

Original Research Article

Management Of Covid 19 Patients At Referral Hospital, ITBP Force, Greater Noida (Uttar Pradesh), (Ministry Of Home Affairs, Govt. Of India)

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Abstract

Referral hospital is a Secondary care hospital established for Central Armed Police Force (CAPF) in 2015. It is a 200 bedded hospital located in Greater Noida, Uttar Pradesh. During Pandemic Corona it was converted to Dedicated Covid care hospital for CAPF personnel. Rapid spread of pandemic necessitated countrywide lockdown. CAPF was continuously involved in maintaining law & order during lockdown. COVID cases rose steeply among our personnel. Under guidance of DG ITBP Shri S.S. Deswal and leadership of Dr. D.C. Dimri (IG Medical) Referral hospital, we were ready to provide adequate medical services to our force personnel. We received first batch of patients on 02/05/2020. We were prepared with well-set protocols, different teams and fixed area of responsibility for everyone. Here we present data of all COVID positive treated patients between 02/05/2020 to 03/01/2021. We successfully treated all the patients and achieved almost 100% cure rate.

Keywords: Management, Covid 19

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Introduction

Corona virus is known to human kind since 1930. It was first discovered in domesticated chicken with symptoms of pulmonary infection[1]. Human corona virus was first discovered in 1960 and isolated from a boy suffering from common cold[2]. Human corona viruses were closely related to bat corona virus and shares genetic pool. Previous important outbreaks were SARV Cov 2003 in which more than 8000 people were infected with 10% mortality[3] and MERS Cov 2012 (Middle east respiratory syndrome) which emerged from bat through intermediate host Camel[1,4]. December 2019 a newer related strain of corona virus was identified and called SARS Cov2 causing pneumonia cases in Wuhan city of Hubei province in China. Initially thought to be epidemic but in short period of time it spread to other Countries throughout world. World health organization designated disease Covid 19 in February 2020 which stands for corona virus disease 2019 Pandemic[5] Transmission rate of Covid 19 is very high and main mode of transmission is human to human transmission. Droplets, Fomites and body fluids are contagious and spread the disease by coming in direct contact. There was no specific antiviral drugs available. Various drugs like hydroxychloroquine, steroids, anti viral like Remdesivir, favipiravir are tried and recommended in few conditions. It was seen later that majority of patients are asymptomatic and require minimal treatment. Complication includes Pneumonia, altered sensorium, cardiovascular events, CVA, dyselethrolytemia and renal failure. As on 22nd February 2021 we have total 111102016 confirmed cases of Covid 19 with 2462911 deaths reported to WHO[6]. Prevention is the best way to prevent the disease. It includes diligent hand washing particularly

after touching the surface in public, respiratory hygiene, avoiding touching face, cleaning and disinfecting objects and surfaces that are frequently touched, wearing mask in community. During this pandemic WHO and Government of India issued guidelines for management of patients and decrease rate of transmission. There is ray of hope regarding information of vaccination and decreasing trend in total number of active cases and daily deaths in India. Western world is still showing occasional surge in total number of cases with detection of new strains like British and South African strains. Multiple vaccines available at present with government planning out strategies for population most vulnerable. In India, we have completed vaccination of more than 10 million healthcare worker and frontline worker and stands third in world after United States and UK[5].

Methodology

Initially we received all positive cases of CAPF personnel and their family members later we extended our services to other central services like NSG, SPG, IB, CBI, NTRC and others. All suspected cases were initially screened and tested at their respective center and positive cases were transferred for further management. We divided our patients in different groups (Mild, Moderate and Severe) based on clinical and radiological findings.

Symptoms : Various symptoms observed at the time of enrollment in the study was viz. dry cough, fever, breathlessness, loss of taste or smell, altered sensorium and asymptomatic patients. Clinical condition at the time of admission includes normal, altered sensorium, raised temperature, increased pulse rate, increased respiratory rate, decreased spo2 and abnormal chest findings.

Comorbid conditions taken into consideration e.g. none, Type 2 DM, Coronary artery disease (CAD), Cerebrovascular accident (CVA), Malignancy, HIV, Hypertension, Pulmonary conditions like bronchial asthma, COPD, ILD etc. After admission basic blood investigations like Complete blood count, renal function test and liver function test were done. Chest X-ray was done only for symptomatic patients or the patients initially asymptomatic later

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developed symptoms. Chest X-ray findings were divided as Normal, Mild <25%, Moderate 25-50% and severe >50%. Complications documented during course in hospital as per following

1. None
2. Decreased oxygen saturation
3. Altered sensorium
4. Hyperglycemia
5. Oliguria/anuria
6. Dyselectrolytemia

Treatment and management protocol upgraded regularly as per ICMR and Government of India guidelines. Early diagnosis of pulmonary complication, stratification of complications and aggressive therapy was key to management.

Treatment options were

1. No treatment
2. Symptomatic supportive treatments like anti pyretic, antihistamines and others
3. Steroid
4. Antibiotics
5. Antivirals- oral Favipiravir, Injectable Remdisivir
6. BIPAP support
7. Hydroxychloroquine
8. Tocilizumab

Final outcome documented as (i) Cured and discharged (ii) Referred and (iii) Death.

Results

The present observational study was conducted in Referral hospital of a Secondary care hospital established for Central Armed Police Force (CAPF) in 2015. A total of 1938 COVID positive patients of different forces including their family members were treated between 02/05/2020 to 03/01/2021. A total of 1930 cured and discharged from the hospital, three patients referred to some other hospital after other illness complicated hospital stay like portal vein thrombosis, urethral tear etc or patients wished to get treatment from other hospitals and 5 patients expired during the study period of which 3 were more than 75 years of age.

In the present study, out of 1938 COVID 19 positive patients, 1655 (85.40%) patients were male and 283 (14.60%) were female. Mean age of the study population was 37.12±13.17 years with a range of 1 year to 92 years. A total of 128(6.60%) patients were <20 years age group, followed by 465(23.99%) patients within age range of 21-30 years, 698(36.01%) patients with age range of 31-40 years, 322(16.61%) patients with 41-50 years age, 51-60 years age group had 263(13.57%) patients and >60 years, we found only 62(3.19%) patients. Mean duration of hospital stay was 14.18±3.66 days with a range of 1 day to 31 days[3-5].

Table 1: Distribution of patients according to their presenting symptoms

Sr. No.	Symptoms	No. of patients	Percentage
1	Dry cough	411	21.20
2	Fever	16	0.82
3	Breathlessness	5	0.25
4	Loss of taste / smell	1	0.05
5	Altered sensorium	1	0.05
6	Asymptomatic	973	50.20
	Multiple Symptoms		
	Dry cough, Fever, breathlessness, loss of taste / smell, altered sensorium and asymptomatic	531	27.39

At the time of admission, all the patients were examined according to their presenting symptoms (Table 1). Most common symptoms was dry cough which occurred in 411(21.20%) patients. A total of 973(50.20%) patients were asymptomatic. A total of 531(27.39%) patients had multiple symptoms i.e. dry cough, fever,

breathlessness, loss of taste / smell and altered sensorium etc. A total of 531(27.39%) patients had more than one or two symptoms as shown in Table 1. Various routine investigations viz. Hb, TLC, platelet count, urea, serum creatinine, AST, ALT and total bilirubin was carried out, wherever applicable.

Table 2: General condition of patients

Sr. No.	Parameters	No. of patients	Percentage
1	Normal	1411	72.80
2	Altered sensorium	6	0.30
3	Raised temperature	104	5.36
4	Increased pulse rate	7	0.36
5	Increased respiratory rate	2	0.103
6	Decreased SpO2	0	-
7	Abnormal chest findings	3	0.15
	Multiple Problems		
a.	Altered sensorium, raised temperature, increased pulse rate, increased respiratory rate, decreased SpO2 and abnormal chest findings	405	20.89

Table 2 shows general condition of the patients during the study period. Maximum number of patients was found to be in normal condition i.e. 1411(72.80%). Only 104(5.36%) patients had raised temperature and 6(0.30%) patients had altered sensorium. A total of 405 (20.89%) patients had more than one or two problems as shown in Table 2.

Table 3: Comorbid illness of patients

Sr. No.	Parameters	No. of patients	Percentage
1	None	1548	79.87
2	Type 2 diabetes mellitus	82	4.23
3	Coronary artery disease	5	0.25

4	CVA	1	0.05
5	Malignancy	2	0.10
6	HIV	0	-
7	Hypertension	87	4.48
8	Pulmonary (BA, LLD, COPD etc.)	44	2.27
9	Others	51	2.63
	Multiple Illnesses		
a.	Type 2 diabetes mellitus, coronary artery disease, CVA, Malignancy, HIV, Hypertension, Pulmonary (BA, LLD, COPD etc.) and others	118	6.08

Table 3 shows various comorbid illness found in the patients. Majority of patients had no associated illness i.e. 1548(79.87%). A total of 87(4.48%) patients had hypertension, 82(4.23%) had type 2 diabetes mellitus, 5(0.25%) patient had coronary artery disease and 44(2.27%) patients had pulmonary problems. A total of 118(6.08%) patients as shown in table had more than one or two multiple illnesses.

Table 4: Chest x-ray findings during admission

Sr. No.	Parameters	No. of patients	Percentage
1	Normal	929	47.93
2	Mild (<25%)	362	18.67
3	Moderate (25-50%)	188	9.70
4	Severe (>50%)	50	2.57
5	Not done	409	21.10

Table 4 shows chest x-ray findings of the patients. In majority of patients i.e. 929(47.93%), chest x-ray findings were found to be normal, followed by 362(18.67%) patients had mild, 188(9.70%) had moderate and 50(2.57%) patients had severe findings. In 409(21.10%) patients, chest x-ray was not carried out.

Table 5: Complications occurred during admission

Sr. No.	Parameters	No. of patients	Percentage
1	None	1418	73.16
2	Decreased oxygen saturation	243	12.53
3	Altered sensorium	8	0.41
4	Hyperglycemia	8	0.41
5	Oliguria / Anuria	0	-
6	Dyselectrolytemia	29	1.49
7	Hypoglycemia	29	1.49
	Multiple Complications		
a.	Decreased oxygen saturation, altered sensorium, hyperglycemia, oliguria / anuria, dyselectrolytemia and hypoglycemia	203	10.47

In majority of patients, no complications were seen during the study period. In 1418(73.16) patients, no complications occurred. Only 243(12.53%) patients had decreased oxygen saturation and 8(0.41%) each had altered sensorium and hyperglycemia. In 29(1.49%) patients each had dyselectrolytemia and hypoglycemia. A total of 203(10.47%) patients as shown in table 5 had more than one or two multiple complications.

Table 6: Treatment / management of patients

Sr. No.	Parameters	No. of patients	Percentage
1	No treatment	508	26.21
2	Symptomatic supportive treatment (Antipyretic, Antihistaminic)	797	41.12
3	Steroids	0	-
4	Antibiotics	0	-
5	Antiviral	0	-
6	Bipap support	0	-
7	HCO	0	-
8.	Tocilizumab	0	-
	Multiple Treatments		
a.	Symptomatic supportive treatment (Antipyretic, Antihistaminic), Steroids, Antibiotics, antiviral, Bipap support, HCO and Tocilizumab	633	32.66

All the patients were treated by using various symptomatic supportive treatment such as antipyretic / antihistaminic drugs, steroids, antibiotics, antiviral treatment and other methods. In 508 (26.21%) no treatment were given. In 797(41.12%) patients, we used symptomatic supportive treatment in the form of antipyretic / antihistaminic. A total of 633(32.66%) patients as shown in table 6 had taken more than one or two multiple treatments. Finally, a total of 1930 cured and discharged from the hospital. Only three patients referred to some other hospital after COVID-19 negative report for other illness treatment. A total of 5 patients expired during the study period.

Discussion and recommendations

- Covid19 pandemic affected almost all countries of world. India is one of the worst hit Nation with infection reaching 11 million marks and mortality crossed 157K people. It caused huge economic burden to nation due lockdown / health care expenditure.
- Collective efforts by all the countries has got us vaccine, country is undergoing grand vaccination program in phase wise manner. With emergence of new resistant strain is posing great threat to our society and effectiveness of vaccine against new strain is a matter of study.

- Prevention of spread by Social distancing, face mask, regular hand sanitization and avoidance of public gathering is advised by health authority. Aggressive detection and Isolation played key role in fight against Covid19.
- In our center we received all positive patients from various organizations. We classified them on the basis of previous comorbidity, clinical presentation and Chest x-ray findings.
- Majority of patients were asymptomatic and did not required any treatment. Chest x-ray and routine blood investigations were sent for only symptomatic and patients with comorbid condition.
- Patients with symptoms or Chest x-ray abnormality was classified as mild/moderate/severe. Mild cases were treated with hydroxychloroquine, doxycycline / azithromycin with symptomatic supportive treatment.
- Once chest x-ray findings are significant we started on injectable antibiotics, steroids, Oxygen support (mask/nasal cannula/ Bipap).
- Dyspnea, fever and worsening of chest x-ray were important factors suggesting severe form of disease. We started early aggressive therapy with Bipap support, antiviral (Remdesivir/Favipiravir), steroids, antibiotics and supportive treatment. Patients who were showing persistent fever started on Tocilizumab and showed good response to therapy.
- It's a viral disease but in our center, we saw good response to antibiotics suggesting concomitant bacterial infection also.
- Chest x-ray had great role in early detection and follow up of patient.
- Vaccines available now for Covid 19 is ray of hope but its efficacy will be proven in coming days.

- Patients not responding after 5 days of Remdesivir should continue Remdesivir for ten days. In our hospital, we had ten such patients who responded after 10 days of Remdesivir therapy.
- Complicated patients should be started on prophylaxis heparin therapy early. We had minimal thrombotic episode in our hospital with use of LMWH. We started LMWH prophylactic dose in all symptomatic patients. It was increased to therapeutic dose once patient started on Remdesivir and Tocilizumab.
- Recognition of high-risk patients with comorbidity type 2 diabetes mellitus, hypertension, coronary artery disease, CVA, malignancy and aggressive therapy played vital role in decreasing mortality.
- Early initiation of Bipap support prevented invasive ventilation and adverse outcome[5,6].

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