Original Research Article

CLINICOSOCIAL PROFILE AND COMORBIDITY STATUS OF COVID 19 PATIENTS ADMITTED IN A TERTIARY CARE CENTRE DURING SECOND WAVE OF COVID 19 AND COMPARISON OF THE SAME WITH PATIENTS ADMITTED DURING THE FIRST WAVE.

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A B S T R A C T

Background: Being novel disease, clinical picture of Covid 19 is not completely identified. This study attempts to find out the clinicosocial profile, clinical categorisation based on symptomatology in covid 19 patients admitted during second wave. **Aims:** To estimate the proportion of clinical symptoms, clinical categorisation and comorbidities in covid 19 patients at the time of admission and to find association between sociodemographic variables and comorbidities status with clinical categorisation based on their symptomatology in a tertiary care hospital during second wave of covid 19 pandemic

Material and Methods: A record based cross sectional study was done among 1170 covid 19 patients admitted during second wave in a tertiary care centre of South Kerala. Data collection was done using semi-structured questionnaire and analysis was done using SPSS version 21.0. The quantitative and qualitative variables were expressed in mean and SD and percentage respectively. Association between sociodemographic variables and categorization was analysed using Chi-square test and p value <0.05 was considered statistically significant.

Results: Mean age of participants was 54 years and 94.7% residing in rural areas. Common clinical symptoms were fever (71 %), followed by dyspnoea (58.9%). Majority participants belonged to Category B(55.6%) followed by C(39.6%). Age and comorbidity status were statistically associated with clinical categorization. Comparison of clinical categorization revealed increase in category C patients in wave 2 compared to wave 1.

Conclusion: Patients of covid 19 second wave were predominantly from productive age group mostly presented with fever and dyspnoea and were categorized with Severe forms of category B & C. Elderly age and presence of lifestyle diseases are associated with presence of severe category of disease. Hence vigilant management is necessary for this vulnerable groups.

Key Words: Clinicosocial profile, COVID 19, South Kerala.

INTRODUCTION

COVID 19 is a novel disease of viral origin caused by SARS CoV 2 virus. It was first reported in the Hubei province of Wuhan, China on December 2019 as a cluster of pneumonia cases of unknown origin. The disease hit many countries and in India

the first case was reported from Kerala on 30th of January 2020. The World Health Organization declared the outbreak a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11th March 2020. The country went for a complete lockdown to tackle the situation. Despite the efforts for containment of the disease the cases rose drastically when the unlocking process started. The country experienced the peak of COVID 19 during mid- September and cases started declining gradually thereafter only to rise to a maximum number of cases reported ever on April 2021.[1] Even though vaccination programmes have started in India on January 2021, the escape phenomenon shown by the virus and the emergence of Variants of Concern paved the way for a very severe second wave.

During the first wave the most common symptoms of COVID-19 reported from various parts of the world were fever, tiredness, and dry cough.[2,3,4,5,6] Some patients had nasal congestion, runny nose, sore throat or diarrhoea. Some people became infected but didn't develop any symptoms. Most people (about 80%) recover from the disease without the need for special treatment. Around 1 out of every 6 people who gets COVID-19 became seriously ill and develops difficulty breathing. High risk age groups were more prone for severe COVID 19 illness.

While people are already aware of the most common symptoms of COVID-19, experts suggest a broader look into the new spectrum of ailments caused by the deadly disease. The limited focus on just the classic symptoms poses great risk of spread and more danger to the health of the most vulnerable. The local health officials in Warrington, Cheshire, United Kingdom, have listed down a set of seven new COVID symptoms such as sore throat, muscle aches and joint pain, diarrhoea, conjunctivitis, headache, skin rash and discolouration of fingers or toes.

Early identification of the disease helps in prompt management of cases and effective containment of the disease. Being a novel disease, the clinical picture of the disease is not completely identified and new symptoms are getting added to the symptomatology. As new symptoms are being added, there is a need for identifying the unique clinical features among COVID 19 patients. As the disease severity is varied in each and every individual, guidelines should be tailored to categorise the patients and achieve optimum utilisation of the health care facilities.

Objectives

This study aims to estimate the clinicosocial profile, clinical categorisation based on symptomatology and comorbidity status of COVID 19 patients admitted during the second wave of COVID 19 and to compare the same with the first wave in the same study setting. The study also intended to find the association between sociodemographic variables and clinical categorisation based on symptomatology & comorbidities and clinical categorisation based on symptomatology among COVID 19 patients admitted in a tertiary care centre in South Kerala during the second wave of COVID 19 pandemic.

MATERIALS AND METHODS

This was a record based cross sectional study conducted among COVID 19 patients admitted in Dr SMCSI Medical College, Karakonam, a tertiary care centre situated in South Kerala during the second wave of Covid 19 disease. All case records of COVID 19 patients retrieved from the MRD which were completely filled and had the required data for completing the abstraction form were included in the study. Case records which couldn't be retrieved because of the mismatch between OP and IP numbers and those which couldn't be retrieved even after 3 consecutive visits to Medical Records Department were excluded. As per the records, there are approximately 1400 COVID 19 cases admitted during the second wave of COVID 19 in the institution. Universal sampling technique was applied and 1170 patients who fulfilled the inclusion criteria were included in the study. A predesigned, pretested semi structured abstraction form detailing the sociodemographic profile and vaccination status of the COVID 19 patients, clinical symptoms and signs at the time of admission, clinical categorisation based on symptomatology of COVID 19 patient in accordance with the Government of Kerala guidelines,[11] and comorbidity profile of the COVID 19 patients was used for data collection. The study was conducted after getting permission from the, Principal, Medical superintendent, Head of the Department of Medicine, Nodal officer of Covid care centre and also MRD in charge. Data was collected from the records maintained in MRD after getting Institutional Ethical Committee clearance (SMCSIMCH/EC(PHARM)05/04/09). Initially the list of COVID patients with their name, OP and IP numbers were collected from COVID 19 register which was maintained with the Nodal Officer of COVID care centre. This list was given to the MRD section staff for retrieving the case sheets. Completed case sheets alone were taken for data entry. Details regarding the first wave data are taken from a similar study done during first wave in the same institution.[12] The collected data was entered in MS excel and were analysed using SPSS trial version 21.0. All quantitative variables were expressed in means and standard deviation and the qualitative variables were expressed in percentages. Appropriate statistical test of significance was done wherever required and a p value < 0.05 will be considered statistically significant.

RESULTS

The mean age of the study participants was 54.12±17.82 years with minimum age 1 year to maximum age 96 years. Majority, 55.5% (649) of the covid 19 patients were males and 94.7% (1108) resided in rural area.

Majority of the clinical symptoms observed from the self-reported data were fever (69.7%), Dyspnea (56.3%) and Dry cough (51.5%). [Table 1]
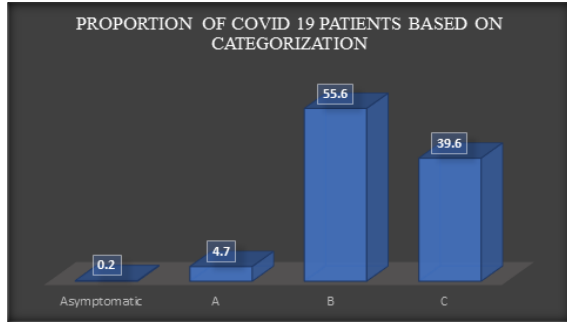

Figure 1: Distribution of covid 19 patients based on categorization due to symptomatology (N= 1170)

Majority 55.6% of the covid 19 patients belonged to category B followed by category C (39.6%) as shown in Fig no:1
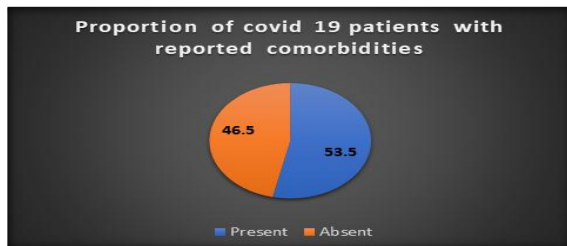

Figure 2: Distribution of covid 19 patients based on reported Comorbidities (N= 1170)

More than half, 53.5% (626) of the covid 19 patients had reported to have one or more co-morbidity Lifestyle diseases like Type 2 Diabetes mellitus (67.41%), systemic hypertension (57.34%), coronary artery disease (17.89%) dyslipidaemia (17.73%) were found predominantly among covid 19 patients with reported comorbidities. 11.98% patients with comorbidity had COPD/bronchial asthma. [Table 2]

Symptoms like fever, dry cough, dyspnoea and chest pain though present in both waves of covid 19, these symptoms are markedly high among patients in second wave. However, symptoms like loss of taste & smell, sore throat, headache & myalgia are found higher among patients in first wave compared to patients in 2nd wave. [Table 3]

Table 4 shows that the proportion of covid 19 cases during wave 2 are high in the most severe category C (39.6%) compared to wave 1(6%). In wave 1 87.3% cases were of category B severity while it was 55.6% in wave 2. [Table 4]

Less severe & moderately severe disease characterized as A & B category were found more in low risk groups. However very severe disease was found high among high risk group. The difference observed was found to be statistically significant. (p<0.001) Association of Gender and place of residence between clinical categorization were not found to be statistically significant. [Table 5]

Table 6 shows that among severe disease category, 67.4% have one or more comorbidity. However, in moderately & less severe category, majority did not have any comorbidity and this difference observed between comorbidity status & Clinical categorization was statistically very highly significant [p<0.001]. [Table 6]

Table 1: Clinical Profile of Covid 19 patients admitted during second wave (N= 1170)

Clinical symptoms	Frequency (%)	Clinical symptoms	Frequency (%)
Fever	815 (69.7)	Loss of smell	13 (1.1)
Dry cough	603 (51.5)	Tiredness	241 (20.6)
Myalgia	129 (11.0)	Fatigue	241 (20.6)
Dyspnea	659 (56.3)	Loss of speach	14 (1.2)
Sorethroat	75 (6.4)	Loss of taste	8 (0.7)
Head ache	72 (6.2)	Chest pain	29 (2.5)
Diarrhoea	70 (6)	Conjunctivitis/ skin rash	0

Table 2: Distribution of Covid 19 patients based on type of co-morbidity (N= 626)

Co-morbidity	Frequency	Percentage
Type 2 Diabetes mellitus	422	67.41
Systemic Hypertension	359	57.34
Dyslipidaemia	111	17.73
Coronary artery disease	112	17.89
Chronic kidney disease	45	7.18
Stroke	23	3.67
COPD/ Bronchial asthma	75	11.98
Cancer	2	0.31
Others (arthritis, autoimmune disorders, thyroid disorders, anaemia etc)	135	51.52

Table 3: Comparison of proportion of clinical profile of Covid 19 patients in waves 1 & 2

Clinical Symptoms	Covid 19 Wave 1	Covid 19 Wave 2
Fever	58.4%	69.7%
Dry cough	35.9%	51.5%
Myalgia	26%	11%
Dyspnoea	22.5%	56.3%
Sore throat	19%	6.4%
Head ache	14.6%	6.2%
Diarrhoea	6%	6%
Loss of taste	5.1%	0.7%
Loss of smell	4.8%	1.1%
Chest pain	1.6%	2.5%

Table 4: Comparison of proportion of clinical categorization of Covid 19 patients in waves 1 & 2

Clinical categorization	Covid 19 wave 1	Covid 19 wave 2
Asymptomatic	2.9%	0.2%
A	3.8%	4.7%
B	87.3%	55.6%
C	6%	39.6%

Table 5: Association between sociodemographic profile of covid 19 patients and clinical categorization (N=1170)

Sociodemographic characteristic	Clinical categorization of Covid 19 patients based on symptomatology. n (%)				P value
	Asymptomatic	A	B	C	
Age					
High risk group*	2(100)	16 (29.1)	238(36.6)	254(54.9)	<0.001
Low risk group**	0	39 (70.9)	412 (63.4)	209(45.1)	
Gender					
Male	1(50)	32(58.2)	343(52.8)	273(59)	0.221
Female	1(50)	23(41.8)	307(47.2)	190(41)	
Place of residence					
Urban	0	0	36(5.5)	26(5.6)	0.095
Rural	2(100)	55(100)	614 (94.5)	437(94.4)	

*High risk group included children 1year to 10 years and 60years and above
** Low risk group included children & adults 11 years to 59 years

Table 6: Association between comorbidity status of covid 19 patients and clinical categorization (N=1170)

Comorbidity status of covid 19 patients	Clinical categorization of Covid 19 patients based on symptomatology. n (%)				P value
	Asymptomatic	A	B	C	
Present	2(100)	18 (32.7)	294(45.2)	312(67.4)	<0.001
Absent	0	37 (67.3)	356 (54.8)	151(32.6)	

DISCUSSION

During the first wave of the pandemic, despite being a novel disease and having an incompletely defined clinical picture, the addition of new symptoms to the symptomatology, the clinical profile and timely patient classification into different categories aided in early intervention, reducing mortality through the delivery of prompt and efficient care.

India has been severely affected by the second wave of COVID-19, which started on February 11, 2021, with daily cases nearly tripling the first peak number as of April 19, 2021. Because of regional differences and the transmission of many coronavirus mutations, the evolution of the pandemic in India is highly complicated.[10] The COVID-19 second wave proved more deadly and contagious even after the COVID-19 vaccine was developed. Additionally, because of the differing seasonal schedule, India's second wave trailed behind the Western world's.[13] As the second wave of COVID-19 was huge with more morbidity and mortality, identifying the high risk groups and screening them would be of great importance to prevent from a third wave.

This study results showed that the mean age of the study participants was 54.12±17.82 years with a minimum age of 1 year to a maximum age of 96 years, whereas in a study conducted in Japan, they analyzed the results of 300 patients and obtained the median age as 53 years with an interquartile range of 33–72 years.[7] In a study conducted in Eastern Uttar Pradesh, it was found that there was an 11-year shift in the mean age of positivity in the second wave compared to the first, indicating higher positivity rates across older age groups.[14] These results were in contrary to a study conducted from the data collected from The National Clinical Registry for COVID-19, where, the second wave of COVID-19 in India was slightly different in presentation than the first wave, with a younger demography.[15]

In the current study, a majority (55.5%) of the COVID-19 patients were males, which was similar (57%) to a study conducted in Japan.[7] Also, in a Demographic comparison of the first, second, and third waves of COVID-19 in a tertiary care hospital in Jaipur, the proportion of male gender was 66.6% in the second wave.[16] Other studies across the

globe also identified that males are more affected during COVID 19 compared to females.[17,18]

As per the self-reported data, the most prevalent clinical symptoms among the participants in this study during the second wave of COVID-19 were fever (69.7%), followed by dyspnea (56.3%) and dry cough (51.5%) which is similar to few studies conducted across the world where fever was the most common presenting complaint followed by cough and breathlessness.[19,20,21,22]

Among COVID-19 patients with reported comorbidities, lifestyle disorders such as Type 2 Diabetes mellitus (67.41%), systemic hypertension (57.34%), coronary artery disease (17.89%), and dyslipidemia (17.73%) were most prevalent among the study participants in the current study. A hospital record-based comparative study conducted at a tertiary care hospital in Uttarakhand found out that the significantly different comorbidities identified among the participants were hypertension and coronary artery disease.[23] A rapid review of literature among a total of 27 articles consisting of 22,753 patient cases from major epicenters worldwide revealed that major comorbidities seen in the overall population were CVD (8.9%), Systemic Hypertension (27.4%), Diabetes (17.4%), COPD (7.5%), Cancer (3.5%), CKD (2.6%), and other (15.5%).[24] These results are significant as these points to the fact that patients with comorbidities like hypertension, obesity, chronic lung disease, diabetes, and cardiovascular disease are likely to have the worst prognosis and most often end up with deteriorating outcomes such as ARDS and pneumonia. Adding to this, patients with cancer, chronic kidney illness, and elderly patients in long-term care facilities are not only at risk for contracting the virus, but also have a markedly higher chance of mortality.[25] Factors like elderly age and comorbidities showed significant statistical association with severity of the disease category.[25]

CONCLUSION

Patients of covid 19 second wave were predominantly from productive age group, rural residents, mostly presented with fever and dyspnoea and were categorized with Severe forms of category B & C. Elderly age and presence of lifestyle diseases are associated with presence of severe category of disease. Hence vigilant management is necessary for this vulnerable groups. Compared to covid 19 patients in wave 1, patients in wave 2 suffered from much severe disease.

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