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A Study of Acute Severe Post-COVID Sequela and Factors Associated with Poor Prognosis in a Tertiary Care Centre in Andhra Pradesh

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Abstract: ***COVID, which was declared a pandemic on March 11, 2020 has impacted everyone's health in one way or the other. Acute post COVID sequel is mostly underreported when compared to COVID disease due to its burden on society. This is a short study of severe post COVID sequel of 30 patients post COVID (recovered from COVID) who were admitted within 4 weeks after post COVID, presentations and factors associated with poor prognosis after the first wave of the pandemic in India.***

Keywords*:* COVID-19, post COVID syndrome, pandemic, COVID sequel

1. Introduction

As the number of active COVID-19 cases is continuing to show a declining trend since its peak, clinicians are faced with an increasing number of patients returning to the hospital after recovering from COVID-19. Evidence shows that a significant number of patients are experiencing short to long-term symptoms of the disease. Short-termpost acute COVID sequela is mostly underreported compared to COVID.

COVID-19 symptoms are said to be resolved in 11.5±5.7 days. However, a significant number of patients have been found to remain symptomatic post-discharge. The exact mechanism which causes this post COVID sequela remains unclear.

In this study, we aim to present a short study of severe post COVID sequel of 30 patients, who presented to the hospital within 4 weeks after recovering from COVID.

2. Aims & Objectives

To study the various presentations of post COVID acute sequelae after first wave of COVID pandemic in a tertiary care hospital in Andhra Pradesh, India.

Time of Study: July 2020 to dec 2020

Inclusion criteria:
In this study, patients presented within 4 – 6 weeks of recovery from COVID-19 with acute illness and negative RT-PCR report is included.

Exclusion Criteria:
Patients presented after 8 weeks of COVID-19 (COVID-19 Negative RT-PCR report) are excluded.

Drawbacks of Study:
In this study no randomization was done. Patients presented with acute illness in only one tertiary centre are included.

Patient Profile:
Patients across all age groups were included in the study, 50% of the patients presented are above 60 years of age. Of all the patients, 80% are male and 20% are female.

Age Group	N (%)
< 40	2 (10)
41-50	4 (20)
51-60	4 (20)
>60	10 (50)

Gender:

Gender	N (%)
Male	16 (80)
Female	4 (20)

Presenting Features:

Patients presenting features included in the study are mostly constitutional like weakness, nausea/ vomiting, anxiety, sleeplessness. Loss of appetite, drowsiness. 90% of the subjects presented with nausea/vomiting, anxiety sleeplessness, while only 14% of the subjects presented with loss of appetite.

Presenting Features	N (%)
Weakness	14 (70)
Nausea /Vomiting	18 (90)
Anxiety	18 (90)
Sleeplessness	18 (90)
Loss of appetite	4 (16)
Drowsiness	14 (70)

Clinical Morbidities on Presentation

Presenting clinical morbidities of the patient include respiratory distress, PTE, Myocarditis, Unstable angina, and Encephalopathy. Out of 20 patients, 16 patients presented with respiratory distress. About half of the patients presented with encephalopathy, while 10% of the patients presented with PTE.

Clinical Morbidities	N (%)
Respiratory Distress	16 (80)
PTE	2 (10)
Myocarditis	6 (30)
Unstable Angina	3 (15)
Encephalopathy	9 (45)

Co-morbidities:

Co-morbidities of the patients at the time of study are diabetes, hypertension, chronic kidney disease, CAD and obesity. The major share of the patients has diabetes (75%) and hypertension (65%)

Co-morbidities	N (%)
Diabetes	15 (75)
Hypertension	13 (65)
Chronic Kidney Disease	2 (10)
CAD	3 (15)
Obesity	2 (10)

Laboratory Parameters:

Lab Parameters	Mean ± SD
CRP	105.3 ± 68.6
LDH	647.3 ± 248
D-Dimer	1234.9 ± 1222.7
TLC	16476.6 ± 10098.2
Neutrophils	83.3 ± 9.2
Lymphocytes	17.2 ± 10.7
Eosinophils	3.9 ± 1.8
Platelet	214650 ± 89626
Urea	90.4 ± 103.1
Creatinine	2.7 ± 3.0
Bilirubin	1.4 ± 1.3
Direct Bilirubin	0.7 ± 0.9
Indirect Bilirubin	0.6 ± 0.4
SGOT	107.7 ± 223.2
SGPT	109.3 ± 234.7
ALP	157.9 ± 162.1

Outcome:

Outcome	N (%)
Alive	16 (80)
Dead	4 (20)

Association of Outcome with Age Group:

Age Group	Alive	Dead
< 40	2	0
41-50	3	1
51-60	3	1
>60	8	2
P – 0.89		

Association of Outcome with Gender:
Though not statistically correlated females have high mortality though COVID burden is high in males

Gender	Alive N (%)	Dead N (%)
Male	13	3
Female	3	1
p – 0.78		

Association of Outcome with Co-morbidities:
Compared to the other comorbidities, highest risk posed with diabetes.

Co-morbidities	Alive N (%)	Dead N (%)	P-value
Diabetes	11	4	0.19
Hypertension	11	2	0.48
Chronic Kidney Disease	1	1	0.2
Ventricular Dysfunction	3	0	0.34
Obesity	2	0	0.45

Association of Lab Parameters with Outcome:
All the acute inflammatory markers showed significant elevation corresponding with severity of condition.

Lab Parameters	Alive (Mean ± SD)	Dead (Mean ± SD)	P-value
CRP	102.8 ± 75.7	115.5 ± 75.7	0.056
LDH	640.06 ± 230.6	656.5 ± 351.6	0.215
D-Dimer	981.25 ± 540.5	2249.5 ± 2508.4	<0.001
TLC	17043.9 ± 10242.2	14207.5 ± 10618.04	0.672
Neutrophils	82.63 ± 10.2	86 ± 2.7	0.22
Lymphocytes	18.6 ± 11.5	11.5 ± 3.1	0.067
Eosinophils	4.06 ± 1.9	3.2 ± 1.2	0.121
Platelet	227937 ± 86510	161500 ± 93525	0.99
Urea	73.6 ± 83.6	157.5 ± 158	0.143
Creatinine	2.1 ± 3.1	2.7 ± 2.8	0.92
Bilirubin	1.2 ± 0.9	2.1 ± 2.4	0.02
Direct	0.6 ± 0.7	0.9 ± 0.7	0.027
Indirect	0.6 ± 0.3	1.1 ± 1.7	0.06
SGOT	126.6 ± 247.2	32 ± 19.3	0.275
SGPT	125.9 ± 261.2	42.7 ± 22.3	0.26
ALP	153.06 ± 174.86	177.5 ± 114.1	0.98

Association of Outcomes with other
Highest mortality rate is with the patients presented with PTE (100% mortality rate) only 50% of the patients

presented with Encephalopathy survived. While 100% of the unstable angina patients survived with timely intervention.

Clinical Morbidities	Alive N (%)	Dead N (%)	P-value
Respiratory Distress	13	3	0.78
PTE	0	2	0.003
Myocarditis	4	2	0.32
Unstable Angina	3	0	0.34
Encephalopathy	6	3	0.17

3. Conclusion

In conclusion, if not timely intervened, evaluated and adequately treated, it can result in high mortality rate. Hence, long term follow up post-COVID regarding cardiac complications, sepsis and other complications should be done on timely basis. Long term anti coagulation > 6 weeks helps in decreasing the mortality rate. As most of the features of the post COVID acute sequalae corresponded with features of catastrophic anti phospholipid syndrome or sometimes macrophagic activation syndrome (MAS), further need for research into this area may help in coming days as the fear of COVID becoming endemic is high.