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Original Research Article

Clinico-epidemiological profile and socio-demographic characteristics of COVID-19 patients admitted in a tertiary care teaching hospital in Tamil Nadu: a descriptive longitudinal study

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ABSTRACT

Background: The World Health Organization (WHO), on 11th March 2020 declared severe acute respiratory syndrome by SARS-CoV-2 virus as pandemic disease and renamed it as COVID-19. The case fatality rate ranges from 1.4 to 2%. Amidst several measures to contain the spread and mortalities it is been increasing from the date of its declaration as Public Health Emergency of Global Importance (PHEGI). Our study was aimed to describe the clinical, epidemiological features and socio-demographic characteristics and their associations among the COVID-19 patients admitted in our corona care centres.
Methods: A descriptive longitudinal study was done on the laboratory confirmed COVID-19 patients treated in our tertiary care hospital's corona care centres. Socio-demographic characteristics, co-morbidities, exposure history, PPE use were asked. Symptoms, signs, lab findings, treatments and outcomes were followed-up until discharge or death. The frequencies and statistical associations of variables were analysed using computer software.
Results: Out of 145 majority were 21-40 years of age (49.7%) with mean of 40±15.3 years. Majority urban dwellers (76.6%). Smokers and Alcoholics were few (6.9% and 12.4%). 21.4% had health insurance. Mean IP was -7±3.6days. Travel history within 14 days of IP 4.1%. Fever was dominant (82.6%). Prevalence of co-morbidities 50%. Mean duration of hospital stay was 9±3 days. Average gap between diagnosis to negative RT-PCR was 12days. Majority had category 2 treatments (65.5%). Three inpatients died (2.1%). Sex, symptom to RT-PCR test gap, Altered WBC and coagulation profile were showing statistical association with severity.
Conclusions: COVID-19 pandemic currently shows low case fatality rate. Clear transmission dynamics and host factors needed for better prevention and control.

Keywords: COVID-19, Clinical, Epidemiology, Characteristics, Tertiary care

INTRODUCTION

The World Health Organization (WHO), on 11th March 2020, declared severe acute respiratory syndrome caused by SARS-CoV-2 virus as a pandemic disease and renamed the disease as COVID-19. By 20th December 2020, 8,98,00,100 confirmed cases with 19,29,000 deaths were reported from at least 213 countries, areas, or territories all over the wrold.[1] In India till 20th December 2020, 1,04,35,000 confirmed cases and 1,50,100 deaths have been reported due to COVID-19.[2] This SARS-CoV-2 is the third corona virus that emerged in human population in the last two decades. Transmission among humans occurs through respiratory droplets while coughing or sneezing and touching infected surface. Clinically fever, cough, myalgia, shortness of breath, severe pneumonia with acute respiratory distress, multi-organ dysfunction and death have been reported.[3-7] Overall reported deaths in a study were 15 (1.4%).[4] A study by Gupta et al reported that among 21 Indian

COVID-19 patients 28.6% patients had co-morbid conditions.[8] For diagnosis RT-qPCR, Standard Q COVID-19 Rapid Ag detection are done with timely revised guidelines recommended by Indian Council of Medical Research (ICMR).[9] Amidst several measures (from personal protection, social distancing, travel and trade restrictions and drug trials) compromising even the basic socio-economic needs, the spread and mortalities are ever increasing till now from the date of its declaration as Public Health Emergency of Global Importance (PHEGI).[10] And, amidst several research studies have been reported and some other several studies are on-going Vel and colleagues have already expressed their views in the gaps in the natural history, disease dynamics, population dynamics.[11] In accordance with the above findings our study was aimed to describe the clinico-epidemiological features and socio-demographic characteristics of the COVID-19 patients admitted in our hospitals and also to find any associations between the studied variables.

METHODS

Study setting

This study was done on the laboratory confirmed COVID-19 patients treated in SRM medical college hospitals and its attached corona care centers from May 2020. COVID-19 cases started flowing in the rate of 4000 to 5000 per day in the state of Tamil Nadu from the month of April 2020. There were around 800 to 1000 cases, in an average, reported every day from Chengalpet, Kancheepuram and Thiruvallur districts adjacent to Chennai capital territory sub-urbans. SRM Medical College Hospital, located in Chengalpet district is one of the established medical institutes in the state, under SRM Institute of Science and Technology, Kattankulathur campus, with its well-equipped tertiary care hospital. It handles around 2000 out-patients and 750 to 800 in-patients every day. For this capacity and its existing infra-structure and in view of managing well the COVID-19 public health emergency of global importance, the government of Tamil Nadu has agreed for admission and treatment of COVID-19 patients in our hospital as well as temporarily set corona care centers in and around our institute. On the date when this study was completed there were a total of a 1395 COVID-19 patients had been handled by our institute.

Sampling technique and sample size

We decided to enroll every tenth COVID-19 patient admitted in SRM hospital and its corona care centers in our study. The final sample 145 (June-33, July-26, August-30, September-29, October-15, November-7, December-5) was based on the population proportion to number of COVID-19 patients admitted in each month during the study period of 6months starting from June to December 2021. We made enrollment of these patient in our study with due personal protection care to avoid the contact exposure to the investigators as well as to other patients during the study duration. The decisions made were well supported by the institute expert group task force on COVID-19 treatment and the institute ethical committee. We followed the advices given by them from time to time.

Inclusion criteria

Laboratory confirmed COVID-19 patients treated in SRM medical college hospitals and its corona care centres since May 2020 after the COVID-19 outbreak was declared.

Exclusion criteria

All non-COVID patients.

Data collection method and analysis

This descriptive longitudinal study was started after obtaining the clearance for the study from the Institute Ethical Committee along with the informed consent waiver requested in the section 2 clause D of study protocol as per the section 8.4.4 of national ethical guidelines-2017 for bio-medical and health research involving human participants by Indian Council of Medical Research.[12] The COVID-19 patients admitted were assessed for their presenting illness, co-morbidities under strict PPE and contact exposure avoidance measures. In the first part data on basic socio-demographic and travel or exposure were collected by using a semi-structured pre-tested investigator administered questionnaire. The second part of the data collection was on the clinical profile and follow-up of the symptoms and signs done until the patients become RT-PCR negative for SARS-CoV-2. The third and fourth parts of data were on laboratory findings, treatments and the final outcome details. After completion of the data collection each day all case sheets were kept safely in order for the next day follow up data collection and so on to avoid any maleficent practice. All the patients were followed up until their last negative RT-PCR report day and discharge or death. With strict aseptic precautions, carefulness and confidentiality the case sheets of the patients were handled and, the details pertaining to our study objectives were recorded without disturbing the treatment care. At all the time of the study the confidentiality on patients' personal details were maintained. Thus, collected data were compiled and fed into excel spread sheets. The frequencies of study variables were calculated and the statistical associations with outcome variables were analysed using Chi-square test Statistical package for social sciences (SPSS) software (IBM, Illinois, USA).

RESULTS

The final sample size attained was 145. Out of these majority constituted by 21-40 years age group (49.7%) followed by 41-60 years age group (35.9%).

Table 1: Frequency distribution of patients by their socio-demographic characteristics (N=145).

Characteristic	Sub-category	Number	%	History	Sub-category		Number	%
Age (in years)	≤20	08	5.5	Travel	No		139	95.9
	21-40	72	49.7		Yes		06	4.1
	41-60	52	35.9	Contact / Exposure	No		107	73.8
	≥61	13	9.0		Yes	Occupational	12	8.2
Sex	Males	84	57.9			Non-occupational	26	17.9
	Females	61	42.1	Type of occupational exposure[#]	Sampling		00	0.0
Education level	Illiterate	06	4.1		Treating/Caring		07	58.3
	Secondary	34	23.5		Cleaning services		03	25.0
	HSC	39	26.9		Other hospitality services		02	16.7
	Tech./Deg.	55	38.0	Type of Non-occupational exposure[†]	Living together/Friends		09	34.6
	Profession	11	7.6		Visiting cluster area/facility		10	38.5
Resident type	Rural	34	23.4		Co-worker contact		06	23.1
	Urban	111	76.6		Care giver		01	3.8
Marital status	Married	117	80.3		Immigration related		00	0.0
	Unmarried	28	19.3		Maid service		00	0.0
Religion	Hindu	123	84.8		Social gathering		00	0.0
	Christian	14	9.7		Religious gathering		00	0.0
	Muslim	08	5.5	Incubation Period[≠]	≤14days		21	55.2
Total family Income range per month (in Rupees)	≤15,000	21	14.5		>14days		17	44.7
	16,000-25,000	65	44.8	Health Insurance	Yes		31	21.4
	26,000-35,000	26	17.9		No		114	78.6
	36,000-45,000	19	13.1	Smoking	Yes		10	6.9
	>45,000	14	9.7		No		135	93.1
				Alcoholism	Yes		18	12.4
					No		127	87.6

[#]Frequency among occupational exposure group (n=12). [†] Frequency among non- occupational exposure group (n=26). [≠]Frequency among only those who had history of exposure(n=38)

Table 2: Frequency of patients by their symptomatology of Covid-19(N=145).

Category	Number	%	History as 1st symptom (N=127)		Duration history (in days)	
Asymptomatic	18	12.4				
Symptomatic	127	87.6	Number	(%)	Range	Mean±SD
Incubation Period (from among 28 patients of confirmed exposure)					3 - 16	7±3.6
Fever	105	82.6	75	59.0	1 - 21	5±4.0
Cough(dry)	74	58.2	14	11.0	1 - 21	5±4.7
Running nose	15	11.8	07	5.5	2 - 12	4±2.5
Sore throat	26	20.5	11	8.7	1 - 11	4±2.2
Headache	19	15.0	04	3.1	3 - 8	4±1.3
Myalgia	38	30.0	03	2.4	1 - 23	6±5.9
Diarrhoea	20	15.7	05	3.4	1 - 5	2±1.7
Loss of smell	04	3.1	03	2.4	3 - 5	4±0.8
Loss of taste	05	3.9	01	0.8	2 - 5	3±1.3
Dyspnoea	21	16.5	04	3.1	2 - 6	3±1.2
Drowsiness, Confusion	02	1.4	00	0.0	-	-

Table 3: Frequency of patients by RT-PCR and altered other investigation findings.

Description of the Test(s) nature	Category	Number	Percent	Mean±SD
No. of days elapsed from symptom onset to First +ve RT-PCR (n=145)	<5days	92	63.4	5.3±3.9
	5-8days	42	29.0	
	>8days	11	7.6	
No. of days elapsed from symptom onset to Last –ve RT-PCR (n=145)	≤10days	90	62.0	12.1±4.8
	>10days	55	38.0	
Altered Total WBC	>11,000	15	10.3	7.9±3.2
Elevated polymorphs	>70%	39	26.7	67±13.8
Elevated lymphocytes	>30%	34	23.4	27.4±13.2
Elevated granular cells	>5%	05	3.4	0.8±1.4
Anaemia	Hb<13gm%	17	11.7	13.0±3.9
Altered coagulation profile	↑d PT/aPTT	11	7.6	PT – 12.6±.6; aPTT-31±.4
Uncontrolled blood sugar levels (>180 mg/dl)	No DM	06	4.1	166±136.8*
	Known DM	42	29.0	138.5±136.8*
Altered renal function	↑d Urea or Cr	20	13.8	U-26±11 Cr-0.8±0.3
Altered liver function profile[#]	↑d ALP, AST and ALT	34	23.4	ALP-88±42.0 AST-34.6±35.8 ALT-38.8±53.1
Elevated general inflammatory markers	Sr. Ferritin[¶]	06	4.1	203±271*
Elevated cardiovascular inflammatory marker	D-Dimer[†]	28	19.3	450±665**
Chest X ray	GG opacities	03	2.1	-
Chest CT scan	GG opacities	02	1.4	-

N=145; RT-PCR-reverse transcription–polymerase chain reaction; WBC-white blood cells; Hb Haemoglobin (age sex undifferentiated); DM- Diabetes mellitus; Cr – Creatinine; ALP-Alkaline phosphatase; AST-Aspartate transaminase; ALT-Alanine transaminase; GG – ground-glass; [#]One patient was known c/o Alcoholic Liver Disease; [¶]more frequently encountered marker; [†]most frequently found elevated; *Influenced by extreme values; **from (n=28) and one patient had value of 4770ug/ml

Table 4: Frequency of COVID-19 patients by the admission type, treatments and outcome.

Type of admission	Number	%	*Hospital stay range(in days)*		Mean±SD	
Direct ICU	06	4.1	1 – 4		2±1.2	
Direct ward	139	95.9	1 – 17		8±3.4	
First ward then to ICU	00	0.0	-		-	
Total days admitted	1-17				9±3.3	
ICU admission reason	Number	%	**Treatment category**		Number	%
ARDS	02	1.4	Symptomatics and supportives		24	16.5
MODS	01	0.7	Symptomatics and supportives+antibiotics		95[a]	65.5
Metabolic acidosis	01	0.7	Symptomatics and supportives+antibiotics+antivirals		03[≠]	2.1
Severe vomiting	01	0.7	Symptomatics and supportives+antibiotics+O2 supplementation		10	6.9
Co-morbid conditions	01	0.7	Symptomatics and supportives+antibiotics+Antivirals+O2 supplementation+Basic Life Supports (BLS)		10	6.9
			Symptomatics and supportives+antibiotics+antivirals+O2 supplementation+Basic Life Supports (BLS) +Advanced Cardiac Life support (ACLS)		03	2.1
Severity category	Number	%	**Outcome category**		Number	%
Asymptomatic	18	12.4	Discharged	Full recovery	115	79.3
Mild	121	83.4		Transferred	13	8.8
Moderate	01	0.7		At request	09	6.2
Severe	02	1.4		AMA	05	3.4
Critical	03	2.1	Expired / Death		03	2.1

ICU-Intensive Care Unit; ARDS-Acute Respiratory Distress syndrome; MODS-Multi Organ Dysfunction Syndrome; [a]Azithromycin was the most commonly preferred antibiotic by our treating physicians; [≠]out of 3 received antivirals 2 had been treated with Favirapivir and 1 had been treated with Remdesivir.

Table 5: Associations between select factors and severity of the disease in the studied patients(N=145).

Factor		Severity category(%*)					Total (%)#	X^2 value	P value*
		No symptom (%)	Mild (%)	Moderate (%)	Severe (%)	Critical (%)			
Age	≤20yrs	03 (37.5)	05 (62.5)	00 (0.0)	00 (0.0)	00 (0.0)	08 (5.5)	13.06	0.364
	21-40yrs	11 (15.3)	59 (81.9)	01 (1.4)	01 (1.4)	00 (0.0)	72 (49.7)		
	41-60yrs	03 (5.8)	46 (88.5)	00 (0.0)	01 (1.9)	02 (3.8)	52 (35.9)		
	>60yrs	01 (7.7)	11 (84.6)	00 (0.0)	00 (0.0)	01 (7.7)	13 (9.0)		
Sex	Male	06 (7.1)	73 (86.9)	00 (0.0)	02 (2.4)	03 (3.6)	84 (57.9)	09.76	0.045
	Female	12 (19.7)	48 (78.7)	01 (1.6)	00 (0.0)	00 (0.0)	61 (42.1)		
Residency	Urban	15 (13.5)	90 (81.1)	01 (0.9)	02 (1.8)	03 (2.7)	111 (76.6)	02.61	0.624
	Rural	03 (8.8)	31 (91.2)	00 (0.0)	00 (0.0)	00 (0.0)	34 (23.4)		
Monthly Family Income	≤15,000	04 (19.1)	17 (80.9)	00 (0.0)	00 (0.0)	00 (0.0)	21 (14.4)	28.61	0.235
	16,000-25,000	01 (2.8)	33 (91.8)	00 (0.0)	00 (0.0)	02 (5.6)	36 (24.8)		
	26,000-35,000	03 (10.3)	24 (82.8)	00 (0.0)	01 (3.4)	01 (3.4)	29 (20.1)		
	36,000-45,000	04 (15.4)	21 (80.8)	00 (0.0)	01 (3.8)	00 (0.0)	26 (17.9)		
	>45,000	06 (18.1)	26 (78.8)	01 (3.0)	00 (0.0)	00 (0.0)	33 (22.8)		
Smoking	Yes	1 (10.0)	8 (80.0)	0 (0.0)	1 (10.0)	0 (0.0)	10 (6.9)	6.14	0.188
	No	17 (12.6)	113 (83.7)	1 (0.7)	1 (0.7)	3 (2.1)	135 (93.1)		
Alcoholism	Yes	1 (5.6)	0 (0.0)	16 (88.9)	1 (5.6)	0 (0.0)	18 (12.4)	4.01	0.404
	No	17 (13.4)	105 (82.7)	1 (0.8)	1 (0.8)	3 (2.4)	127 (87.6)		
Time gap from 1st symptom to 1st +ve RT-PCR	≤5days	18 (8.7)	74 (77.0)	01 (1.0)	02 (2.1)	03 (3.1)	96 (66.2)	46.63	0.000
	6-8days	00 (0.0)	42 (0.0)	00 (0.0)	00 (0.0)	00 (0.0)	42 (28.9)		
	>8days	00 (0.0)	07 (100)	00 (0.0)	00 (0.0)	00 (0.0)	07 (4.8)		
Comorbidity duration	≤10yrs	18 (13.7)	109 (83.2)	01 (0.8)	02 (1.6)	01 (0.8)	131 (90.3)	159.5	0.020
	>10yrs	00 (0.0)	12 (85.7)	00 (0.0)	00 (0.0)	02 (14.2)	14 (9.6)		
Altered WBCs	Yes	18 (17.0)	72 (67.9)	01 (0.9)	02 (1.8)	03 (2.7)	106 (73.1)	35.0	0.002
	No	00 (0.0)	39 (100.0)	00 (0.0)	00 (0.0)	00 (0.0)	39 (26.9)		
Altered Coagulation	Yes	04 (19.0)	13 (61.9)	00 (0.0)	02 (9.5)	02 (9.5)	21 (14.5)	3.62	0.004
	No	14 (11.3)	98 (79.0)	01 (0.8)	00 (0.0)	01 (0.8)	124 (85.5)		
Elevated Gen. inflam. marker	Yes	01 (25.0)	3 (75.0)	00 (0.0)	00 (0.0)	00 (0.0)	4 (2.7)	13.91	0.532
	No	17 (12.1)	118 (83.7)	01 (0.7)	01 (0.7)	03 (2.1)	141 (97.3)		
Elevated Cardiovascular inflam. marker	Yes	06 (9.2)	57 (87.7)	00 (0.0)	01 (1.5)	01 (1.5)	65 (44.8)	3.427	0.634
	No	12 (15.0)	64 (80.0)	01 (1.2)	01 (1.2)	02 (2.4)	80 (55.2)		

These mean age was 40±15.3 years. There were more males patients (57.9%). Many patients had technical course or degree level education (38%). Most of the patients had been urban dwellers (76.6%). Majority were

married (80.3%) and belonged to Hindu religion (84.8%). All the recruited study patients had been non-vegetarians. Among the monthly income divisions 16,000 to 25,000 rupees group were more (45%). Only 21.4% patients had health insurance. Few were smokers and alcoholics (6.9% and 12.4% respectively). Table 1 shows the baseline characteristics of the study participants.

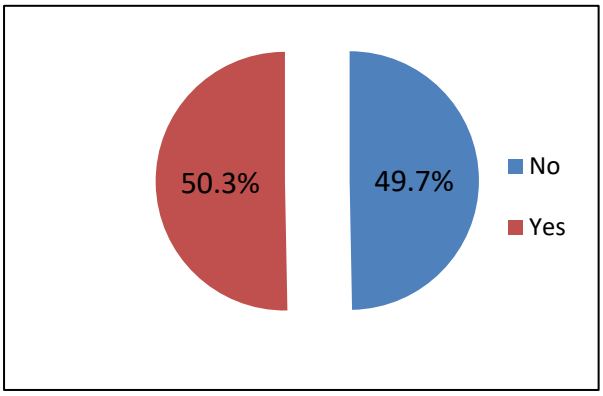

Figure 1: Frequency of patients with existing co-morbidities (N=145).

Only few (4.1%) patients had history of travel within the past 14 days from the day of diagnosis as COVID-19 positive. Twenty eight (25%) patients only had history of contact and or possible exposure. Among these 28 patients the occupational and non-occupational exposures were 8% and 18% respectively. Contact by treating or caring activities (58.3%) among the occupational exposure history and visiting the cluster area or treating facility (38.5%) among the non-occupational exposure history were dominant findings. Around half of these contact history positive patients had their incubation period (IP) of less than 14 days (55%). The shortest reported IP was 3days and the longest reported IP was 16days with a mean of 7±3.6 days. Table 2 highlights the symptoms among the patients enrolled in our study. Fever was the dominant symptom in both the frequency (82.6%) and as the first symptom to occur (59%) with a mean fever duration of 5±4.0 days. Next had been the dry cough (58.2% in frequency and 11% as first symptom) with mean duration of 5±4.7 days myalgia/arthralgia had been the third in frequency (30%) and had mean duration of 6±5.9 days.

Among the 18 (12.4%) asymptomatic COVID-19 RT-PCR positive patients in this study 6 (33.3%) were typically asymptomatic (tested voluntarily because of their travel nature) and another 6 (33.3%) were antenatal mothers who had come for either safe confinement or regular follow up. Among the remaining six there were four chest discomfort (2 known IHD patients, 1 severe anaemia patient and 1 known Pulmonary TB patient), one generalized oedema and tiredness (known case of hepatic failure and jaundice) and one episode of seizures (known case of seizure disorder who had been off the drugs for few months).

Around 50% of patients had one or other co-morbidity (Figure 1). Among these, 45 (30%) were diabetics and 25 (17.2%) were hypertensive and 15 (10.3%) were having respiratory system co-morbidities like BA, COPD and old TB. Five patients (3.4%) had cardio-vascular and four patients (2.8%) had renal diseases. Among those who had co-morbid conditions 48.3% were having two or more co-morbid conditions.

All patients were taken nasopharyngeal sample. Majority (63.4%) had positive RT-PCR within 5 days from the symptom onset with mean duration of 5.3±3.9 days. Table 3 highlights the frequencies on laboratory profiles of the studied patients. Majority of patients (60%) had their negative RT-PCR within 10days from the first positive RT-PCR with mean duration of 12.1±4.8 days. No patients had altered electrolytes profile (mean Na+-137.3±4.8; mean K+-3.9±0.5; mean Cl^--101.7±3.6; mean HCO3-23.9±3.3). Similarly, no patients in this study group had altered ECG findings. One patient had bilirubin level at 5.3 (k/c/o ALD). C-reactive protein (CRP) was definitely +ve among 19(13%) patients.

Longest hospital stay had been 17 days among study participants with mean duration of 9±3.3 days. Most of the patients had mild disease (83.4%) and majority patients were treated with category 2 treatments (65.5%). All three (2 admitted with ARDS, 1 patient admitted with MODS) were the critically ill category and these 3 were the deaths (2.1%) among our study participants from our hospital. Table.4 shows the admission, treatment and outcome related characteristics.

Association between different study characteristics and the outcome categories are shown in Table 5. Among the crude associations examined, the sex (χ2value – 9.76, p value -0.045), time gap in days from 1st symptom to 1st +ve RT-PCR (χ2value – 46.6, p value -0.000), comorbidity duration (χ2value – 159.0, p value -0.020), altered WBC profile (χ2value – 35.0, p value -0.002), altered coagulation profile (χ2value – 3.6, p value -0.004) were found to be statistically significant in our study participants. The severity category of the disease was highly significantly associated with the outcome category (χ2value – 98.8, p value -0.000).

DISCUSSION

Out of 145 studied patients in our study majority of the patients had mild disease (83.4%) and most of them were treated with category 2 treatments (65.5%). Among the three deaths (2.1%) among which two were admitted with ARDS, one with MODS. Initial case study from China by Wu et al has reported 81% mild illness, 14% severe respiratory distress and 5% critical illness and 2.4% case fatality.[13] Guan et al have also reported 1.4% deaths among their patients from China.[4]

The mean age of patients in our study was 40±15.3 years with majority (49.7%) in 21-40 years age group followed

by 41-60 years age group (35.9%). Similar pattern of mean age of 40.3 year and 40.1±13.1 years had been reported by Gupta et al and Mohan et al from their consecutive samples from their tertiary care hospital from northern India.[8,14] But the studies from China, New York or Italy have reported higher median age (56 year and 63 years respectively).[15-17]

Even though, more patients were of males (57.9%), above technical level education (38%), urban dwelling (76.6%) and married persons (80.3%) only few (4.1%) patients had history of travel within the previous 14 days from the day of diagnosis as COVID-19 positive. Seventy five per cent patients could not tell about any possible contact or exposure and the remaining 25% had possible contact or exposure history only. Rajnikant et al, from their investigative study on contact tracing and transmission chain, have reported that no evidence for the source of infection could be traced by the team in the index case and his family members.[18] In our study 80% of that possible contact or exposure history positives (25%) were occupational exposures and among these 8% around 58.3% had history of contact by treating or caring activities and 38.5% had history of visiting the cluster area or treating facility. Smoking and alcoholism like health risk behaviours were also considerably low (6.9% and 12.4% respectively) among our study participants. Few patients (21.4%) had health insurance but the coverage for this infectious disease problem were not known.

In our study the mean incubation period (IP) was 7±3.6 days among the contact history positive patients where 55% of them had less than 14 days of IP. Fever dominated in frequency (82.6%) and as the first symptom to occur (59%) with a mean lasting duration of 5±4.0 days. There were 58.2% dry cough and 30% Myalgia and Arthralgia. There were no much differences in IP and symptomatology findings between our study and other studies reported.[14,15,19,20]

There were 18 (12.4%) asymptomatic COVID-19 RT-PCR positive patients in our study and none of them became symptomatic until the period of discharge. This finding in our study is well supported by follow-up study report by Hu et al where they have reported that 58% patients were asymptomatic during admission and only 3% (2 out of 66) patients became subsequently symptomatic during the hospital stay.[19]

In our study around 50% of patients had one or other co-morbidity (30% diabetes, 17.2% hypertension and 10.3% respiratory system co-morbidities (eg; BA, COPD and old TB), 3.4% cardio-vascular and 2.8% renal diseases). Among these 48.3% were having more than one co-morbidity. This finding is supported by study reports of Soni et al where there were 16.6% and 14.9% incidences of severe COVID-19 disease manifestations in patients with hypertension and diabetes respectively.[20]

Even though majority (63.4%) of our study participants had positive RT-PCR test within 5 days, the mean duration was 5.3±3.9 days from the symptom onset denoting that the viral replication cycle threshold varies among study population according to their individual's immunological defence mechanisms.

Majority of patients (60%) in our study had their negative RT-PCR within 10 days from the first positive RT-PCR with mean duration of 12.1±4.8 days. Also, the mean duration of 9±3.3 days of hospital stay is similar to the study report by Rajinikant et al18 where they have shown the median time taken to recover from infection was 12 days. Most of the patients had mild disease (83.4%) and majority patients were treated with category 2 treatments (65.5%). The three patients (2 admitted with ARDS, 1 patient admitted with MODS) enrolled from ICUs were the deaths (2.1%) among our study participants from our hospital. This is comparably low from Rajinikant et al study on critically ill patients on admission where they have reported 5.8% death among their 17 cases.[18] Among the crude associations analysed in our study showed sex, time gap in days from 1st symptom to confirmatory diagnosis (i.e., +ve RT-PCR), number of years living with comorbidity, altered WBC and coagulation profile were having statistical significance. Our finding of significant association between the severity of the disease and the outcome categories i.e., more severe the category of disease more fatal it had been, is also well supported by findings by Kayina et al where they have reported 8.5 per cent mortality among their ICU patients.[21]

Our study had certain limitations. The present study conducted on a small sample of hospitalized individuals belonging to particular geographical area, the findings cannot be generalized. We could not explore the possible co-infections with other viral/bacterial diseases and the various other possible causes of deaths among our study participants. We need further studies to explore the possible causations of death in COVID-19 patients shaving combination of co-morbidities in particular.

CONCLUSION

From this study among the randomly recruited patients during the second 6 months of on-going first wave of COVID-19 disease, we conclude that this Novel SARS CoV-2 viral disease is threatening in nature and we must explore the new horizons of viral infection diseases to study the factors including transmission dynamics through high profile epidemiological studies. Even though the case fatality rates (CFR) reported currently is low, on the other hand the Covid-19 disease can be a long run epidemic, with its current nature, with unpredictable results among human population before it become endemic and or seasonal.

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