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Original Research Paper

CLINICAL PROFILE OF PATIENTS WITH MILD TO MODERATE COVID WITH SPECIAL REFERENCE TO VACCINATION STATUS AND OUTCOME: A RETROSPECTIVE STUDY

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ABSTRACT:

BACKGROUND- Novel corona virus, the causative agent of covid 19 is responsible for more than one million deaths globally. However most of the infections are either of mild or moderate severity. This study was done to analyze the clinical and demographic profile of patients with mild to moderate covid admitted in a tertiary care hospital and also to study the impact of vaccination on the hospital outcome. METHODS- A total of 5543 patients admitted during the period from 1st January 2021 to 31st December 2021 were included in the study. All patients had mild to moderate disease at the time of admission as per definition by the Indian Council of Medical Research (ICMR) . RESULTS- The mean age of the study population was 44.10±18.18 years with a male to female ratio of 1.23:1. Fever and cough were the most common presenting symptom and hypertension was the most common co morbid illness present in 17.71% of the patients. 50. 94 % patients were classified into the mild disease category and 13.31% patients had moderate covid. Of the 5543 patients admitted, 3812 patients had taken atleast 1 dose of vaccine at the time of admission. Of the 264 patients who died during hospital stay, in 224 the death was attributed to covid. A significant fraction of people who died were males and also were unvaccinated. CONCLUSION- Vaccination is an effective tool to control the covid 19 pandemic particularly in a country like India with limited resources and limited access to health facilities.

KEYWORDS- novel corona virus, covid 19, vaccination, mild covid, moderate covid

INTRODUCTION:

Novel Corona virus (SARS Cov 2) is the causative agent of the global pandemic Covid 19. It is a highly virulent virus that has infected more than 43 million patients and claimed more than one million deaths globally[1]. In India more than 600,000 confirmed patients and more than 100,000 deaths occurred until December, 2020[2]. Most of the cases had mild to moderate disease. According to ICMR guideline, *mild disease* was defined as those having fever, myalgia, sore throat, dry cough, loss of smell and taste, Spo2 in room air > 94%, normal respiratory rate and no dyspnea. *Moderate covid* infection was defined as those having fever, myalgia, sore throat, dry cough, loss of smell and taste , Spo2 in room air 90 to < 93% and respiratory rate of >24 breaths per minute[3]. Vaccination against Covid 19 was first initiated in India on 16th January, 2021 with health care workers being the first priorities. Two vaccines– Covaxin (BBV152 by Bharat Biotech International Limited), and Covishield (AZD-1222 Oxford, AstraZeneca by Serum Institute of India) were initially injected and are still continued to be used . Subsequently the Russian vaccine Sputnik-V was also available but with limited supply[4]. There were few studies conducted in North East part of India regarding this vaccination status and mild to moderate covid infections.

Our study was conducted with the following aims and objectives:

- To study the clinical and demographic profile of patients with mild to moderate covid infection during the study period.
- To study the effect of vaccine among these mild to moderate covid infected patients and short term outcome.

MATERIAL AND METHODS:

STUDY CENTRE- Covid Emergency Ward, Gauhati Medical College Hospital (GMCH)

STUDY TYPE- Single centre cross sectional observational study

STUDY DURATION- 1st January 2021- 31st December 2021 (1 year)

SAMPLE SIZE- A total of 5543 patients who were admitted in the covid emergency ward of GMCH during this period were included in the study.

INCLUSION CRITERIA:

- All patients who were either RAT or RT-PCR positive for Covid 19 with mild to moderate disease at the time of admission as per ICMR/MoHFW, Govt. of India guidelines were included in the study

EXCLUSION CRITERIA:

- Patients with severe covid on admission

MONITORING:

The patients were assessed at the time of admission with a detailed history and clinical evaluation and thereafter monitored daily. Treatment was given as per the ICMR/ MoHFW guidelines. Some of the patients who developed severe disease during hospital stay were shifted to other centers catering severe disease patients as per bed availability. For stable patients RTPCR test was repeated at day 7 or 9 as per guidelines and patients were either discharged or referred to non covid wards upon negative result.

RESULTS AND OBSERVATIONS:

AGE DISTRIBUTION:

AGE (years)	NUMBER OF PATIENTS	PERCENTAGE
<1	237	4.27
1-10	108	1.94
11-20	329	5.93
21-30	1094	19.73
31-40	899	16.21
41-50	821	14.81
51-60	985	17.77
61-70	667	12.03
71-80	306	5.52
>80	97	1.74
TOTAL	5543	100

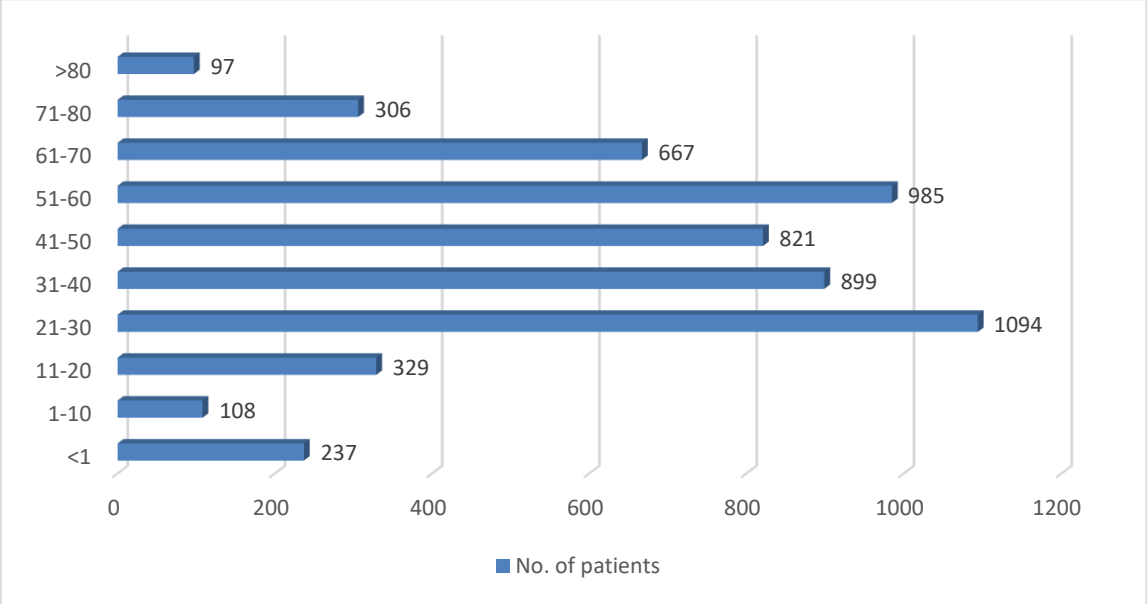

Fig : Age distribution of patients

The mean age of the study population was 44.10±18.18 years, with maximum number of patients between 21-30 years. The oldest admitted patient was 97 year old whereas the youngest was a 1 day old neonate.

SEX DISTRIBUTION:

SEX	NUMBER OF PATIENTS	PERCENTAGE
MALE	3058	55.16
FEMALE	2485	44.84
TOTAL	5543	100

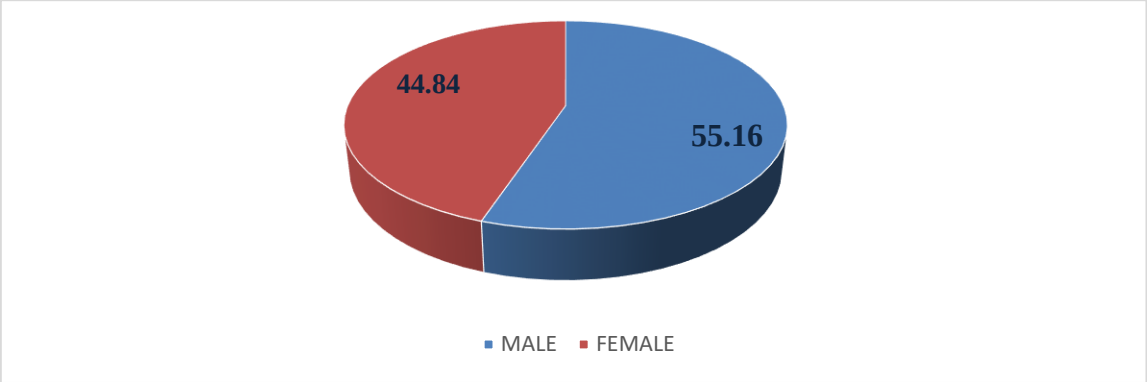

Fig : Sex distribution of patients

A greater number of the study population were males (n= 3058, 55.16%) with a male to female ratio of 1.23 :1

RESIDENCE :

RESIDENCE	NUMBER OF PATIENTS	PERCENTAGE
URBAN	2980	53.76
RURAL	2460	44.39
OTHERS	103	1.85
TOTAL	5543	100

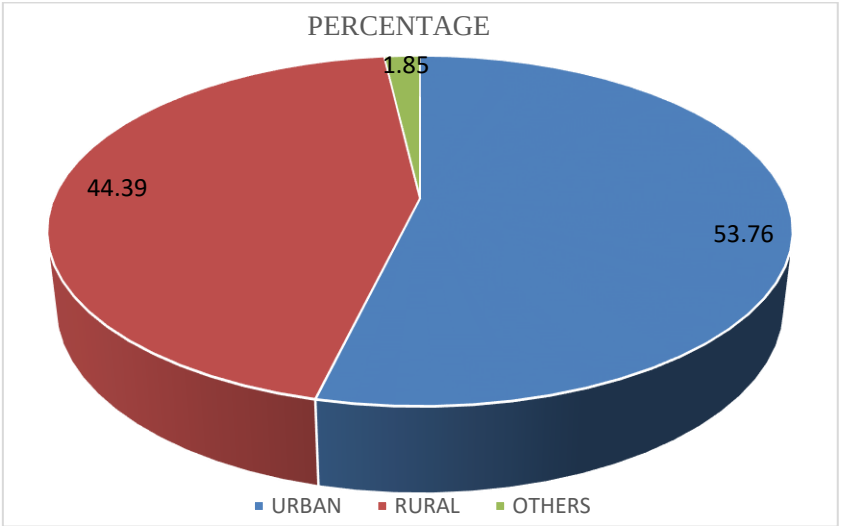

Fig : Residence status of patients

A total of 2980 patients lived in urban areas whereas 2460 patients lived in rural areas. 103 patients belonged to other states.

CO- MORBIDITIES:

CO- MORBIDITIES	NUMBER OF PATIENTS	PERCENTAGE
HYPERTENSION	982	17.71
TYPE 2 DIABETES MELLITUS	668	12.05
HYPOTHYROID	119	2.14
OBESITY (BMI>25)	177	3.19
MALIGNANCY	278	5.01
PREGNANCY	323	5.82
POST PARTUM	152	2.74
COPD	369	6.65
CKD	326	5.88
CLD	99	1.78
OTHERS	329	5.93
>1 COMORBID ILLNESS	532	9.59

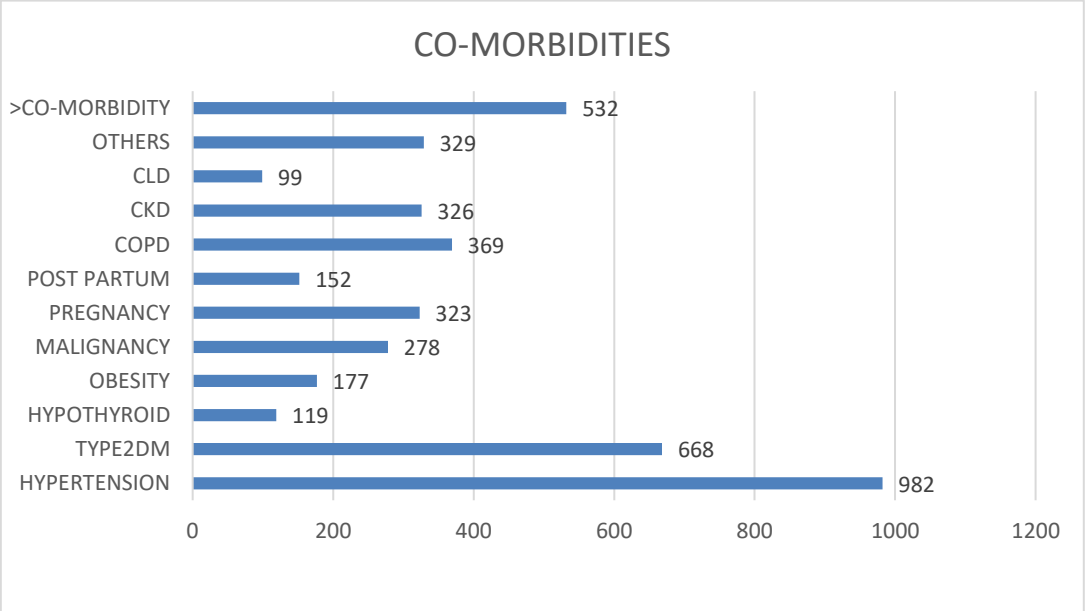

Fig : Co-morbid illness of the study participants

Out of the total 5543 patients, 1785patients had associated co-morbidities. Of them hypertension was most common present in 982 patients followed by diabetes mellitus present in 668. 278 patients had associated malignant illness and 323 patients were pregnant. Many patients had more than 1 co-morbid illness.

DISEASE SEVERITY:

DISEASE SEVERITY	NUMBER OF PATIENTS	PERCENTAGE
ASYMPTOMATIC	1981	35.73
MILD	2824	50.94
MODERATE	738	13.31

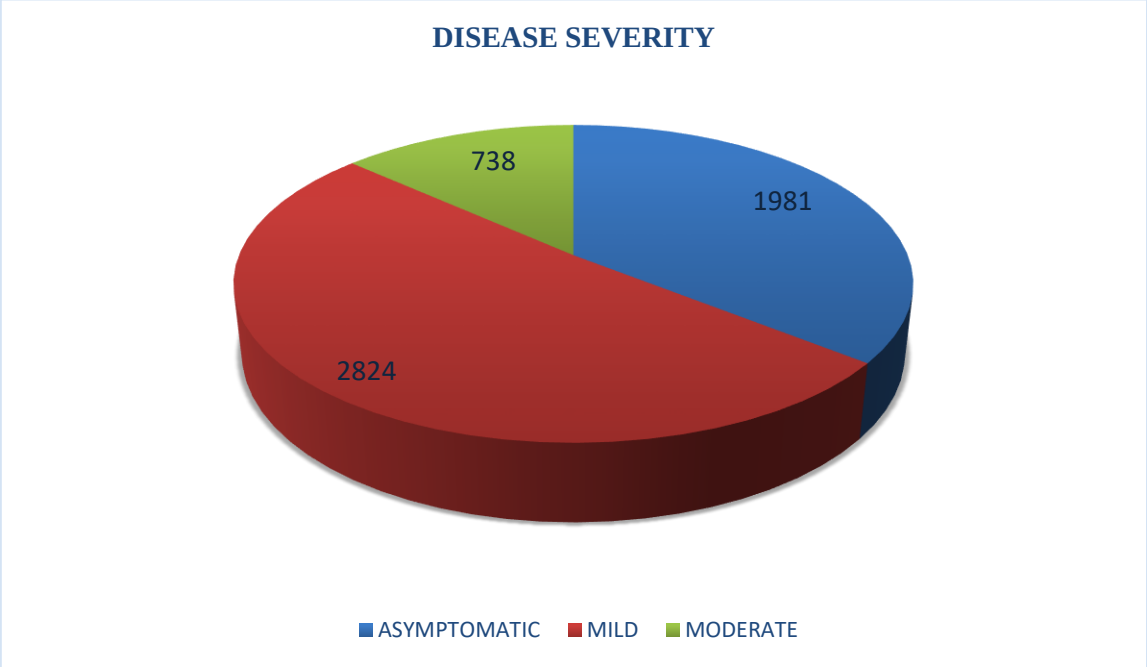

Fig : Figure showing disease severity

Of the 5543 admitted patients, 1981 patients were asymptomatic, 2824 were classified as having mild disease and 738 patients were categorized to have moderate disease at the time of admission. The ratio of mild to moderate cases was 3.82:1

CLINICAL FEATURES:
Among the symptomatic patients , fever was the most common presenting symptom present in 2490 patients (44.9%) followed by cough in 1686 patients (30.41%). Breathing difficulty was present in 642 patients (11.58%) at the time of admission. Apart from the presence of fever, tachypnoea was present in 709 patients (12.79 %) and 726 patients (13.09%) had an Spo2 levels between 90-93%. Of the 3562 symptomatic patients , majority of them ie 2405 patients (67.51 %) presented within 5 days of onset of symptoms whereas 1157 patients (32.48%) presented after 5 days of onset of symptoms. Almost all the asymptomatic patients were detected during routine/ voluntary testing or were the household contacts of known covid patients.

VACCINATION STATUS:
Of the 5543 patients admitted,3812 patients had taken atleast 1 dose of vaccine at the time of admission, whereas 604 patients had taken both the doses of vaccine.

HOSPITAL OUTCOME:
Of the 5543 patients who were admitted 264 patients succumbed to their illness .4579 patients were discharged, 401patients became negative and were shifted for treatment of primary illness or for treatment of post covid complications whereas 291 patients progressed to severe disease and were shifted to covid ICU centre. The status of 8 patients remained unknown.

HOSPITAL OUTCOME	NUMBER OF PATIENTS	PERCENTAGE
DISCHARGED/HOME ISOLATION	3474/1105	82.60
DEATH Covid	224	4.05
DEATH Non covid	40	0.70
SHIFTED FOR TREATMENT OF PRIMARY ILLNESS	401	7.23
SEVERE COVID	291	5.24
UNKNOWN	8	0.14

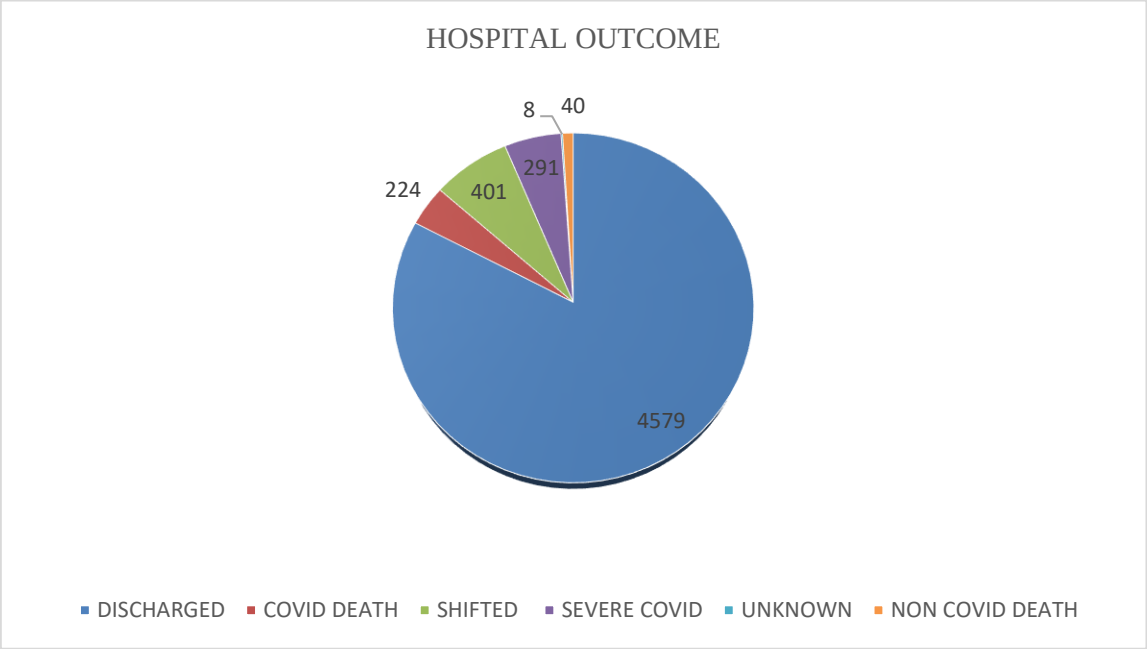

Fig : Hospital outcome of patients

RELATIONSHIP OF VACCINATION STATUS WITH DEATH:
Of the 264 patients who died, in 224 the cause was due to covid and in the rest 40 patients the cause was determined to be due to the associated comorbid illness. Of all the patients who died, only 9 patients had taken their 1st dose of covid vaccine and 1 of them had taken both the doses of vaccine. Of the 9 patients in 8 the death was attributed to covid whereas in the remaining 1 the death was due to other comorbid disease.

COMPARISON OF PARAMETERS BETWEEN THOSE WHO SURVIVED AND THOSE WHO DIED

PARAMETERS	RECOVERED (4980)	DIED (224)	P VALUE
AGE (years)	40.946±18.185	43.572±18.080	0.03
SEX	2670/2310	158/66	<0.0001
VACCINATION	3708	8	<0.0001

NO VACCINATION	1272	216	

DISCUSSION:

The mean age of our study population was 44.10 years with a standard deviation of 18.18 years. 2 studies conducted in northern India by Gupta et al[5] and Soni et al [6] showed a mean age of 40.3 years and median age of 33 years. Patients in our study were younger compared to those in China[7] and Italy[8] where the median age of the study population was 56 years and 63 years respectively. In the study done by Soni et al in northern India[6] , 57% of the study population were males the results of which are similar to our study where males constituted 55% of the study population. In studies conducted by Jamil et al [9] the percentage of patients with comorbidities were 46.67% cases, in which diabetes was the most common in 36.9% followed by hypertension in 34.5% . Study conducted by Soni et al [6],also revealed presence of co morbidities in 29.8% patients in which hypertension was present in 16.6%, diabetes in 14.9 %. 8.7% patients had more than 1 co morbid illness. In our study co-morbidities were present in 32.20% of the patients and hypertension was the most common co morbidity encountered in 17.71% cases followed by diabetes in 12.05%. 9.59% patients had more than 1 comorbid illness. 35.73% of our study patients were asymptomatic. 50.94% patients were classified to have mild disease whereas 13.31% were classified into the moderate disease category on admission as per the definition provided by ICMR. In the study conducted by jamil et al 56.6% patients were asymptomatic, 14.4% had mild disease, 10 % had moderate disease and 18.8% patients had severe disease[9]. In all the studies the disease severity increased with age and presence of co morbidities the results of which are consistent with our study as well. Fever and cough were the most common clinical features of mild and moderate covid in our study present in 44.9% and 30.4% cases respectively. Study done by Hua Zhang in China[10] also found fever and cough as the most common clinical presentation of covid . In a study done by Kayina et al [11] in New Delhi, India , fever (68.1%), cough (59.6%) and shortness of breath (71.9%) were the most common presenting symptoms. The case fatality rate in our study involving mild and moderate covid on presentation was 4.04%. Study done by Wang et al[12] in China in 2020 showed a case fatality rate of 4.3% . Another study done by Grassile et al [8] in Italy showed a case fatality rate of 26%. A systematic review and meta analysis study[13] of the case fatality rate of covid 19 showed an overall mortality rate of around 10% , with 1% mortality in the general population and 13% overall mortality in hospital settings. In ICU settings the case fatality rate was found as high as 37%. In the meta analysis , the case fatality rate was found to be higher in the elderly age group to the extent of 19% in patients above 50 years. In India , according to data until may 2021, case fatality rate in India was low 1.09% compared to 2.07% globally.[14] In our study the mortality rate was significantly higher in males compared to females and also mortality rates were significantly higher among unvaccinated population compared to those who had taken atleast one dose of covid vaccine., the results of which are similar to most of the studies done worldwide.

CONCLUSION:

The pandemic of covid 19 has resulted in a huge loss of lives and resources all throughout the world including India. However with effective vaccination, early detection of cases and appropriate management the disease severity can be reduced to a great extent and many lives can be saved, particularly in a country like India where health resources are limited and not accessible to most of the population.

ABBREVIATIONS:

ICMR- Indian Council of Medical Research
MoHFW- Ministry of Health and Family Welfare, Government of India

DATA AVAILABILITY: on request at tanushreemaitra@yahoo.com

CONFLICTS OF INTEREST: none

FUNDING: self

AUTHORS CONTRIBUTION:

TM- major contributor in writing the manuscript and also in the analysis and interpretation of the patient data
SM- major contributor in data collection and analysis.
All authors have read and approved the final manuscript

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