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TO EVALUATE THE RECOVERY PATTERNS IN COVID-19 POSITIVE PATIENTS WITH RESPECT TO SOCIO-DEMOGRAPHIC PROFILE AND CO-MORBIDITIES IN NORTHWEST ZONE OF RAJASTHAN

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ABSTRACT
The new coronavirus, COVID-19 was declared a pandemic by the World Health Organization on March 11, 2020. The resources of some of the largest economies are stressed out due to the large infectivity and transmissibility of this disease. Risk factors associated with this disease are age, sex, and the presence of co-morbidities, the most common being hypertension, diabetes, and heart disease. This study was undertaken to evaluate the recovery patterns in COVID-19 positive Patients with respect to Socio-demographic profile and co- morbidities. This is a cross-sectional study, done at the Department of medicine SP Medical College, Bikaner, Rajasthan. 220 COVID 19 positive patients were part of the study out of which 134 (61%) were male. The average age was only 34years. Out of them 45 patients had one or more co-morbidities, hypertension being the commonest. The mean duration of stay of recovered patients was 11.2 days, where as slight longer duration 12.7days of stay in patient with comorbidites. Longest duration of stay for patient with both Hypertension and type 2 Diabetes mellitus. The early diagnosis of COVID- 19 cases in patient with co-morbidities will help physician to treat them optimally.

INTRODUCTION
Since November 2019, the rapid outbreak of coronavirus disease 2019 (COVID-19), which arose from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, has become a public health emergency of international concern.[1] COVID-19 has contributed to an enormous adverse impact globally. Infection by COVID-19 can result in a range of clinical outcomes, from asymptomatic to severe life-threatening course or death.Several risk factors are associated with this disease. In a advanced age was found to be significantly correlated with overall COVID-19 prevalence, which is consistent with the higher incidence observed in older adults. The sex is another risk factor as a higher prevalence has been seen in men than women.[2] Other studies have shown that the presence of any comorbidity increases the chances of COVID-19 infection causing respiratory failure and death in patients.[3] Another study reports that patients admitted to the intensive care unit (ICU) had a higher number of comorbidities (72.2%) than those not admitted to the ICU (37.3%).[4] Hence, comorbidities are considered a risk factor for fatality, and data from other reports show up to a 90% prevalence of comorbidities in fatal cases with cardiovascular diseases, diabetes, hypertension, chronic obstructive pulmonary disease being the most prevalent known comorbidities in COVID-19 cases.[5] Based on current epidemiological investigation, the incubation period of COVDI-19 seems to be 1–14 days, mostly 3–7 days.

COVID-19 is contagious during its latency period.It is highly transmissible in humans, especially in the elderly and people with underlying diseases. As per literature median age of patients is 47–59 years with around 41.9–45.7% of patient population being of female gender.3 The clinical manifestations of COVID-19 are heterogeneous with fever, cough, sore throat, shortness of breath, headache, fatigue, abdominal discomfort being the predominant features. On admission, many patients have reported as having at least one co morbidity with

diabetes, hypertension, and cardiovascular and cerebrovascular diseases being most commonly reported conditions.[4]

Similar with influenza, Severe Acute Respiratory Syndrome coronavirus (SARS-CoV)6 and Middle East Respiratory Syndrome coronavirus (MERS-CoV),7 COVID-19 more readily predisposes to respiratory failure and death in susceptible patients . Recovery and mortality of patients from COVID-19 is influenced by their respiratory system involvement and other systemic manifestations. In the present study clinical data of 220 patients admitted to SPMC Medical College Hospital, Bikaner, Rajasthan with laboratory-confirmed COVID-19 test were analysed with the objective being to evaluate socio-demographic factors ,recovery rate and co morbidities its influence on the recovery.

AIM

1. To evaluate the recovery rate in COVID-19 positive patients.
2. To understand the various socio-demographic factors and their effect on the recovery.
3. To evaluate the various co-morbidities in COVID-19 positive patients and their influence on the recovery.

Study design

All consecutive patients with confirmed Covid-19 infection admitted to PBM Hospital, Bikaner stfrom 1 March upto submission of paper, were enrolled. Oral consent was obtained from patients. The clinical outcomes (i.e, discharges, mortality, and length of stay) were monitored upto submis- sion of paper.

Data collection

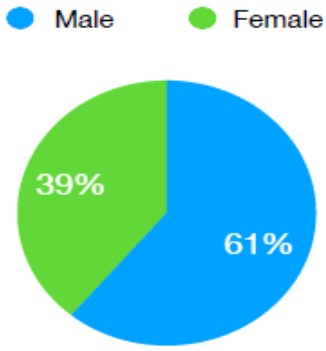
The medical records of patients were analyzed by the research team of the Department of Medicine, PBM Hospital, Bikaner. Epidemiological, clinical, laboratory, and radiological characteristics and treatment and outcomes data were obtained with data collection forms from electronic medical records and history given by patients. All data was reviewed by internal medicine specialists. In- formation recorded included demographic data, medical history, exposure history, underlying co-morbidities, symptoms, signs, laboratory findings; chest computed tomographic (CT) scans, and treatment measures (antiviral therapy, Anti-retroviral therapy, anti-malarial therapy, respiratory sup- port). Berlin definition was used to define ARDS.

Sample collection and analysis

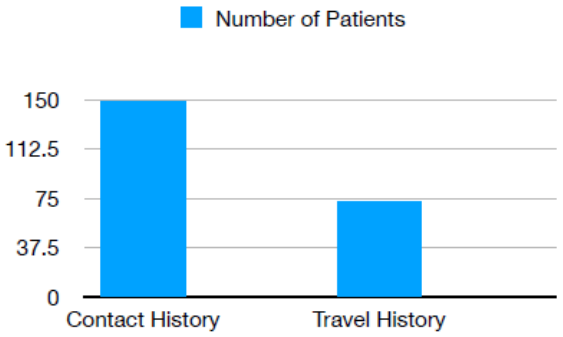
Throat swab samples were collected for extracting 2019-nCoV RNA from patients suspected of having 2019-nCoV infection and were placed into a collection tube containing virus transport medium (VTM) for extraction of total RNA. This process was tried to be completed in minimum possible time. Optimum amount of cell lysates were transferred into a collection tube and were later centrifugated. The suspension was used for RT-PCR assay of 2019-nCoVRNA. This diagnostic cri- terion was based on the recommendation by the National Institute of Virology (Pune).

RESULTS

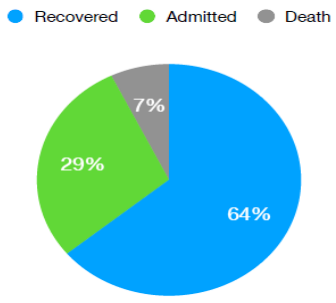
1. 220 consecutive lab confirmed COVID-19 positive patients were included in the study, out of which 134 (61%) were Male and 86 (39%) were Female. round 198 (90%) were adults and 22 (10%) were children. The median age was 34 yrs (3-85yrs) and was lmost similar for both male (34 yrs) and female (35 yrs).



2. 148 (67.2%) patients had history of contact with a known COVID-19 positive case while 72 (32.7%) patients had history of travel (interstate or outside India).

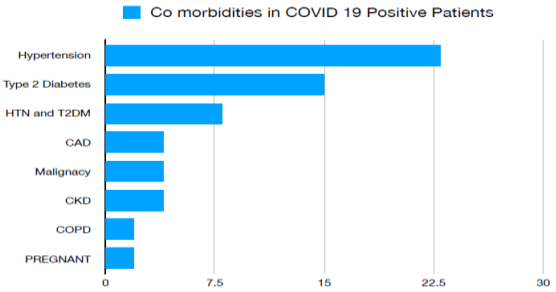


3. Out of 220 patients, 141 (64%) patients recovered completely and discharged while 16 (7.2%) succumbed to the disease.

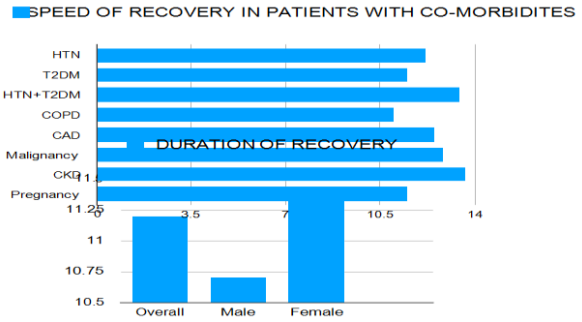


4. 45 (20.4%) patients had one or more co-morbid conditions. 23 (10.4%) patients had hypertension,15 (6.8%) patients had history of Type 2 Diabetes,

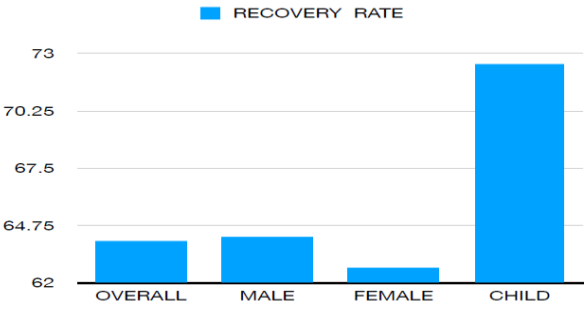
8(3.6%) patients had both hypertension and Type 2 Diabetes, 4 (1.8%) had history Coronary Artery Disease and CABG (Coronary Artery Bypass Graft), 4 (1.8%) patients had malignancy, 4 (1.8%) patients had Chronic Kidney Disease,2(0.8%) patients had COPD and 2(0.8%) patients were pregnant female.



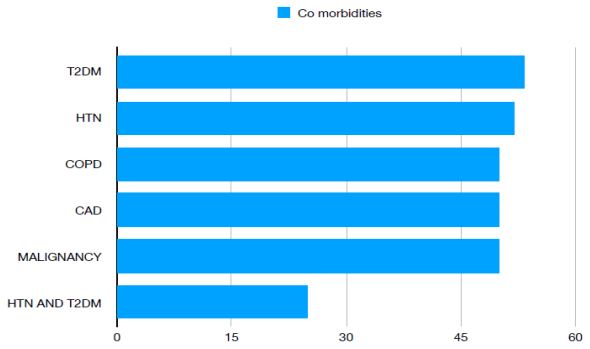
5. Mean duration of stay for recovered patients was 11.2 days, for male it was 10.7 days while for female it was slightly longer to 11.42 days. The average duration of stay for patients with co-morbidities was slightly longer 12.7 days. Among patients with co-morbidities the average duration of stay was 12.2 days for Hypertension, 11.5 days for Type 2 diabetes, 13.4 days for patients with both Type 2 Diabetes and Hypertension.



6. The overall recovery rate was 64%. The recovery rate was 64.17% for male, for female it was slightly lower to 62.7% and for child it was 72.5%, which was highest among all.



7. The highest recovery rate observed in different co-morbidities was 53.3% in Type 2 Diabetes followed by Hypertension (52%), COPD (50%), CAD (50%) and Malignancy (50%). The lowest recovery rate was observed in patients with Chronic Kidney Disease (25%) and patients with both type 2 diabetes and hypertension (25%).



DISCUSSION

The ongoing COVID19 pandemic has changed the face of the world in 2020. It has caused huge loss to life and livelihood, and has pushed the global health system in abyss. This study was undertaken to access the recovery rate, speed of recovery and recovery pattern of COVID19 positive patients, evaluate it's variations in various socio-demographic groups and its relationship with co-morbidities. 220 patients were part of the study out of which 61% were male, similar to study done by Bhandari et al.[12] The median age was 34 years, similar to Bhandari et al but significantly lower compared to study done by Wang et al where median age was 51 years.

Majority of patients (62.7%) had history of contact with a COVID-19 positive case compared to study by Bhandari et al, where majority of patients (71.42%) had history of travel to other country.[12] Co-morbidities were found in 20.4% patients which was higher compared to study done by Bhandari et al and lower compared to study done by Chen et al, Omar Ariel et al, Safiya Richardson et al and Aravind et al.[9-11] The most common co-morbidity encountered was Hypertension (51.1%) which was similar to other studies done by Bhandari et al (42.6%) and Richardson et al (35%). The other co-morbidites encountered in decreasing order were Type 2 Diabetes, Coronary Artery Disease, Chronic kidney Disease, Malignancy and COPD. The speed of recovery or average duration of stay was 11.2 days which was slightly higher than found in Bhandari et al 8.5 days and much lower than 25 days, found in Barman et al.[12] For male it was slightly lower than female but it was statistically insignificant. The average duration of stay for patients with co-morbidities was 12.7 days, highest for patients with Chronic kidney Disease (13.4 days). Patients with both Type 2 diabetes and Hypertension had longer duration (13.4 days), compared to patients with either Diabetes (11.5 days) and Hypertension (12.2 days) alone, indicating a slower recovery in patients with multiple co-morbidities. 141 (64%) patients recovered completely while 7.2% succumbed to the disease which was close to the national

recovery rate for COVID19 in India, and similar to recovery rate obtained by Bhandari et al.[12]

The recovery rate was highest in child (72.5%) and slightly better in male (64.17%) compared to female (62.7%). The recovery rate was lowest with chronic kidney disease and patient with both T2DM and Hypertension similar to recovery rate obtained by Bhandari et al.[12]

CONCLUSION

This study showed co morbidities associated with delay in recovery COVID-19 positive patient.Multiple co morbidities associated with poor outcome.Hypertension is being the most common co morbidity.

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