

## Associated Comorbidities, Presenting Complaints, and Outcomes Of COVID-19 Patients Admitted in TRIHMS, Dedicated Covid Hospital, Chimpu, Itanagar, Arunachal Pradesh.

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### Abstract:

**Objective:** To describe the associated comorbidities, presenting complaints and outcomes of patients with COVID-19 admitted in TRIHMS, DCH, Chimpu, Itanagar, Arunachal Pradesh.

**Methods:** A Prospective study of patients with COVID-19 admitted in TRIHMS Dedicated Covid Hospital, Chimpu. The study included all sequentially admitted patients between 1<sup>st</sup> June 2020, and 30<sup>th</sup> November, 2020.

**Results:** A total of 462 patients were admitted. Male-266 Female-196. Male constitutes majority of the patients in this study which accounted for 57.5%. Age distribution of the patients were 0 to 20=37.21 to 40=163.41 to 60=218.61 to 80 =44. Most of the patients admitted in the DCH Chimpu were from Itanagar Capital Region (78.7%) followed by Papumpare (3.2%), West Kameng (2.5) and Upper Subansiri (2.3 %) The most common co morbidities in our observation is Diabetes Mellitus (18.8%) and Hypertension (18.6%) Oxygen saturation below (SPO2) 94% and respiratory rate more than 24 breath per minute was the most common findings during the admission.

The main common presenting symptoms were shortness of breath (73.59%) and dry irritating cough (62.33%). Out of total admitted patients, 154 need ICU care (33.33%). Seven patients (1.51%) was put on mechanical ventilator. Ten patients (2.16%) had received hemodialysis. Two patients was given Convalescent Plasma Therapy (CPT). The recovery rate was 91.99%. Overall mortality rate recorded was 5.62%. Chronic Kidney Disease was the most common comorbidities seen in the expired patients, followed by Cardiovascular Disease (5), Chronic Liver Diseases (3), Cancer (3) and Diabetes Mellitus (3).

**Conclusions:** This study provides characteristics and outcomes of admitted patients with confirmed COVID-19 in the Itanagar Capital Region (ICR) and adjoining districts of Arunachal Pradesh.

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### I. Introduction

The SARS-CoV-2 novel coronavirus was identified in Wuhan, Hubei province of China in December 2019 by the Chinese Center for Disease and Prevention from the throat swab of a patient and the virus is named severe acute respiratory distress COV-2 by WHO which causes Coronaviruses disease 2019 (COVID-19)<sup>1,2</sup>.

Severe acute respiratory syndrome (SARS-CoV-2) belongs to a group of viruses that cause Coronavirus disease 2019 (COVID-19) which affects the respiratory, gastrointestinal, liver and central nervous system of humans, livestock, Bats, mice and other wild animal<sup>1-4</sup>. The infection mainly affects the respiratory system and presented with fever, dry cough and difficulty of breathing and lately the patient may die due to pneumonia and acute respiratory distress syndrome<sup>5-12</sup>

The first confirmed case of coronavirus disease 2019 (COVID-19) in Arunachal Pradesh was reported from Tezu, Lohit District on 24<sup>th</sup> March 2020. Soon after, many districts has reported cases of Covid-19. The rate of infections in Itanagar Capital Region, with its high population density, has exceeded every other districts of Arunachal Pradesh. Limited information has been available to describe the presenting characteristics and outcomes of patients requiring hospitalization with this illness in the state of Arunachal Pradesh. This study describes the baseline comorbidities, presenting clinical signs and symptoms, and outcomes of the first sequentially hospitalized patients with COVID-19 in Itanagar Capital Region, Arunachal Pradesh.

## II. Aims And Objects

To describe the presenting complaints, associated comorbidities and outcomes of patients with COVID-19 admitted in TRIHMS, DCH, Chimpu, Itanagar, Arunachal Pradesh.

## III. Materials And Methods

The study was conducted at TRIHMS Dedicated Covid Hospital Chimpu, Itanagar. This is a prospective observational study of the admitted patients starting from 1<sup>st</sup> June 2020 to 30<sup>th</sup> November 2020. All consecutive patients having moderate to severe symptoms that require hospital admission with confirmed severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection by positive result on RT-PCR/RAT/Truenaat testing of a nasopharyngeal sample were included. Data collected included baseline comorbidities, presenting signs and symptoms, treatments (including invasive mechanical ventilation and Hemodialysis), and outcomes (discharge, readmission, and mortality). The patients admitted were subjected to thorough general physical and clinical examinations. Detailed histories regarding the nature of symptoms like breathlessness, fever, cough, sputum production, wheeze, chest tightness, bodyache etc. were obtained. History of allergy, history of smoking, history of alcoholism and history of illness like Hypertension, Diabetes Mellitus, Cancer, HIV status, Kidney ailments, autoimmune diseases were also noted. Height, weight and the vital signs including SPo2, blood pressure, pulse rate, respiratory rate and temperature were measured. Chest x-ray and ECG were taken. Routine blood tests were done.

## IV. Results

The results of this study are as follows:

**Table 1:** Age distribution of the admitted patients

Age in years	Number	Percentage
00-20	37	8.0
21-40	163	35.3
41-60	218	47.1
>60	44	9.5
<b>Total</b>	<b>462</b>	<b>100.0</b>
Mean $\pm$ SD	35 $\pm$ 1.24	

Majority of the patients aged 41 years to 60 years which accounted for 47.1%. Mean age was 35 years with a standard deviation of 1.24 years.

**Table 2:** Sex distribution of the admitted patients.

Sex	Number	Percentage
Male	266	57.5
Female	196	42.5
<b>Total</b>	<b>462</b>	<b>100.0</b>

Male constitutes majority of the patients in this study which accounted for 57.5% of the cases as shown in table 2.

**Table 3:** Distribution of the patients by address/districts.

Address	Number	Percentage
Itanagar Capital Region	364	78.7
Papumpare	15	3.2
West Kameng	12	2.5
Upper Subansiri	11	2.3
West Siang	10	2.1
East Kameng	8	1.7
Lower Subansiri	7	1.5
East Siang	6	1.2
Tawang	5	1.08
Upper Siang	5	1.08
Lower Siang	3	0.6
Kamle	3	0.6
Namsai	4	0.8
Shi Yomi	2	0.4
Changlang	2	0.4
Tirap	2	0.4
Lepa Rada	3	0.6
<b>Total</b>	<b>462</b>	<b>100.0</b>

Most of the patients admitted in the DCH Chimpu were from Itanagar Capital Region (78.7%) followed by Papumpare (3.2%), West Kameng (2.5) and Upper Subansiri (2.3 %) as shown in table 3.

**Table 4:** Associated comorbidities of the patients.

Comorbidities	Number	Percentage
Diabetes Mellitus	87	18.8
Hypertension	86	18.6
Pregnancy	35	7.5
Chronic Lung Diseases	16	3.4
Chronic Kidney Disease	12	2.5
Depression	12	2.5
Alcoholism	8	1.7
Carcinoma	10	2.16
Chronic Liver disease	9	1.9
Cardiovascular Disease	10	2.16
Tuberculosis	5	1.08
Anaemia	10	2.16
Post surgery Cases	5	1.08
Fractures	3	0.64
Renal Stone	3	0.64
GB Syndrome	1	0.21
No Co morbidities	150	32.46
<b>Total</b>	<b>462</b>	<b>100.0</b>

The most common co morbidities in our observation is Diabetes Mellitus (18.8%) and Hypertension (18.6%) followed by Pregnancy (7.5%), Chronic Lung Diseases (3.4%), Chronic Kidney Disease (2.5%), Depression (2.5%) and Cancer (2.16%). Out of 443 patients that were admitted in DCH, Chimpu, 150 patients had no any co morbidities (32.46%).

**Table 5.A:** Presentation-Vitals and Symptoms

Vitals	Number	Percentage
Temp >38 C	204	44.15
Oxygen Saturation < 90 %	114	24.67
Oxygen Saturation < 94	340	73.59
Respiratory Rate > 30/min	160	34.63
Respiratory Rate > 24/min	228	49.35
Heart Rate > 100/min	200	43.29
BP < 90/60 mmHg	102	22.07
Normal Vitals	154	33.33

Oxygen saturation below (SPO2) 94% and respiratory rate more than 24 breath per minute was the most common findings during the admission as shown in Table.5.A.

**Table 5.B:** Presentation-Vitals and Symptoms

Presenting symptoms	Number	Percentage
Cough	288	62.33
Fever	204	44.15
Shortness of breath	340	73.59
Myalgia	120	25.97
Anosmia	97	20.99
Diarrhoea	68	14.71
Sorethroat	76	16.45
Asymptomatic	112	24.24

The main common presenting symptoms were shortness of breath (73.59%) and dry irritating cough (62.33%). Anosmia was seen in 20.99% of admitted patients. 112 patients admitted in DCH Chimpu had no Covid symptoms but were admitted for some non-covid complaints (24.24%).

**Table 6.A:** Clinical Measures and Outcome of admitted patients

Clinical Measures	Number	Percentage
General Ward Care	253	54.76
ICU Care	154	33.33
HFNO	24	5.19
Non-Invasive Ventillation	12	2.59
Invasive Ventillation	7	1.51
Hemodialysis	10	2.16
Convalescent Plasma Therapy	2	0.43
<b>Total</b>	<b>462</b>	<b>100</b>

Out of total admitted patients, 154 need ICU care (33.33%). Twenty four patients (5.19%) received High Flow Nasal Oxygenation (HFNO). Seven patients (1.51%) was put on mechanical ventilator. Ten patients (2.16%) had received hemodialysis. Two patients was given Convalescent Plasma Therapy (CPT).

**Table 6.B:** Clinical Measures and Outcome of admitted patients

Outcome	Number	Percentage
Recovered and Discharged	425	91.99
Died	26	5.62
Referral to Higher Centre	5	1.08
Re-admission	6	1.29
<b>Total</b>	<b>462</b>	<b>100</b>

425 patients was treated and discharged from the hospital. The recovery rate was 91.99%. Overall mortality rate recorded was 5.62%. Six patients needed re-admission in the hospital. Five patients were referred outside the state for superspeciality care.

**Table 7.** Comorbidities of Expired Patients

Comorbidities	Number
Chronic Kidney Disease	5
Cardiovascular Disease	5
Chronic Liver Disease	3
Cancer	3
Diabetes Mellitus	3
Chronic Lung Disease	1
Post Surgery	2
Anaemia	1
No Comorbidities	3
<b>Total</b>	<b>26</b>

Chronic Kidney Disease was the most common comorbidities seen in the expired patients, followed by Cardiovascular Disease (5), Chronic Liver Diseases (3), Cancer (3) and Diabetes Mellitus (3).

## V. Discussion

To our knowledge, this study represents the first case series of sequentially hospitalized patients with confirmed COVID-19 in our state of Arunachal Pradesh. Male constitutes majority of the patients in this study which accounted for 57.5% of the cases as shown in table 2. Majority of the patients was in age group of 41 years to 60 years which accounted for 47.1%.

. Most of the patients admitted in the DCH Chimpu were from Itanagar Capital Region (78.7%) followed by Papumpare (3.2%), West Kameng (2.5) and Upper Subansiri (2.3 %) as shown in table 3. The most common co morbidities in our observation is Diabetes Mellitus (18.8%) and Hypertension (18.6%) followed by Pregnancy (7.5%), Chronic Lung Diseases (3.4%), Chronic Kidney Disease (2.5%), Depression (2.5%) and Cancer (2.16%). Older persons, men, and those with pre-existing hypertension and/or diabetes were highly prevalent in this case series and the pattern was similar to data reported from China.<sup>13</sup>

Oxygen saturation below (SPO<sub>2</sub>) 94% and respiratory rate more than 24 breath per minute was the most common findings during the admission. The main common presenting symptoms were shortness of breath (73.59%) and dry irritating cough (62.33%). Anosmia was seen in 20.99% of admitted patients. 112 patients admitted in DCH Chimpu had no Covid symptoms but were admitted for some non-covid complaints (24.24%).

Out of total admitted patients, 154 need ICU care (33.33%). Seven patients (1.51%) was put on mechanical ventilator. Ten patients (2.16%) had received hemodialysis. Two patients was given Convalescent Plasma Therapy (CPT). Out of seven patients that was put on mechanical ventilation, two patients was weaned off successfully and five patients expired (71.4%). In mechanically ventilated patients, mortality has ranged

from 50-97%. Cohorts in New York have shown a mortality rate in the mechanically ventilated population as high as 88.1%<sup>14</sup>. 425 patients was treated and discharged from the hospital. The recovery rate was 91.99%. Overall mortality rate recorded was 5.62%. Chronic Kidney Disease was the most common comorbidities seen in the expired patients, followed by Cardiovascular Disease (5), Chronic Liver Diseases (3), Cancer (3) and Diabetes Mellitus (3).

This was an observational study conducted at a single health care system in a confined geographic area thus limiting the generalizability of our results.

## VI. Conclusion

Our study is the first and the largest in our state Arunachal Pradesh. This study provides characteristics and outcomes of admitted patients with confirmed COVID-19 in the Itanagar Capital Region (ICR) and adjoining districts of Arunachal Pradesh.

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