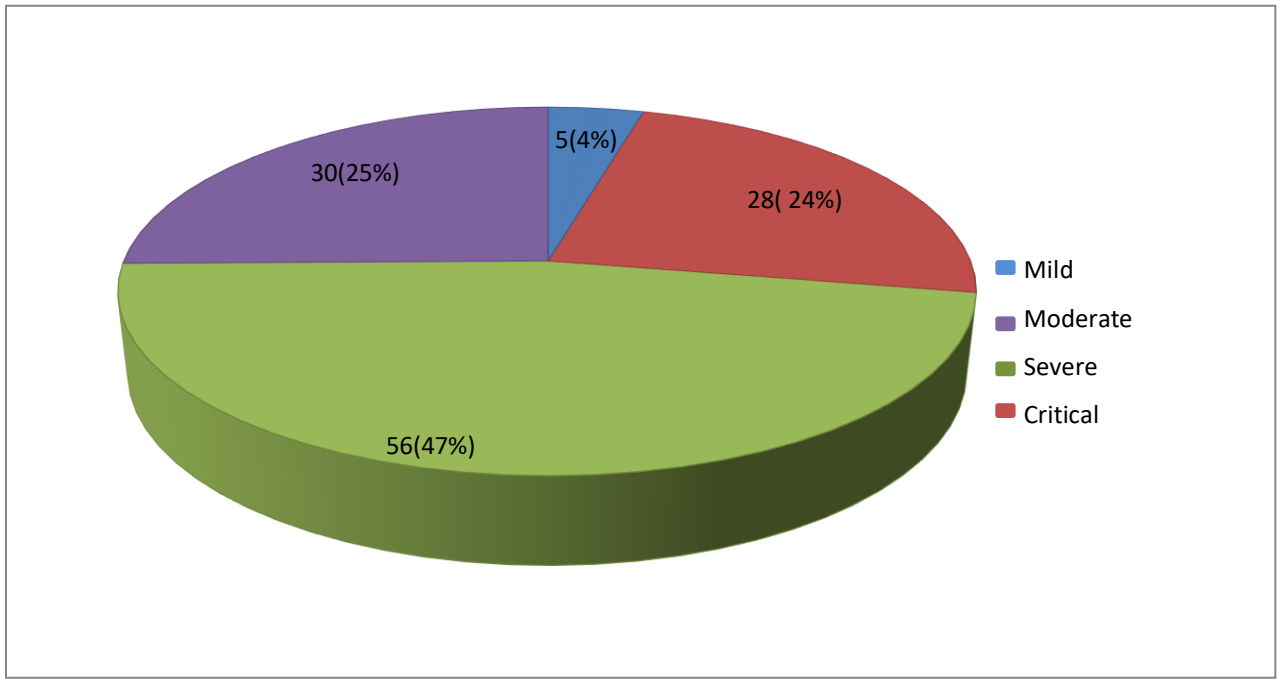
On describing the symptom on admission it was noted that, 6 1 % of them had cough as the major presenting complaint followed by breathing difficulty (57%), Myalgia (55%), Fever (43%), Loose stools (18%),Chest pain (5%), Facial palsy (2%), Anosmia (1%) [Figure 2]

Figure 3: Distribution of patients based on duration of symptom at the time of hospital admission (n=119)



Among the hospitalized patients, it was noted that nearly 54% of people presented with more than 1 week duration of symptom and only 14% presented within 3 days of symptom onset.

Figure 4: Distribution of patients based on severity of COVID 19 on time of Admission (n=119)



Among the hospitalized patients, majority of them (47%) were admitted with severe form of COVID 19 and only 4% of them were admitted with milder form [Figure 4]

Table 2: Distribution of participants based on O2 requirement and Ventilator support (n=119)

Parameters	Frequency (%)
Patients requiring O_2 on admission	91 (76%)
Patients requiring Ventilator support on admission	12 (11%)
Patients not requiring $o_{2/}$ ventilator support on admission	16(13%)
Parameters	**mean ± SD**
Average duration on ventilator support	3.4 ± 5.3 days
Average duration of hospital stay	8.7 ± 6.6 days

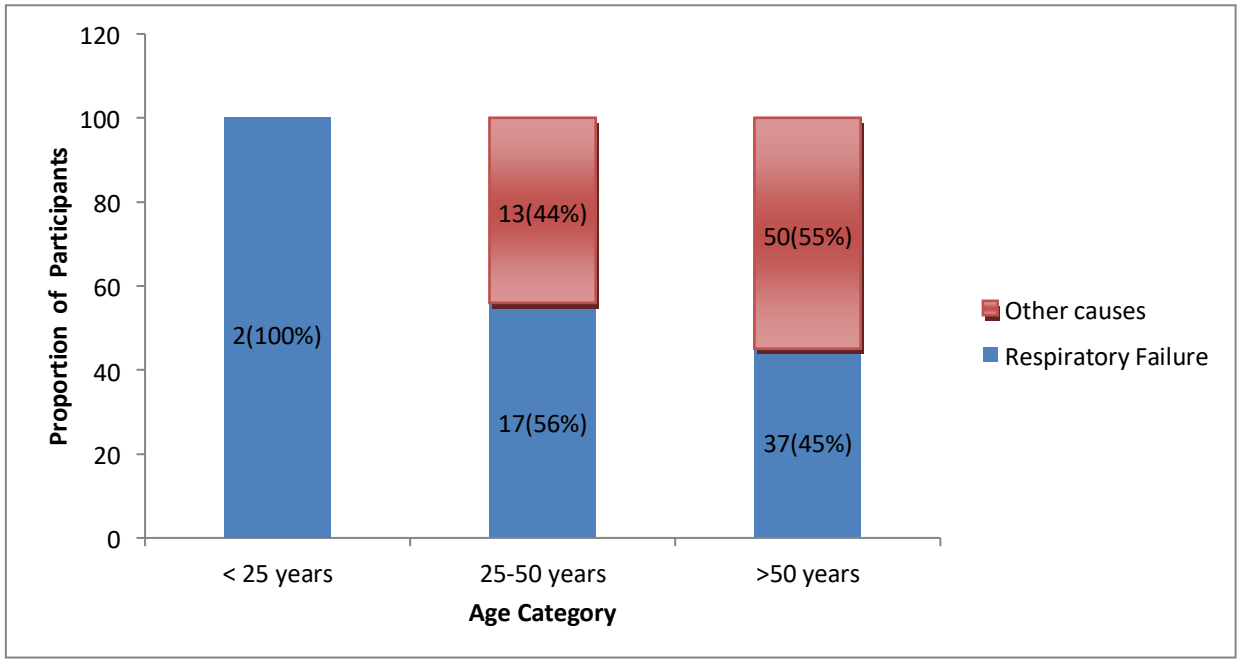
About 76% of patients required oxygen support and 11% required ventilator support on arrival to hospital. The mean duration of stay on ventilator support was 3.4 ± 5.3 days and average duration of stay in hospital before death was 8.7 ± 6.6 days[Table 2]

Table 3: Distribution of Patients based on cause of death(n=119)

CAUSE OF DEATH	FREQUENCY (%)
ARDS	56 (47%)
Acute coronary syndrome	14(12%)
Septic shock	33(28%)
Disseminated intra vascular coagulation	11(9%)
Ventilator associated pneumonia	5(4%)

On determining the immediate cause of death, it was noted that, nearly half of them (47%) had died due to ARDS followed by Septic shock (28%), Acute coronary syndrome (12%), Disseminated intra vascular coagulation (9%) and ventilator associated pneumonia(4%) [Table 3]

Figure 5: Distribution of participants based on age and Immediate Cause of Death (n=119)*



*chi-square depicted, a , p value of 0.06, making the difference is statistically insignificant (made in to two categories as <25 years and ≥25 years, as only 2 were in < 25 years)

On assessing the association between the Age and the Immediate cause of death, it was noted that, though there are only 2 patients under 25 years, both (100%) of them had died of ARDS. 56% of patients aged 25-50 years and 45% of patients aged >50 years had also died of ARDS . ARDS as the immediate cause of death was more among younger age group as compared to those aged > 50 years, in whom other causes of death were in higher proportion, however this differences were found to be statistically insignificant, having a p value of 0.06 (>0.05) determined using chi-square test [Figure 4]

Table 4: Association between Gender and Cause of Death (n=119)

Gender	CAUSE OF DEATH		Significance
	ARDS	Other Causes	
Male	35 (43%)	46 (57%)	0.219
Female	21(55%)	17(45%)	

On assessing the association between Gender and Immediate cause of death, it was seen that, more number of females have died of Respiratory failure as compared to males and this difference was found to be statistically insignificant with p value of > 0.05[Table 3]

DISCUSSION:

Out of 119 deceased patients in the present study, majority of the patients had cough (61%) and breathing difficulty(57%) followed by other symptoms which was in contrast to the study conducted at Tamil Nadu by Asirvatham et al[15] who has reported that Fever being the most common presenting symptom followed by breathing difficulty. This difference could be due to the varying study population as in the above study mentioned the participants included both Alive and Dead COVID 19 patients whereas in the present study only dead patients were considered and the late presentation to the hospital could be a cause for death. Similar to our present study findings, Wang K et al[4] also reported Cough to be the common presenting complaint of the deceased based on their medical reports The most common co-morbidity in our study participants was Diabetes mellitus whereas in a study conducted by Nasri MJ et al[14] the most common co-morbidity reported was Hypertension On identifying if there is any gender disparity with the immediate cause of death, we noted in our study that proportion of females who died of ARDS was more compared to that of males, however the difference was not statistically significant having a p value >0.05. This was confirmed by the study done by Nasri MJ et al[14] study which showed statistically significant higher number of deaths among male with p value < 0.05. In our study, 54% of patients got admitted after 7 days of symptom onset. However, study done by Faes C et al[16] showed median length between symptom onset and hospitalization ranging between 3 and 10.4 days. In the present study the major immediate cause of death among the deceased COVID 19 patient was ARDS followed by Septic shock and other causes. 87% of patients required oxygen support on arrival to hospital.

CONCLUSION:

The present study concluded the common presenting complaint to be the cough and there is gender and age disparity contributing to the immediate cause of death. Though the finding is insignificant, younger population seem to be more affected with respiratory failure than the olderage group, which is a matter of concern. As our country is with more number of younger generation , our medical system should be well prepared with adequate tertiary care setups for managing the crisis. Public should also be educated to seek medical attention at the earliest. The limitation of the study is that, the data on blood , radiological features and data of live COVID 19 patients admitted during the study period is not included.

REFERENCES:

1. World Health Organization, 2020. Coronavirus Disease (COVID-19) Outbreak. Available at: https://www.who.int/Westernpacific/emergencies/covid-19. Accessed June 11, 2020.
2. Cucinotta D, Vanelli M. WHO declares COVID-19a pandemic. ActaBiomed 2020;91:157–60.
3. Guan WJ, Liang WH, Zhao Y, et al. Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis. Eur Respir J. 2020;55(5):2000547.
4. Wang K, Qiu Z, Liu J, Fan T, Liu C, Tian P,etal. Analysis of the clinical characteristics of 77 COVID-19 deaths. Sci Rep. 2020 Oct 2;10(1):16384
5. Asirvatham ES, Sarman CJ, Saravanamurthy SP, Mahalingam P, Maduraipandian S, Lakshmanan J. Who is dying from COVID-19 and when? An Analysis of fatalities in Tamil Nadu, India. Clin Epidemiol Glob Health. 2021 Jan-Mar;9:275-279
6. Adams SH, Park MJ, Schaub JP, Brindis CD, Irwin Jr CE. Medical vulnerability of young adults to severe COVID-19 illness—data from the national health interview survey. *J Adolesc Health*. 2020;67(3):362–368.
7. https://censusindia.gov.in/2011census/population_enumeration.html
8. Li X, Wang L, Yan S, et al. Clinical Characteristics of 25 Death Cases with COVID-19: A Retrospective Review of Medical Records in a Single Medical Center, Wuhan, China. *Int J Infect Dis IJID Off Publ Int Soc Infect Dis* 2020; 94: 128–132.
9. Palmieri L, Vanacore N, Donfrancesco C,

et al. Clinical Characteristics of Hospitalized Individuals Dying with COVID-19 by Age Group in Italy. *J Gerontol A Biol Sci Med Sci* 2020; 75: 1796–1800.

10. Biswas M, Rahaman S, Biswas TK, Haque Z, Ibrahim B. Association of Sex, Age, and Comorbidities with Mortality in COVID-19 Patients: A Systematic Review and Meta- Analysis. Intervirology. 2020 Dec 9:1-12.
11. Karyono D, Wicaksana A. Current Prevalence, Characteristics, and Comorbidities of Patients with COVID-19 in Indonesia. *J Community Empower Heal* 2020; 3: 82–89.
12. Zhang B, Zhou X, Qiu Y, et al. Clinical Characteristics of 82 Cases of Death from COVID-19. *PLoS One* 2020; 15: e0235458.
13. Xie J, Tong Z, Guan X, et al. Clinical Characteristics of Patients Who Died of Coronavirus Disease 2019 in China. *JAMA Netw Open* 2020; 3: e205619
14. Nasiri MJ, Haddadi S, Tahvildari A, Farsi Y, Arbabi M, Hasanzadeh S,Jamshidi P, Murthi M and Mirsaeidi M (2020) COVID-19 Clinical Characteristics, and Sex-Specific Risk of Mortality: Systematic Review and Meta-Analysis. Front. Med. 7:459.
15. Mohandas P, Periasamy S, Marappan M, Sampath A, Garfin Sundaram VK, Cherian VK. Clinical review of COVID-19 patients presenting to a quaternary care private hospital in South India: A retrospective study. Clin Epidemiol Glob Health. 2021 Jul-Sep;11.
16. Faes C, Abrams S, Van Beckhoven D, Meyfroidt G, Vlieghe E, Hens N; Belgian Collaborative Group on COVID-19 Hospital Surveillance. Time between Symptom Onset, Hospitalisation and Recovery or Death: Statistical Analysis of Belgian COVID-19 Patients. Int J Environ Res Public Health. 2020 Oct 17;17(20):7560. doi: 10.3390/ijerph17207560. PMID: 33080869; PMCID: PMC7589278.