Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

A CROSS-SECTIONAL STUDY OF POSTCOVID COMPLICATIONS IN A TERTIARY CARE HOSPITAL

Dr. R. Vikram Vardhan [1], Dr. P. Sathish Sreenivas [2], Dr. A. Suryakanth [3], Dr. P. Kusuma Latha [4] Dr. B.Navya [5]

[1]Associate Professor, Department of General Medicine, Andhra Medical College, Vishakapatnam, AP, India
[2]Associate Professor, Department of General Medicine, Rangaraya Medical College, Kakinada, AP, India
[3]Assistant Professor, Department of General Medicine, Rangaraya Medical College, Kakinada, AP, India
[4]Associate Professor, Department of Radiology, Rangaraya Medical College, Kakinada, AP, India.
[5]Postgradaute, Department of General Medicine, Rangaraya Medical College, Kakinada, AP, India

Corresponding author: Dr. P.Kusuma Latha

ABSTRACT

Aims &Objectives: To assess various complications noted in patients recovered from Covid.

- To evaluate response to the management.
- To note the morbidity and mortality of post-Covid complications.

Methodology: The study was conducted in Government General Hospital, Kakinada among the post covid patients who attended General Medicine OPD. A total of 100 patients were included in the study.

Results: In our present study, 28% of the study subjects belong to the 21-30 years age group followed by 25% in 41-50 years, 24% in 51-60 years, 18% in 31-40 years and 5% in > 61 years age group. The mean Age Is 46.25 Years with SD ± 14.8 Years. Youngest was 24 years old and the oldest was 73 years. 59% were males and 41% were females. Male to female ratio was 1.4:1. 85% had only one covid attack while 15% had more than one episode of nasopharyngeal confirmation of Covid. 37% were having mild symptoms, 41% had moderate symptoms, and 22% had severe covid symptoms. severe covid symptoms.39% had comorbidities and 61% were normal. Out of 39% cases, 28% of patients had a history of Diabetes, 23% had hypertension, 6% each had Hypothyroidism and COPD/Asthma, 2% each had Hyperthyroidism, coronary artery disease, chronic kidney disease and 1% each had Chronic liver disease, Pulmonary tuberculosis and HIV. 98% of patients got Doxycycline/Ivermectin as treatment, 60% of patients got steroids as a treatment, 33% of patients received remdesivir, 10% of patients received LMWH and 4% of patients got Steroid as pulse therapy. 53% of patients received supplementary oxygen therapy and 47% didn't receive it. Out of 53 patients who received oxygen therapy, 37.7% were received through a face mask, 28.3% through nasal cannula, 22.6% through HFNC/NIV and 6% through NRM (Non-rebreathing mask). 65% of patients were having post covid complications/symptoms even after 4 weeks of acute covid attack i.e., Ongoing Symptomatic Covid. This will last for 4 weeks to 12 weeks. In 35% these symptoms were persisted even after 12 weeks this was called Post covid syndrome. 55% of patients complained of fatigue which more than the usual occurrence, 20% complained of fatigue even to do their routine work and 25% were doesn't complained of any form of fatigability. Overall, 75% had any form of fatigability while 25% didn't. 35% complained of dyspnea, 18% were with cough, 5% were with shortness of breath, 4% developed oxygen dependency and 10% failed to do 6-minute walk test. Out of 100 patients, 57% presented to the hospital with Pulmonary symptoms. Cardiovascular symptoms were, 4% complained of chest pain, 5% were having orthopnoea/PND, 3% were having palpitations and 1 patient had lower limb swelling. Endocrine symptoms include, 2 cases were newly diagnosed with type 2 Diabetes, 3 patients had very less serum vitamin D, and 1 patient developed Diabetic keto acidosis due to uncontrolled blood glucose levels. Psychiatry problems include, 60% have complained of disturbed sleep, 6% were worries a lot and 6% have complained of headaches, 2% were with excess consumption of alcohol and 1 patient complaining of hearing abnormal voices. According to Post covid functional assessment scale, 44% had grade 2 symptoms, 26% had grade 1 symptoms, 19% had grade 3 symptoms, 9% had grade 0 symptoms and 2% have grade 4 symptoms.

Conclusion: There was no death recorded due to post covid complications in our study. Out of 100 post covid, complicated patients' treatment was given to patients symptomatically. 73% responded positively to treatment and improvement in symptoms and improved quality of life was observed. Whereas 27% not improved their symptoms. Fortunately, no death was observed in the cases.

Keywords: COVID-19, Post covid complications, Doxycyclin, Ivermectin

INTRODUCTION

The previous SARS-CoV and MERS-CoV epidemics left people who recovered from these viral illnesses with lingering symptoms of extreme fatigue, decreased quality of life (QOL), persistent shortness of breath, and behavioural health issues. As a result, the epidemics placed a significant burden on the local healthcare systems where they occurred. Similarly, despite biochemical evidence that the SARS-CoV 2 replication stops

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

four weeks after the initial infection, a constellation of different clinical symptoms known as post-acute COVID-19 syndrome has been described in a small percentage of patients who recovered from COVID-19 caused by SARS-CoV-2.

The syndrome known as post-acute COVID-19 is characterised by the continued presence of clinical symptoms more than four weeks after the onset of acute symptoms. "Post-Covid conditions" are a term coined by the Centers for Disease Control (CDC) to describe health problems that last longer than four weeks after contracting COVID-19. These consist of LongCovid(which consists of a wide range of symptoms that can last weeks to months)or persistent post-Covidsyndrome (PPCS).

After recovering from COVID-19, patients with persistent symptoms are becoming more and more understood to be a growing population in need of care. Numerous patients have been discovered to be dealing with both the immediate and long-term effects of the illness. Some patients continue to experience sequelae or symptoms that may or may not be caused by COVID-19. In the absence of a common definition, Post-COVID Syndrome is generally understood to be any set of signs and symptoms that appear during or following an infection that is consistent with COVID-19 and persist for more than 12 weeks without being adequately explained by another diagnosis. Furthermore, recent research distinguishes between chronic COVID, also known as Post-COVID syndrome, and subacute or ongoing symptomatic COVID (4–12 weeks after acute COVID–19) (symptoms persisting beyond 12 weeks of the onset of acute COVID-19). The purpose of this study is to identify different conditions that can cause morbidity and mortality in post-covid patients and to assess how well they respond to treatment.

AIMS & OBJECTIVES:

- To assess various complications noted in patients recovered from covid
- To evaluate response to the management.
- To note the morbidity and mortality of post-Covid complications.

METHODS & MATERIALS

This study was done in Government General Hospital, Kakinada among Post covid syndrome patients attending OPD for 12months i.e., June 2021 to May 2022.

Study design:

Hospital-based Cross-sectional Study

Study period:

The study period is 12 months i.e, from June 2021 to May 2022

Study frame:

All patients who were affected by Covid-19 previously and attending General Medicine OPD with complaints of post covid symptoms were included.

Study setting:

General Medicine OPD, Government General Hospital, Kakinada.

Ethical considerations:

- Prior approval from the Institutional Ethics Committee has been obtained.
- All the participants in this study are Voluntarily involved
- Informed consent was taken.
- Participant confidentiality will be maintained.
- Participants were not subjected to any potential harm.

Inclusion criteria:

- Patients recovered from Covid-19 were diagnosed by RTPCR and Rapid antigen test.
- Age above 18 years of both genders.

Exclusion criteria:

- Age less than 18 years

Sample size:

A total of 100 patients were included

Study tools:

- Post-COVID-19 Functional Status (PCFS) Scale

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

The relevant facets of daily life are the focus of the post-COVID-19 functional status (PCFS) scale. The scale is meant to aid users in becoming knowledgeable about current functional limitations, whether or not related to the specific infection, in COVID-19 patients, and to determine this level of disability objectively. In light of this, the scale is not intended to replace other important instruments for assessing life satisfaction, exhaustion, or dyspnea, but it was created to be used as an additional tool for assessing COVID-19's long-term effects on functional status. This will help identify COVID-19 therapies that are effective and ineffective for functional outcomes. Additionally, they open the way for value-based healthcare in an experimental setting.

Data Collection:

After we got ethical approval from the Institutional Ethics Committee of Rangaraya Medical College, Kakinada. We gave consent forms to patients and explained the study. All the relevant history was collected, a thorough clinical examination was done on patients and relevant lab investigations were performed. PCFS scale was performed over the patient.

RESULTS

The study was conducted in Government General Hospital, Kakinada among the post covid patients who attended General Medicine OPD. A total of 100 patients were included in the study.

Table No 1: Distribution of study subjects based on age categories (n=100)

Age Categories	Frequency	Per cent
21-30 Years	28	28
31-40 Years	18	18
41-50 Years	25	25
51-60 Years	24	24
>61 Years	5	5
Total	100	100.0

In our present study, 28% of the study subjects belong to the 21-30 years age group followed by 25% in 41-50 years, 24% in 51-60 years, 18% in 31-40 years and 5% in > 61 years age group. The mean Age Is 46.25 Years with SD ± 14.8 Years. Youngest was 24 years old and the oldest was.

Table 2. Gender distribution

Gender	Frequency	Per cent
Male	59	59
Female	41	41
Total	100	100.0

In our study, 59% were males and 41% were females. Male to female ratio was 1.4:1.

Table No 3: Distribution of study subjects on educational status (n=100)

Education	Frequency	Percent
Illiterate	15	15
Primary education	23	23
Secondary Education	36	36
Inter or above	26	26
Total	100	100

In our study, 36% were completed secondary school education, 26% were completed Inter or above education, 23% completed primary education and 15% were illiterates.

Table No 4: Distribution of study subjects on Body Mass Index (BMI) (n=100)

BMI	Frequency	Per cent
Underweight	2	2
Normal	34	34
Overweight	21	21
Pre-obese	31	31
Obese	12	12
Total	100	100

In our study, 34% of the study subjects were having normal range of body mass index while, 31% were in pre-obese condition, 21% were overweight, 12% were obese and 2% were underweight.

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

Table No 5: Distribution of study subjects on duration from last covid attack (n=100)

Duration From Last Covid Attack	Frequency	Per cent
Less Than 6 Months	64	64
More Than 6 Months	36	36
Total	100	100

In our study, 64% got their last covid attack within the last 6 months while 36% got their last covid attack more than 6 months ago.

Table No 7: Distribution of study subjects on No. Of Times Effected by Covid

No. Of Times Effected by Covid	Frequency	Per cent
Once	85	85
More Than once	15	15
Total	100	100

In our study, 85% had only one covid attack while 15% had more than one episode of nasopharyngeal confirmation of Covid.

Table No 8: Distribution of study subjects based on Covid Severity

Severity Of Covid	Frequency	Percent
Mild	37	37
Moderate	41	41
Severe	22	22
Total	100	100

In our study, 37% were having mild symptoms, 41% had moderate symptoms, and 22% had severe covid symptoms.

Table No9: Distribution of study subjects based on Covid Severity after discharge

Covid Category after discharge	Frequency	Percent
Mild	48	48
Moderate	43	43
Severe	9	9
Total	100	100

Table No10: Distribution of study subjects based on Co-morbidities

Co-morbidities	Frequency	Percent
No Comorbidities	61	61
Co-Morbidities	39	39
Total	100	100

In our study, 39% had comorbidities and 61% were normal.

Table No 11: Distribution of study subjects based on the type of Co-morbidities

Co-morbidities	Frequency	Percent
Diabetes	28	28
Hypertension	23	21
Hypothyroidism	6	6
Hyperthyroidism	2	2
COPD/ Asthma	6	6
Chronic Liver disease	1	1
Coronary artery disease	2	2
Chronic Kidney disease	2	2
Pulmonary tuberculosis	1	1
HIV	1	1

In our study, 28% of patients had a history of Diabetes, 23% had hypertension, 6% each had Hypothyroidism and COPD/Asthma, 2% each had Hyperthyroidism, coronary artery disease, chronic kidney disease and 1% each had Chronic liver disease, Pulmonary tuberculosis and HIV.

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

Table No 12: Distribution of study subjects based on treatment taken during the Covid attack

Treatment	Frequency	Percent
Remdesivir	33	33
Steroid	60	60
Doxy/Ivermectin	98	98
LMWH	10	10
Steroid Pulse	4	4

In our study, 98% of patients got Doxycycline/Ivermectin as treatment, 60% of patients got steroids as a treatment, 33% of patients received remdesivir, 10% of patients received LMWH and 4% of patients got Steroid as pulse therapy.

Table No 13: Distribution of study subjects based on oxygen supplement

Supplementary Oxygen therapy	Frequency	Percent
Given	53	33
Not given	47	67
Total	100	100

In our study, 53% of patients received supplementary oxygen therapy and 47% didn't receiveit.

Table No 14: Distribution of study subjects based on the mode of oxygen therapy

Modality	Frequency	Percent
Nasal Cannula	15	28.3
Face mask	20	37.7
HFNC/NIV	12	22.6
NRM	6	11.3
Total	53	100.0

In our study, out of 53 patients who received oxygen therapy, 37.7% were received through face mask, 28.3% through the nasal cannula, 22.6% through HFNC/NIV and 6% through NRM (Non-rebreathing mask)

Table No 15: Distribution of study subjects based on duration post covid complications

Diagnosis	Frequency	Percent
Ongoing Symptomatic Covid (4-12 weeks)	65	65
Post-Covid Syndrome (>12 weeks)	35	35
Total	100	100

In our study, 65% of patients were having post covid complications/symptoms even after 4 weeks of acute covid attack i.e., Ongoing Symptomatic Covid. This will lasts for 4 weeks to 12 weeks. In 35% these symptoms wee persisted even after 12 weeks this was called Post covidsyndrome.

Table No 16: Distribution of study subjects based on pulmonary symptoms

Pulmonary Symptoms	Frequency	Percent
Dyspnoea	35	12
Cough	18	18
SOB	5	5
Oxygen dependency	4	4
Lowered 6minutes walk test	10	10

In our study, 35% complained of dyspnoea, 18% were with cough, 5% were with shortness of breath, 4% developed oxygen dependency and 10% failed to do a 6-minute walk test. Out of 100 patients, 57% presented to the hospital with Pulmonary symptoms.

Table No17: Distribution of study subjects based on Cardiovascular symptoms

Cardiovascular Symptoms	Frequency	Percent
Chest pain	4	4
Palpitations	3	3
LL pain/swelling	1	1
Orthopnoea/ PND	5	5

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

In our study, 4% complained of chest pain, 5% were having orthopnoea/PND, 3% had palpitations and 1 patient had lower limb swelling.

Table No 18: Distribution of study subjects based on mood disturbances

Mood Disturbances	Frequency	Percent
Sad	16	16
Anxious	1	1
Weak/tired fatigue	75	75
Total	100	100.0

In our study, 75% complained of fatigability, 16% of sadness and 1 patient complained ofanxiety.

Table No 19: Distribution of study subjects based on neurological symptoms

Neurology Symptoms	Frequency	Percent
Headache	6	6
forgetfulness	6	6
Limb weakness	5	5
Concentration deficit	5	5
Anosmia	4	4
Ageusia	4	4
Paraesthesia	0	0

In our study, 6% of patients complained of severe headache, 6% of forgetfulness, 5% of lib weakness, 5% of concentration deficit, and 4% each with ageusia and anosmia.

Table No 20: Distribution of study subjects based on GIT/Nephrology symptoms

GIT/Nephrology	Frequency	Percent
Nausea/Vomiting	1	1
Loss of appetite	8	8
Decreased urine output	1	1

In our study, 8% complained of loss of appetite, 1 patient with nausea/vomiting, 1 with decreased urine output.

Table No 21: Distribution of study subjects based on Endocrine symptoms

Endocrine Symptoms	Frequency	Percent
Newly diagnosed Diabetes	2	2
Vitamin D deficiency	3	3
Diabetes Keto acidosis	1	1

In our study, 2 cases were newly diagnosed with type 2 Diabetes, 3patients had very less serum vitamin D, 1 patient developed Diabetic keto acidosis due to uncontrolled blood glucose levels.

Table No 22: Distribution of study subjects based on Psychiatry symptoms

Psychiatry Symptoms	Frequency	Percent
Disturbed sleep	60	60
Worry	6	6
Headache	6	6
Excess consumption of alcohol	2	2
Hearing abnormal voices	1	1

In our study, 60% complained of disturbed sleep, 6% were worried a lot and 6% complained of headache, 2% were with excess consumption of alcohol and 1 patient complained of hearing abnormal voices.

Table No 23: Distribution of study subjects based on Post covid functional assessment scale

PCFS Scale	Frequency	Percentage
Grade 0 (No functional limitations)	9	9
Grade 1 (Negligible functional limitations)	26	26
Grade 2 (Slight functional limitations)	44	44
Grade 3 (Moderate functional limitations)	19	19
Grade 4 (Severe functional limitations)	2	2
Grade D (Death)	0	0
Total	100	100

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

In our study, 44% had grade 2 symptoms, 26% had grade 1 symptoms, 19% had grade 3 symptoms, 9% had grade 0 symptoms and 2% have grade 4 symptoms. There was no death recorded due to post covid complications in our study.

Table No 24: Distribution of study subjects based on Post covid functional assessment scale

Treatment	Frequency	Percentage
Condition improved	73	73%
Not improved	27	27%
Death	0	0
Total	100	100%

In our study, out of 100 post covid complicated patients' treatment was given to patients symptomatically. 73% responded positively to treatment and improvement in symptoms and improved quality of life was observed. Whereas 27% not improved their symptoms.
Fortunately, no death was observed in the cases.

DISCUSSION

The study was conducted in Government General Hospital, Kakinada among the post covid patients who attended General Medicine OPD. A total of 100 patients were included in the study.

AGE:

In our present study, 28% of the study subjects belong to the 21-30 years age group followed by 25% in 41-50 years, 24% in 51-60 years, 18% in 31-40 years and 5% in > 61 years age group. The mean Age Is 46.25 Years with SD ± 14.8 Years. The youngest patientwas 24 years old, and the oldest patient was 73 years old.
Shivdas N et al.[17] conducted a prospective observational study among 1234 patients. They reported that 41.6 ± 14.2 years ranging from 18-97 years.

GENDER:

In our study, 59% were males and 41% were females. Male to female ratio was 1.4:1.
Shivdas N et al.[1] reported that 69.4% were males and 30.6% were females and male to female ratio was 2.2: 1.

BODY MASS INDEX:

In our study, 34% of the study subjects were having normal range of body mass index while, 31% were in pre-obese condition, 21% were overweight, 12% were obese and 2% were underweight.
Tolba et al.[2] reported that 26.5% were having normal BMI while 38% were overweight BMI and 35.5% were obese.

VACCINATION:

In our study, 39% of the patients had a minimum of one dose of Covid vaccination while 61% had no vaccination.
Benjamin et al.,[3] reported that more than half of the respondents 52·7% were not vaccinated against the novel coronavirus and one quarter 24·7% had received the seconddose of the vaccine.

SEVERITY OF COVID:

In our study, 37% were having mild symptoms, 41% had moderate symptoms, and 22% had severe covid symptoms.
Shivdas N et al.[1] reported that 85.8% had mild symptoms, 10.9% were moderate and 3.3% were severely affected, which is discordance with the current study where severe caseswere more.

HOSPITAL STAY:

In our study, the average hospital stays for the patients who were admitted for covid was 9.2 days ± 6.5 days, with a range of 2 to 27 days
Shivdas N et al.[1] reported that 56.6% of patients were hospitalized for COVID-19, for a mean duration of 11.4 ± 5.6 days, with a range of 1-36 days.
In our study, 39% had comorbidities and 61% were normal. Out of 39% of cases, 28% of patients had a history of Diabetes, 23% had hypertension, 6% each had Hypothyroidism and COPD/Asthma, 2% each had Hyperthyroidism, coronary artery disease, chronic kidney disease and 1% each had Chronic liver disease, Pulmonary tuberculosis and HIV.
Shivdas N et al.,[1] reported 28.5% had co-morbidities, of which the most common comorbidities were diabetes mellitus (13.4%), hypertension (8.1%) and hypothyroidism (5.8%).

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

TREATMENT:
In our study, 98% of patients got Doxycycline/Ivermectin as treatment, 60% of patients got steroids as a treatment, 33% of patients received remdesivir, 10% of patients received LMWH and 4% of patients got Steroid as pulse therapy. 53% of patients received supplementary oxygen therapy and 47% didn't receive it.

Out of 53% required oxygen therapy while 47% were not taken any modes of oxygen. Of the 53%, 15% got oxygen through a nasal cannula, 20% through a face mask, 12% on a mechanical ventilator and 6% on a non-rebreathing mask.
Shivdas N et al.,[1] reported that Oxygen support was required by 14.2% of whom 1.2% required ventilatory support.
Senjam et al.,[4] reported that 2·9% required oxygen supplementation during themanagement.

DIAGNOSIS:
In our study, 65% of patients were having post covid complications/symptoms even after 4 weeks of acute covid attack i.e., Ongoing Symptomatic Covid. This will last for 4 weeks to 12 weeks. In 35% these symptoms persisted even after 12 weeks this was called Post covid syndrome.

POSTCOVID SYNDROME:
The COVID-19 pandemic has affected hundreds of millions of people. Even after recovery, prolonged symptoms have been noted. These post-COVID-19 symptoms significantly affect the quality of life in patients. Long COVID, or post COVID-19 sequelae, is being seen in a growing number of patients reporting a constellation of symptoms, both pulmonary and extrapulmonary, with known or undeciphered mechanisms.

In our study, 100 patients with post covid syndrome were assessed for symptoms and treatment and outcome. Out of 100 patients, 65% were Ongoing Symptomatic Covid and 35%were Post Covid Syndrome.
In our study, 55% of patients complained of fatigue which more than the usual occurrence, 20% complained of fatigue even to do their routine work and 25% were doesn't complained of any form of fatigability. Overall 75% had any form of fatigability while 25% didn't.

As the availability of literature about post covid complications was less. Understanding of post-acute COVID-19 syndrome at this time is limited, and any organ system can be potentially affected. Hence, post-acute COVID-19 syndrome should be considered a diagnosis of exclusion.

Shivdas N et al.,[1] reported that the most common long COVID symptoms included myalgia (10.9%), fatigue (5.5%), shortness of breath (6.1%), dry cough (2.1%) and chest pain (1.2%). Other symptoms included insomnia (1.4%), mood disturbances (0.48%) and anxiety (0.6%).

PULMONARY SYMPTOMS:
In our study, 35% complained of dyspnoea, 18% were with cough, 5% were with shortness of breath, 4% developed oxygen dependency and 10% failed to do a 6-minute walk test. Out of 100 patients 57% presented to the hospital with Pulmonary symptoms.

143 COVID-19 survivors were followed up for an average of 2 months as part of an Italian study. Nearly 43% of these patients were found to have persistent dyspnea, the second most prevalent enduring symptom, behind fatigue (reported by 53% of these patients), was pain.

Similar findings were corroborated by numerous studies that followed survivors for 4 weeks to 3 months. These symptoms have persisted for a longer period than has been observed in patients who recover from community-acquired pneumonia.[5,6]

CARDIOVASCULAR SYMPTOMS:
In our study, 4% complained of chest pain, 5% were having orthopnoea/PND, 3% had palpitations and 1 patient had lower limb swelling.
When COVID-19 infection is active, myocardial injury occurs 14.4%- 19%.[7,8] Numerous mechanisms, including direct myocardial injury, downregulation of ACE2 receptors, severe inflammation, and hypoxic damage secondary to severe SARS-CoV-2 pneumonia, have been proposed. However, patients with severe infections do not seem to be the only ones who experience this post-COVID myocardial dysfunction. At the University Hospital Frankfurt in Germany, a group of 100 people who had recovered from COVID-19 were

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

monitored.[9]None of these patients had a history of previous cardiac illness, and the majority of them (67%) were presymptomatic and received home care.

NEUROLOGY/ NEUROPSYCHIATRY SYMPTOMS:
In Neuropsychiatric symptoms, 60% complained of disturbed sleep, 6% were worried a lot and 6% complained of headache, 2% were with excess consumption of alcohol and 1 patient complained of hearing abnormal voices.

More recently, 24 cases of Guillain-Barre syndrome and a few cases of Bell's palsy in COVID survivors have been reported by neurologists in the city of Mumbai. [10] It is still necessary to assess the temporal and causal relationships between this alarming observationand the ongoing COVID-19 infection.

The cerebrovascular accident-related COVID-19 presentation has been described fairly frequently, and the ensuing residual neuron deficiencies and psychological effects of such loss of function would also be part of the disease's sequelae that we are likely to encounterfrequently.[11]

GIT/NEPHROLOGY SYMPTOMS:
In our study, 8% complained of loss of appetite, 1 patient with nausea/ vomiting, 1 withdecreased urine output. Coronaviruses frequently affect the gastrointestinal (GI) tract. In studies examining the frequency of GI symptoms in MERS-CoV-infected patients, diarrhoea was reported by 12%– 23% of patients, vomiting by 21%–33% of patients, and abdominal pain by 27%–40% of patients.[12] The combined prevalence of GI symptoms in a recent meta-analysis of 4243 COVID patients from 60 studies was 17.6%.

TREATMENT:
According to Post covid functional assessment scale (PCFS), 44% had grade 2 symptoms, 26% had grade 1 symptoms, 19% had grade 3 symptoms, 9% had grade 0 symptoms and 2% have grade 4 symptoms. There was no death recorded due to post covid complications inour study.

In our study, out of 100 post covid, complicated patients' treatment was given to patients symptomatically. 73% responded positively to treatment and improvement in symptoms and improved quality of life were observed. Whereas 27% not improved their symptoms. Fortunately, no death was observed in the cases.

It would be unscientific to recommend a long-term COVID treatment without first understanding the disease's natural history; instead, patients should, whenever possible, be enrolled in clinical trials. For instance, researchers are looking into how antifibrotic drugs may affect post-COVID fibrosis. [13] Optimizing the recovery process would include testing for (and subsequently treating) underlying cardiac and lung disease, metabolic abnormalities, vitamin deficiencies, electrolyte imbalances, and hormonal dysregulation.[14]

It's important to pay attention to dietary changes, pulmonary rehabilitation when necessary, and physical therapy. It would be prudent to adhere to the recommendations for pulmonary rehabilitation in other lung diseases that manifest with fibrotic interstitial in the absence of any significant trials for post-COVID states. The fundamentals of rehabilitation would entail resistance and aerobic exercise training, energy-saving methods, dietary adjustments, and lifestyle changes with a structured approach to ensure adherence and incremental improvements. Rehabilitating people for long COVID would also include assisting them in quitting smoking, screening for obstructive sleep apnea, and treating it.

COCLUSION

Acknowledgement
The author is thankful to Department of Generel Medicine for providing all the facilities to carry out this work.

Conflict of Interest
None

Funding Support
Nil

REFERENCES

1. Naik S, Haldar SN, Soneja M, Mundadan NG, Garg P, Mittal A, et al. Post COVID-19 sequelae: A prospective observational study from Northern India. Drug DiscovTher [Internet]. 2021 Oct 31 [cited

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 08, 2023

2022 Dec 19];15(5):254–60. Available from: www.ddtjournal.com.
2. Muse AH, Tolba AH, Fayad E, Abu Ali OA, Nagy M, Yusuf M. Modelling the COVID-19 Mortality Rate with a New Versatile Modification of the Log-Logistic Distribution. ComputIntellNeurosci. 2021;2021.
3. Dersch R, Wehrum T, Fähndrich S, Engelhardt M, Rauer S, Berger B. COVID-19 pneumonia in a multiple sclerosis patient with severe lymphopenia due to recent cladribine treatment. Multiple Sclerosis Journal. 2020 Sep 1;26(10):1264–6.
4. Pal Y, Balhara S, Manna S, Madan K. Assessment of Post COVID-19 Health Problems and its Determinants in North India: A descriptive cross section study. Available from: https://doi.org/10.1101/2021.10.03.21264490.
5. Grasselli G, Zangrillo A, Zanella A, Antonelli M, Cabrini L, Castelli A, et al. Baseline characteristics and outcomes of 1591 patients infected with SARS-CoV-2 admitted to ICUs of the Lombardy region, Italy. JAMA. 2020;
6. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020;395:1054–62.
7. Rebeiz T, Lim-Hing K, Khazanehdari S, Rebeiz K. Behavioral Changes Without Respiratory Symptoms as a Presenting Sign of COVID-19 Encephalitis. Cureus. 2020 Sep 15;
8. Tan L, Wang Q, Zhang D, Ding J, Huang Q, Tang YQ, et al. Lymphopenia predicts disease severity of COVID-19: a descriptive and predictive study. Signal Transduct Target Ther. 2020 Dec 1;5(1).
9. Mahase E. Covid-19: what do we know about ‗long Covid'? BMJ. 2020;370:m2815.
10. Carvalho-Schneider C, Laurent E, Lemaignen A, Beaufils E, Bourbao-Tournois C, Laribi S, et al. Follow-up of adults with noncritical COVID-19 two months after symptom onset. Clinical Microbiology and Infection [Internet]. 2021 Feb 1 [cited 2022 Dec 19];27(2):258–63.
11. Ibrahim W. Neurological manifestations in coronavirus disease 2019 (COVID-19) patients: A systematic review of literature. CNS Spectr. 2022 Apr 21;27(2):145–56.
12. Alberti P, Beretta S, Piatti M, Karantzoulis A, Piatti ML, Santoro P, et al. Guillain-Barré syndrome related to COVID-19 infection. Neurol NeuroimmunolNeuroinflamm. 2020 Jul 1;7(4).
13. Xiao S, Luo D, Xiao Y. Survivors of COVID-19 are at high risk of posttraumatic stress disorder. Glob Health Res Policy. 2020;5:29.
14. Nadeem R, Aijazi I, Elhoufi A, Danthi C, Azaza N, Khan MK, et al. Clinical Profile of Mortality and Treatment Profile of Survival in Patients with COVID-19 Pneumonia Admitted to Dubai