

Clinicosocial Profile Of Covid 19 Positive Patients Admitted In A Tertiary Care Centre In South Kerala, India.

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Abstract:

Background: COVID 19 is an emerging disease which has a viral (SARS CoV 2) origin and so the clinical features of the disease mimics other viral diseases. Different studies across the globe evidenced that the clinical features vary from asymptomatic to even complex severe pneumonia. But still the unique clinical features of the disease are yet to be completely identified. Addressing this concern eventually helps in early detection and appropriate management of COVID 19 patients. This study is an attempt to describe the clinicosocial profile of COVID 19 positive patients and the categorization of clinical symptoms based on symptomatology and also to find out if there is any association between sociodemographic factors and clinical categorization based on symptomatology.

Methodology: A record based retrospective cross sectional study was conducted in DR Somervell Memorial CSI Medical College, Karakonam, South Kerala during the period from October 2020 to January 2021. Data was collected from 315 completed case sheets of COVID 19 patients who were admitted during June 2020 to January 2021. Data on sociodemographic profile, presenting symptoms at the time of admission, clinical categorization based on symptomatology using the Government of Kerala guidelines on COVID 19 were collected using a predesigned pretested abstraction form. The collected data were entered into MS Excel and was analyzed using SPSS trial version 21.0. The association between sociodemographic variables and categorization based on symptomatology were studied using Chi-square test and a p value <0.05 was considered statistically significant.

Results: The sociodemographic profile of the 315 Covid 19 patients revealed that the median age of the study participants were 54 years with an age ranging from 1 month to 96 years with 50.5 % females and 80.6 % residing in rural areas. Majority of the study participants presented with fever (58.4 %), followed by cough (35.9 %) and myalgia (26 %). When patients were categorised based on clinical symptomatology into Category A, Category B and Category C, majority of them belonged to Category B (87.3 %). The most common presenting symptom among Category A patients was Myalgia (58.3 %) while that in Category B was Fever (63.3 %) followed by cough (37.1%) and myalgia (26.5 %) and among category C patients was fever (52.6 %) followed by cough (47.4 %) and dyspnoea (47.4 %). Chi square test was done to find the association between sociodemographic variables and the sociodemographic factor age, was highly statistically significant with variation in categorization based on symptomatology. The sociodemographic factors like gender and place of residence didn't not show any statistical significance with the categorization based on symptomatology.

Conclusion: The most commonly reported symptom was fever (58.4 %) among all the COVID 19 positive patients. Majority (87.3 %) of the patients belonged to Category B. The sociodemographic variable age had a very high statistical association with the clinical categorization based on symptomatology.

Keywords: Clinicosocial profile, COVID 19, South Kerala

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I. Introduction

Coronavirus disease (COVID-19) is a severe acute respiratory infectious disease caused by a newly discovered coronavirus known as SARS CoV-2. COVID 19 first appeared in Hubei province of Wuhan, China, as a cluster of pneumonia cases of unknown origin. It rapidly spread across the globe and the wave reached India showing its presence for the first time in Kerala. This prompted heightened surveillance in India.^{1,2}

Studies from different countries across the globe has evidenced that the clinical spectra of COVID- 19 ranges from mild- to- moderate symptoms of cough, sore throat, headache, rhinorrhea, vomiting, diarrhea,

fever, and shortness of breath to signs, and symptoms complex of severe pneumonia, acute respiratory distress syndrome, septic shock, and/or multiple organ failure.^{3,4,5,6}

COVID 19 is a novel disease which has a viral origin and it mimics other viral diseases. This study is an attempt to look for any new symptoms and signs specific for COVID 19. Also it may throw some light to prioritize the most common symptoms across different age groups.

Hence this study aims to estimate the prevalence of clinicosocial profile, severity of the disease in terms of mild, moderate and severe categories among COVID 19 positive patients admitted in a tertiary care centre in South Kerala. Also this study aims to determine the association between clinicosocial profile and severity of covid 19 patients.

II. Methodology

A record based retrospective cross sectional study was done at Dr Somervell Memorial CSI Medical College and Hospital(Dr SMCSI MCH), Karakonam in Thiruvananthapuram district of South Kerala from October 2020 to January 2021 after getting approval from the Institutional Ethics Committee(IEC No:SMCSIMCH/EC(PHARM)02/04/10). Since June 2020 this hospital had arranged the facility for COVID 19 disease testing and treating following the guidelines given by the Ministry of Health and family welfare, Government of Kerala. Based on a previous study from North India² considering the prevalence of breathing difficulty as 17% and allowable error of 20% of prevalence, the calculated sample size required was 488. Data of COVID 19 patients admitted from June 2020 to January 2021 were taken and there were 515 patients admitted in Dr SMCSI MCH during that period. After getting permission from the Director, Principal, Medical superintendent and MRD-in-charge of the Institution, the case sheets of all the COVID 19 positive patients were retrieved and only COVID 19 patients whose case sheets were completely filled were analyzed. Excluding the incomplete case sheets, we could analyze the data of only 315 case sheets. The response rate was found to be 65%. The incomplete case sheets were of those patients who got admitted and referred in a short time and those with mismatch of OP and IP numbers. A pretested pre designed semi structured abstraction form was used for collection of data on sociodemographic profile, presenting symptoms at the time of admission, clinical categorization based on symptomatology using the Government of Kerala guidelines on COVID 19(7). These data were entered into MS Excel and was analyzed using SPSS trial version 21.0. The association between sociodemographic variables and categorization based on symptomatology were studied using Chi-square test and a p value <0.05 was considered statistically significant.

III. Results

The Sociodemographic profile of the 315 Covid 19 patients revealed that the median age of the study participants were 54 years with an age ranging from 1 month to 96 years. 50.5 % of the study participants were females.

Table No: 1: Proportion of self-reported clinical symptoms among COVID 19 patients (n=315)

Clinical symptom	Percentage	Clinical symptom	Percentage
Fever	58.4 %	Loss of taste	5.1 %
Cough	35.9 %	Loss of smell	4.8 %
Myalgia	26 %	Abdominal pain	4.8 %
Dyspnoea	22.5 %	Nausea	4.4 %
Sore throat	19 %	Light headedness	2.2 %
Headache	14.6 %	Nasal Congestion	1.9 %
Fatigue	11.1 %	Chest pain	1.6 %
Sputum production	10.2 %	Conjunctivitis	0.3 %
Diarrhoea	6 %	Confusion	0.3 %
Vomiting	5.7 %	Haemoptysis	0 %
Rhinitis	5.4 %		

Most (80.6 %) of the patients were residing in rural area. Majority of the study participants presented with fever (58.4 %), followed by cough (35.9 %) and myalgia (26 %) (Table No:1)

Table No: 2 Distribution of patients among different categories based on symptomatology(N=315)

Clinical categorization based on symptomatology	No: of COVID 19 positive patients (%)
Asymptomatic	9 (2.9 %)
Category A *	12 (3.8%)
Category B **	275 (87.3 %)
Category C***	19 (6 %)
* Mild sore throat/cough/rhinitis/diarrhoea ** Fever and/or severe sore throat / cough /diarrhea OR Category-A with any one of • Lung/ heart / liver/ kidney / neurological disease/ Hypertension / hematological disorders/ uncontrolled diabetes/ cancer /HIVAIDS/ Cardiovascular disease • On long term steroids /immunosuppressive drugs. • Pregnant lady • Age –more than 60 years *** • Breathlessness, chest pain, drowsiness, fall in blood pressure, haemoptysis, cyanosis [red flag signs] • Children with ILI (influenza like illness) with red flag signs (Somnolence, high/persistent fever, inability to feed well, convulsions, dyspnoea / respiratory distress, etc) • Worsening of underlying chronic conditions.	

When patients were categorized based on symptomatology⁷, majority of the cases belonged to Category B. (Table No: 2). 2.9 % of the patients admitted were found to be asymptomatic.

Table No: 3 Distribution of clinical symptoms and categories of COVID 19 patients (N = 306)

Clinical symptom	Category A (n= 12)	Category B (n=275)	Category C (n= 19)
Fever	0 (0%)	174 (63.3 %)	10 (52.6 %)
Cough	2 (16.7 %)	102 (37.1 %)	9 (47.4 %)
Myalgia	7 (58.3 %)	73 (26.5 %)	2 (10.5 %)
Dyspnoea	0 (0 %)	62 (22.5 %)	9 (47.4 %)
Sore throat	4 (33.3 %)	54 (19.6 %)	2 (10.5 %)
Sputum production	0 (0 %)	29 (10.5 %)	3 (15.8 %)
Rhinitis	0 (0 %)	17 (6.2 %)	0 (0 %)
Nasal congestion	0 (0 %)	6 (2.2%)	0 (0 %)
Nausea	1 (8.3 %)	13 (4.7%)	0 (0 %)
Vomiting	0 (0 %)	18 (6.5 %)	0 (0 %)
Diarrhoea	0 (0 %)	18 (6.5 %)	1 (5.63%)

Among Category A patients the most common presenting symptom was myalgia (58.3 %). Fever (63.3 %) was the most common symptom followed by cough (37.1%) and myalgia (26.5 %) among category B patients. Among category C patients most common presenting symptom was fever (52.6 %) followed by cough (47.4 %) and dyspnoea (47.4 %). (Table No:3)

Table No: 4 Association of sociodemographic variables and clinical categorisation of COVID 19 patients (N= 306)

Sociodemographic variable	Category A (n=12)	Category B (n= 275)	Category C (n=19)	p value
AGE High risk age group* Low risk age group*	0 (0%)	110 (40%)	13 (68.4%)	<0.001
	12 (100%)	165 (60%)	6 (31.6%)	
GENDER Male Female	5 (41.7%)	133 (48.4%)	12 (63.2%)	0.405
	7 (58.3%)	142 (51.6%)	7 (36.8%)	
RESIDENCE Urban Rural	2 (16.7%)	50 (18.2%)	5 (26.3%)	0.211
	10 (83.3%)	225 (81.8%)	14 (73.7%)	

Chi-square test was done to find out the association between Sociodemographic variables and clinical categories. The sociodemographic variable, age, was categorized into high-risk age group comprising of person above 60 years and children below 10 years. Low risk group comprised of people between 10 -60 years. Association between age and categorization of COVID 19 patients revealed that among Category A, all cases belonged to low-risk age group and among Category B majority (60 %) belonged to low-risk age group. However, among Category C majority (68.4 %) belonged to high-risk age group and this difference in association found between the age distribution and categorization was found to be statistically very highly significant ($p < 0.001$) association. (Table No: 4)

When association was done between gender and clinical categorization, it shows that in Category A and Category B, majority (58.3 % & 51.6 % respectively) were females. Among Category C, majority (63.2%) were males and this difference shown across various categories does not show any statistical significance. (Table No: 4)

Among Category A, B and C majority (83.3 %, 81.8% and 73.7 %) of the COVID 19 positive patients were from rural areas and it does not show any statistical significance. (Table No: 4)

IV. Discussion

COVID 19 is a novel disease and the clinical profile of the disease is not yet completely understood. This urges the need to do research to identify the unique clinical features of COVID 19 which helps in early detection of cases. Early detection and prompt treatment can fairly reduce the mortality associated with the disease and also helps in optimum utilisation of the resources. As we are expecting the second wave of COVID 19, emergency preparation and mitigation strategies need to be adopted as part of the Disaster Management. Categorisation of the patient based on symptomatology helps in preparedness not only in the field of providing treatment but also in planning the necessary infrastructure and transportation facilities.

Studies done on clinicosocial profile of the patients in different parts of the country helps to adopt State specific mitigation strategies. The current study done at a tertiary care centre in South Kerala, which also caters patients from Kanyakumari district of Tamil Nadu shows that the median age of COVID 19 positive patients is 54 years which is similar to the median age of 53 (interquartile range [IQR] 33–72) years in a study conducted in Japan⁸, which is similar to the median age of 56 years, ranging from 18 years to 87 years, in a study conducted in China⁹ whereas in a study conducted in Kerala¹⁰ the mean age was 36.5 years. In the current study 50.5 % were females in contrast to studies conducted in Kerala, Guntur and Japan had 80.2 %, 70 % and 57 % males respectively^{10,11,8}. As this institute is situated in a rural area, majority (80.6%) of the patients were rural residents. The commonest presenting symptom in the current study was fever (58.7%) which was similar to

studies from Kerala (45%), UAE (65%) and (China 94%)^{10,12,9} whereas it was cough (85.71%, 24 %, 28.6%) in a study conducted in North India² Japan⁸ and Korea¹³, in the present study the proportion of COVID 19 positive patients with cough were 35.9%. This calls for an effective screening for patients with fever and cough attending different OPs. In a study conducted in different hospitals in Europe¹⁴, 85.6% and 88.0% of patients reported olfactory and gustatory dysfunctions, whereas in the current study it was 4.8% and 5.1% respectively. From the reports of Health and Family Welfare, Government of Kerala⁴, it is seen that almost half (42 %) of the COVID 19 positive patients belonged to asymptomatic category, in another study conducted in Kerala¹⁰ 19.3% patients were asymptomatic, in a study conducted in a cruise ship in Japan¹⁵ 41% were asymptomatic and in a study conducted in AIIMS, Haryana¹⁶ 44.4% were asymptomatic while in the current study most of the COVID 19 positive patients belonged to Category B. Asymptomatic patients in the current study is 2.9 % which turned up as a part of routine screening before elective or emergency surgeries. The less number of asymptomatic patients in this study could be probably because the study participants were limited to those who were COVID 19 positive and were admitted in this tertiary healthcare centre.

The current study revealed that high risk age groups are more vulnerable for severe disease and this was found to be statistically very highly significant. Hence it is a felt need to strengthen and maintain the practice of reverse quarantine measures. Though severe disease was found more among male COVID 19 positive patients and in all categories the affected population were those residing in rural areas, both these findings did not show any statistical significance.

COVID 19 pandemic has hit our country very badly and the measures to prevent the infection should be continued till we reach a safer situation.

V. Conclusion

The most commonly reported symptom was fever (58.4 %) among all the COVID 19 positive patients. Majority (87.3 %) of the patients belonged to Category B. The sociodemographic variable age had a very high statistical association with the clinical categorization based on symptomatology

VI. Recommendation

Based on the conclusion of this study we would like to recommend that COVID 19 disease screening through establishment of fever clinics should be strengthened and the practice of reverse quarantine should be encouraged in the population.

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