Original Research Paper

General Medicine

TO STUDY THE CLINICAL PROFILE OF COVID-19 PATIENTS ADMITTED IN COVID ICU

Dr. Megha Shah*	DNB General Medicine, Senior Resident, ABVGMC, Vidisha. *Corresponding Author
Dr. Shubhangi Jain	DNB Family Medicine, Casualty Medical Officer, ABVGMC Vidisha
Dr. Vinod Dangi	MD General Medicine, Assistant Professor, ABVGMC Vidisha

ABSTRACT

BACKGROUND: Its been more than a year the whole world is struggling with the deadly covid-19 disease and trying to get rid of it. Various studies are being carried out worldwide including India to understand, control, treat and prevent this disease. We also conducted a small study to describe the clinical profile of covid-19 patients with severe disease.

METHODS: We collected the data of covid-19 positive patients with severe disease admitted in covid ICU and analysed various parameters like epidemiological, clinical, laboratory, vaccination status, severity of the disease, mode of oxygen therapy and complications. This is a retrospective observational study.

RESULTS AND DISCUSSION: In this study we found that the mean age was 52.1 years. Majority of the patients were from urban area (63.7%), with common clinical presentation of dyspnea (89.5%) patients, cough (66.1%) and fever (63.7%), with underlying co-morbidities like diabetes (38%) and hypertension (32.1%). Maximum patients required NIV (54.8%), and NRBM (42.7%), very few people required Mechanical Ventilation (4%).

In most of the patients, we found leucocytosis, raised CRP, D-Dimer, ferritin, and had shorter hospital stay of <10 days(62.9%), and most common complications during hospitalization were hyperglycemia(60.4%), and sepsis (21.7%).

CONCLUSION: In our study, during second wave of Covid-19, most of the patients were middle aged with comorbidities, hailed from urban areas, presented with dyspnea, and required NIV.

KEYWORDS : Covid-19, Co-morbidties, Oxygen support.

INTRODUCTION:

At the end of December 2019, Wuhan experienced an outbreak of severe respiratory illness infecting over 70,000 people within 50 days. The etiological agent isolated was found to be a single-stranded positive-sense RNA virus that belonged to the coronaviridae group.[1] SARS-COV-2 spreads primarily via respiratory droplets that are transmitted from person to person who are in close contact.[2]

Symptoms may be variable, ranging from asymptomatic covid positive to mild, moderate and severe disease. However, there is paucity of data regarding the clinical course of the disease. [3]

The World Health Organization (WHO) declared this a pandemic on 11th March 2020. The world has witnessed the impact of first wave of covid-19 infection in the year 2020, and most of the countries were affected very badly by the second wave including India. As per the WHO data, till date globally, 206,958,371 confirmed cases of covid-19 were detected, including 4,357,179 deaths and in India, there have been 32,225,513 confirmed cases of covid-19 with 431,642 deaths reported to WHO. Covid19.who.int/16august 2021.[4]

MATERIALS AND METHODS:

We conducted a retrospective observational study in Atal Bihari Vajpayee Government Medical college, Vidisha (M.P) from 1st May 2021 to 31st May 2021. We included 124 patients who were diagnosed covid positive based on RT-PCR or rapid antigen kit, were labelled severe on the basis of AIIMS covid protocol as RR >30/min, or SpO2 <90% on room air, of age >18years, both males and females excluding pregnant females, and were admitted in covid ICU.

We assessed demographic characterstics, vaccination status, co-morbid conditions, baseline laboratory findings, clinical course and complications among covid-19 patients.

Since this is a retrospective observational study, ethics committee approval was not required.

RESULTS:

In our study, there were 66(53.3%) males and 58(46.7%) females.

The mean age among patients was 52.1 years ranging from 19 to 85 years and 23.3% were below 40years, 46.7% were between 41-60 years, and 29.8% were above 60 years of age.

Majority of the patients were from urban area (63.7%) and 36.2% from rural area.

The data regarding vaccination collected as per the history given by the patients showed that only 8.9% patients were vaccinated for covid vaccine, and majority of them (91.1%) were not vaccinated.

The most common clinical presentation was dyspnea with 111 (89.5%) patients, cough in 82 (66.1%) patients, fever in 79 (63.7%) patients, loss of smell and taste in 50 (40.3%) patients, myalgia in 28 (22.5%) patients, chest pain in 10 (8%) patients, abdominal pain in 6 (4.8%) patients, vomiting and headache in 5 (4%) patients each, diarrhoea in 3 (2.4%) patients, altered sensorium and edema in 2 (1.6%) patients each.
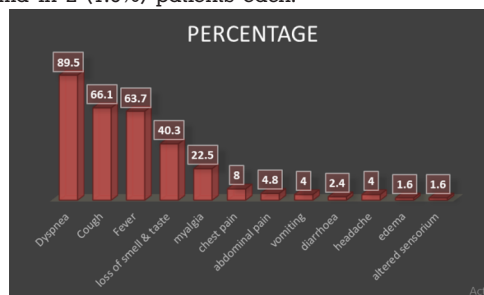

Figure 1

Out of 124 patients, 108 (87%) had underlying co-morbidities, of which most common was diabetes mellitus in 32 (38%) patients, followed by hypertension in 27 (32.1%) patients, respiratory illness 13 (15.4%) patients, cardiovascular disease in 6 (7.1%) patients, CNS co-morbidities in 4 (4.7%) patients, CKD and CLD in 3 (3.5%) patients each, 2 (2.3%) patients were hypothyroid, 17 (20.2%) were obese, 1 (1.1%) patient had prostate cancer.
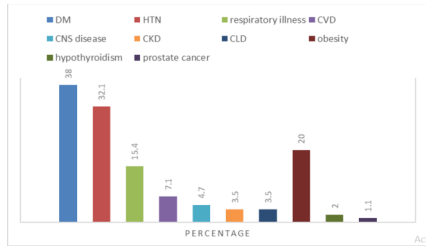

Figure02

Out of 124 patients, 9 (7.2%) patients had fever at the time of admission. Mean of pulse rate was 98.7/min ranging from 66-148/min. Mean of respiratory rate was 27.7/min, ranging from 18-64/min. Mean of spo2 was 74.8%, ranging from 23-92%.

Depending upon the severity of illness, various modes of oxygen support were used. Maximum patients were on NIV 68 (54.8%), then NRBM 53 (42.7%), face mask 32 (25.8%), HFNC 30 (24.1%), and mechanical ventilation 5 (4%).
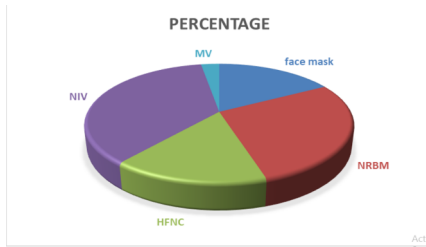

Figure 03

On analysing the lab parameters, median of WBC count was 14000/microlitre, ranging from 4600 to 87900/microlitre. LFT was deranged in 38 (30.6%) patients, RFT in 31 (25%), CRP was elevated in 110 (88.7%) patients, D-dimer in 91 (73.3%) patients, ferritin in 89 (71.7%) patients.

Most of the patients had shorter hospital stay of <10 days i.e 78 (62.9%) patients, 33 (26.6%) patients had stay of 11-20 days, and 13 (10.5%) patients had >21 days.

During hospitalization, most common complications in the patients was hyperglycemia in 75 (60.4%) patients, sepsis in 27 (21.7), MODS in 19 (15.3%), CVA & MI in 4 (3.2%) patients each, AKI in 3 (2.4%), hypertension in 3 (2.4%), pneumothorax in 2 (1.6%), various rhythm disturbances in 14 (11.2%), pulmonary embolism, seizures, mucor mycosis, epistaxis, post covid diarrhoea in 1 (0.8%) patients each.
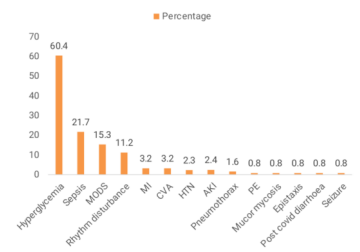

Figure 04

Table 01: Showing various parameters studied with mean, range, numbers and percentage

	Mean	Range	N	%
Age(years)	52.1	19-85		
<40			29	23.3
41-60			58	46.7
>61			37	29.8
Gender				
Male			66	53.3
Female			58	46.7
Locality				
Rural			45	36.2
Urban			79	63.7
Vaccination				
Yes			11	8.9
No			113	91.1
Clinical presentation				
Dyspnea			111	89.5
Cough			82	66.1
Fever			79	63.7
Loss of smell & taste			50	40.3
Myalgia			28	22.5
Chest pain			10	8.0
Abdominal pain			6	4.8
Vomiting			5	4.0
Diarrhoea			3	2.4
Headache			5	4.0
Edema			2	1.6
Altered sensorium			2	1.6
Co-morbidities				
DM			32	38.0
HTN			27	32.1
Respiratory illness			13	15.4
CVD			6	7.1
CNS disease			4	4.7
CKD			3	3.5
CLd			3	3.5
Obesity			17	20
Hypothyroidism			2	2.0
Prostate cancer			1	1.1
Vitals	98.3f	96.8-101.6f		
Temperature(>100.4f)	98.7/min	66-148/min		
PR	27.7/min	18-64/min		
RR	74.8%	23-92%		
SpO2				
Modes of O2 support				
Face mask			32	25.8
NRBM			53	42.7
HFNC			30	24.1
NIV			68	54.8
MV			5	4.0
Lab parameters	12833	4600-87900	38	30.6
Leucocytosis	38		31	25
Deranged LFT	31		110	88.7
Deranged RFT	110		89	71.7
Raised CRP	89		91	73.3
Raised Ferritin	91			
Raised D-dimer				
Duration of hospital stay				
<10days			78	62.9
11-20days			33	26.6
>21days			13	10.5
In hospital complications			75	60.4
Hyperglycemia			27	21.7
Sepsis			19	15.3
MODS			4	3.2
MI			4	3.2
			3	2.3

HTN				1	0.8
AKI				2	1.6
PE				1	0.8
Pneumothorax				1	0.8
Mucor mycosis				1	0.8
Epistaxis				14	11.2
Post covid diarrhoea				1	0.8
Rhythm disturbance				3	2.4
Seizure					
CVA					

DISCUSSION:

The World is trying to gather evidence regarding covid-19 related acute severe respiratory disease rapidly including its severity, various risk factors asscociated with severity, various treatment options to fight the pandemic. This has helped to understand the clinical profile and improve management of the disease. The severity and mortality of covid-19 depends on several sociodemographic and clinical parameters which may differ as per area. Age is a strong risk factor for severe illness, complications, and death.[5,6,7]

We conducted a retrospective observational study to assess the various clinical aspects of patients who were diagnosed covid positive with severe disease at the time of admission. Several studies had been conducted ealier to study the clinical profile of covid positive patients.[8,9,10]
We found that most of the patients admitted in covid ICU with severe illness were males, of 41-60 years age group, hailed from urban area, not vaccinated, with dyspnea, cough, and fever as common presenting complaints, but, we found that, only 9 (7.2%) patients were febrile at the time of admission.

Patients in our study were middle aged (median age – 52 years) comparable to those in China (median age – 56 year)[11], New York (median age – 63 year)[12] or Italy (median age – 63 year)[13].

Out of 124 patients with severe illness, 108 patients had co-morbidities like diabetes mellitus (most common)[14], hypertension, obesity (BMI >30)[15], respiratory, cardiovascular disease, etc. Various studies done in the past also showed that patients with comorbidities had severe illness.[16,17]

Majority of the patients (54.8%) required NIV at the time of admission, and had leucocytosis with raised inflammatory markers (CRP, ferritin and D-dimer) with shorter hospital stay of <10days (62.9%) and developed hyperglycemia (60.4%), sepsis (21.7%) and MODS (15.3%) as complications during their hospital stay.

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