International Journal of Community Medicine and Public Health
Penmetsa CS et al. Int J Community Med Public Health. 2023 Feb;10(2):639-643
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20230213

Original Research Article

Clinical and radiological follow up of post-COVID patients in tertiary care centre

Chinmai Sowmya Penmetsa[1], Vijay Krishna Yalamanchili[2]*, Raja Sekhar Yendapu[2], Pratti Venkata Sai Susmitha Pratti[1]

[1]Department of Respiratory Medicine, [2]Department of Community Medicine**,** Alluri Sitarama Raju Academy of Medical Sciences, Eluru, Andhra Pradesh, India

Received: 16 December 2022
Revised: 13 January 2023
Accepted: 18 January 2023

***Correspondence:**
Dr. Vijay Krishna Yalamanchili,
E-mail: vkrish5900@gmail.com

ABSTRACT

Background: COVID-19 is potentially fatal infection caused by novel corona virus SARS COV2.SARS patients may present with a spectrum of symptoms and signs ranging from relatively asymptomatic to fulminant pneumonitis and death. Out of which, most frequent symptoms are cough, fever, myalgia, dyspnoea and altered smell/taste. The primary objective of the study is to describe the clinical evolution and symptoms persistence [at day 30 and day 60] during 2 months follow up in adults with COVID-19 and to follow up the changes in lung radiographic pictures within 2 months after discharge.
Methods: This is an institutional based, prospective clinical observational study conducted in Asram medical college, Eluru from September 2021 to November 2021 on 25 COVID-19 Patients.
Results: In our study two thirds of patients still reported symptoms at day 30 and half of the patients reported symptoms at day 60. Out of 50 patients, 38 (76%) patients had at least one symptom at day 30 and 25 (50%) patients had symptoms at day 60 and 9 (18%) patients had chest X-ray abnormalities during follow-up after 2 months.
Conclusions: Follow up studies of COVID-19 will improve our understanding of natural history of COVID-19 sequelae and enable us to assess the efficacy of therapeutic interventions to mitigate the long-term consequences of COVID-19 It is necessary to follow up these recovered patients for detection and appropriate management towards their psychological, physical and social realm. It is highly important to provide counselling, moral support to restore to normalcy.

Keywords: Clinical symptoms, Follow up, Post-COVID, Radiological findings

INTRODUCTION

The COVID-19 which had its origins in Wuhan, China in December 2019, has now spread to all continents and has been declared as a global pandemic on March 11 by the world health organisation (WHO).[1] As of March 2021, India had over 11 million cases and over 1.6 lac deaths due to COVID-19.[2] Since its inception COVID-19 has posed an unprecedented challenge to human health and economy especially to countries like India.[3] The first COVID-19 case in India was reported in Kerala in January 2020.[4] Even though the numbers of cases were very less in Kerala in the initial phase, it surged since July 2020 and have now reached a cumulative number of more than 1.1 million cases with over 4000 deaths.[5]

An increased risk of severe COVID-19 has been reported in patients with medical comorbidities, such as diabetes

mellitus, hypertension, and cardiovascular disease. The predominant CT findings of COVID-19 infection are bilateral, peripheral, and basal predominant ground glass opacity, consolidation, or both. The most common chest X-ray findings that are seen are airspace opacities, which may be consolidations or, less frequently, ground-glass opacities.[6]

The post-COVID symptoms can include weakness, myalgia, dyspnea, dry cough, and loss of smell and taste. It is important to investigate how frequently these issues occur as well as the risk variables that may indicate whether or not post-COVID symptoms will last. Finding the risk factors can serve as one of the potential interventional elements that might lower the mortality and morbidity related to the post-COVID sequelae.[7]

Aim and objectives

Aim and objectives were to describe the clinical evolution and symptoms persistence [at day 30, day 60] during 2 months follow up in adults with COVID-19 and to follow up the changes in lung radiographic pictures within 2 months after discharge.

METHODS

Study design

Prospective clinical observational study design used.

Study area

Study was conducted at Alluri Sitarama Raju academy of medical sciences (ASRAM) of West Godavari district, Andhra Pradesh.

Study period

Study conducted for 2 months (September 2021 to November 2021).

Sample size

Total 50 patients were included in the study.

Study subjects

Inclusion criteria

Patients >18 years old, confirmed diagnosis of COVID-19 RT-PCR for SARS-CoV2 at the time of admission.

Exclusion criteria

Patients deceased and lost to follow up patients were excluded from the study.

Methodology and data collection

Demographic details, initial clinical and laboratory data were collected from all the patients enrolled in the study at symptom onset. Screening of persisting symptoms and chest X-ray was performed at day 30 and day 60.

HRCT was planned if any abnormality was found in chest X-ray.

Data analysis

The collected data was entered and analyzed in Microsoft excel 2007. Data was described in terms frequencies as appropriate. The results were presented in the form of charts, graphs, etc.

Ethical issues

Clearance from the institutional ethical committee was obtained prior to the start of the study. Consent was taken beforehand for their participation.

RESULTS

A total of 50 patients were taken in which 14 of them belong to less than 30 years of age, 10 belong to 30-39 years age group, 18 belong to 40-49 years age group and 8 belong to more than 50 years represented in Figure 1. And mean age was found to be 45 years.

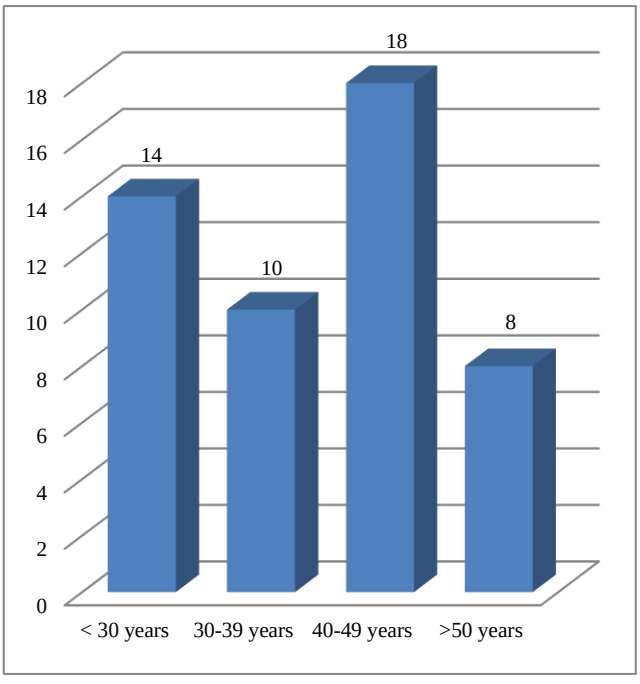

Figure 1: Distribution of study subjects according to age.

This study included 14 (28%) males and 36 (72%) females patients represented in Figure 2.

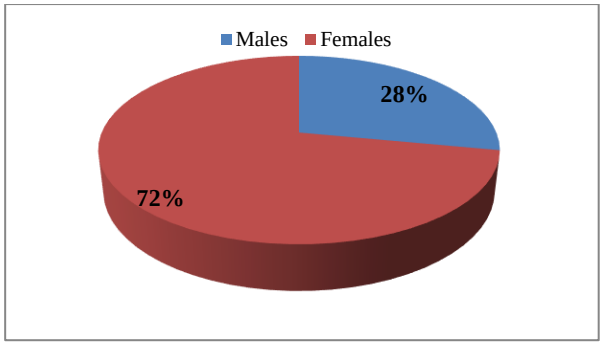

Figure 2: Distribution of study subjects according to gender.

Co morbidities

Among the study subjects, 14 (28%) had history of diabetes mellitus, 8 (16%) were hypertensive, 4 (8%) had Pulmonary tuberculosis, 3 (6%) had COPD and none of them had bronchial asthma, hypothyroidism, coronary artery disease, cerebrovascular accident and 21 (42%) didn't have any co morbidities.

Clinical symptoms

It was found that the symptoms had decreased from day 1 to day 60, and on day 60, it was observed that 12 (24%) patients had shortness of breath, 5 (10%) had fever, 8 (16%) had generalised weakness, 6 (12%) had weight loss and none had anosmia.

Table 1: The prognosis of clinical symptoms during the follow up.

Symptoms	Onset, n (%)	Day 30, n (%)	Day 60, n (%)
Shortness of breath	28 (56)	18 (36)	12 (24)
Fever	43 (86)	8 (16)	5 (10)
Anosmia	12 (24)	2 (4)	0 (0)
Generalised weakness	46 (92)	16 (32)	8 (16)
Weight loss	0 (0)	6 (12)	6 (12)

Table 2: The radiological findings during the follow up.

Radiological findings	Onset, n (%)	Day 30, n (%)	Day 60, n (%)
Normal chest X-ray	24 (48)	33 (66)	41 (82)
Consolidation opacities	11 (22)	8 (16)	4 (8)
Ground glass opacities	8 (16)	5 (10)	2 (4)
Interstitial thickening	7 (14)	4 (8)	2 (4)
Pleural effusion	0 (0)	0 (0)	1 (2)

Radiological findings

At day 60, during follow up chest x ray studies 9 (18%) patients showed chest x ray abnormalities. In abnormal radiological findings, consolidation opacities was the most common finding seen in 4 (8%) patients, followed by reticular interstitial thickening seen in 2 (4%) patients, GGO seen in 2 (4%) patients and pleural effusion seen in 1 (2%) patient.

DISCUSSION

In the present study, majority of the patients i.e., 36% belong to 40-49 years age group and mean age was found to be 45 years, similar age group was considered in many studies.[8-13]

In the present study, 72% of the patients were male and 28% were females. Male predominance was seen in different studies.[14-17]

In the present study, 58% of patients have co-morbidities, 42% didn't have any co morbidities. Among the patients with co-morbidities, 28% had history of diabetes mellitus, 16% were hypertensive, 6% had COPD. Majority of the co-morbid patients have diabetes or hypertension.[18-21]

In the present study, generalized weakness was found to be seen in 92% patients followed by fever in 86% and dyspnea in 56% and anosmia in 24% patients at the time of presentation. During follow-up at day 30 and day 60 these symptoms were gradually decreased which was similar studies.[22-25]

In the present study, generalized weakness was seen in 32% of patients on day 30 which was similar to the study done by Sinha et al which was 38%.[26] Dyspnea was found to be decreased from 36% on day 30 to 24% on day 60 which was similar to study done by Spinicci et al.[24] Fever was found to be seen in 85% patients in the present study which was similar to study done by Mehdi et al.[6]

In the present study, chest x-ray was found to be normal in 66% of patients on day 30 which was similar to study done by Goel et al and Consolidation was found to seen in 16% on day 30 which was similar to study done by Rahar et al and ground glass opacities was seen in 10% which was similar to study done by Goel et al.[8,9] Interstitial thickening is seen in 4% on Day 60 which was similar to study done by Guler et al.[27]

Chest radiographs are usually of limited value in the diagnosis of early stages especially in mild disease course; however, the CT findings may be present early even before the onset of the symptoms. Chest radiographs is very helpful during follow up as well as in the intermediate to advanced stages of COVID-19 with features of acute respiratory distress syndrome (ARDS).

A prolonged follow up is essential to alert risk of longer symptom duration.

The limitations of our study were less sample size and confined to single institute.

CONCLUSION

Follow up studies of COVID-19 will improve our understanding of natural history of COVID-19 sequelae and enable us to assess the efficacy of therapeutic interventions to mitigate the long-term consequences of COVID-19. It is necessary to follow up these recovered patients for detection and appropriate management towards their psychological, physical and social realm. It is highly important to provide counseling, moral support to restore to normalcy

ACKNOWLEDGEMENTS

Author would like to thanks to all the patients for their participation and support.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. WHO Director-General's opening remarks at the media briefing on COVID-19 -11 March 2020. Available at: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarksat-the-media-briefing-on-covid-19---11-march-2020. Accessed on 24 December 2022.
2. India: WHO Coronavirus Disease (COVID-19) Dashboard. Available at: https://covid19.who.int. Accessed on 24 December 2022.
3. Goel I, Sharma S, Kashiramka S. Effects of the COVID-19 pandemic in India: an analysis of policy and technological interventions. Heal Policy Technol. 2021;10(1):151-64.
4. Andrews MA, Areekal B, Rajesh KR, Krishnan J, Suryakala R, Krishnan B et al. First confirmed case of COVID-19 infection in India: A case report. Ind J Med Res. 2020;151(5):490.
5. GoK Dashboard, Official Kerala COVID-19 Statistics. Available at: https://dashboard.kerala.gov.in/dailyreporting-view-publicdistrictwise.php. Accessed on 26 November 2022.
6. Mehdi R, Khan A, Gupta P, Siddiqui A, Ahsan A. Role of Clinical, Laboratory, and Radiological Manifestations in Prognostication of COVID-19 in 804 Patients Admitted to Three Tertiary Care Centers in Dubai, United Arab Emirates. J Infect Dis Epidemiol. 2022;8:257.
7. Nair CV, Moni M, Edathadathil F, Appukuttan A, Prasanna P, Roshni PR, et al. Assessment of Post-COVID Symptoms in COVID-19 Recovered Patients: A Prospective Cohort Study in a Tertiary Care Centre of South India. Researchsquare. 2021.
8. Goel N, Goyal N, Kumar R. Clinico-radiological evaluation of post COVID-19 at a tertiary pulmonary care centre in Delhi, India. Monaldi Arch Chest Dis. 2021;91(3).
9. Rahar S, Misra S, Kannappan A, Kumar V, Deepak D, Panesar S. Study of clinical profile, laboratory parameters and outcomes of COVID-19 Patients in a Tertiary Care Centre in North India. J Dr. NTR University Heal Sci. 2022;11(1):29.
10. Dholakia AG, Patel MN, Dave RB, Shah DS, Poddar SO, Trada PK. Clinico-radiological progression in COVID-19 patients: Study in a tertiary care hospital. Indian J Med Specialities. 2021;12(3):147.
11. Thyagaraj V, Rao A, Kulkarni A, Shankar T, Nithin R, Unnikrishnan H, et al. Clinical and Laboratory Profile of Patients Visiting the Post-COVID-19 Clinic at a Tertiary Care Hospital: A Cross-Sectional Study. Cureus. 2022;14(3).
12. Zhao W, Zhong Z, Xie X, Yu Q, Liu J. Relation between chest CT findings and clinical conditions of coronavirus disease (COVID-19) pneumonia: a multicenter study. AJR Am J Roentgenol. 2020;214(5):1072-7.
13. AreekAl B, SukumArAn ST, Andrews AM, Nanu SP, Madhavan I, Veepanattu P, et al. Persistence of Symptoms after Acute COVID-19 Infection-An Experience from a Tertiary Care Centre in South India. J Clin Diagnostic Res. 2021;15(6).
14. Liu J, Chen T, Yang H, Cai Y, Yu Q, Chen J, et al. Clinical and radiological changes of hospitalised patients with COVID-19 pneumonia from disease onset to acute exacerbation: a multicentre paired cohort study. European radiology. 2020;30(10):5702-8.
15. Kumar SA, Shyam K, Kulkarni S. Correlation of biomarkers and radiological findings among COVID-19 patients: a retrospective study. MGM J Med Sci. 2022;9(2):168.
16. Alarcón-Rodríguez J, Fernández-Velilla M, Ureña-Vacas A, Martín-Pinacho JJ, Rigual-Bobillo JA, Jaureguízar-Oriol A, et al. Radiological management and follow-up of post-COVID-19 patients. Radiología (english edition). 2021;63(3):258-69.
17. Nehara HR, Agrawal S, Chhimpa AR, Sunil IH, Arakeri A, Sirohi P. Clinical, laboratory and radiological features and outcomes of moderate to severe COVID-19 patients: A descriptive retrospective study. J Acute Dis. 2021;10(2):62.
18. Rao CM, Singh N, Sarbhai K, Pati SS, Das S. Clinical, Radiological and Laboratory Profile of COVID-19 Patients Admitted to a Dedicated COVID-19 Hospital in Odisha. J Evidence Based Med Healthcare. 2021;8(15):989-3.
19. Guzel E, Toprak OB, Mete B, Saygideger Y, Curuk B, Kuleci S. A cross–sectional study of post–COVID syndrome at a tertiary care center in Turkey. Asian Pacific J Trop Med. 2022;15(9):410.

20. Reddy S, Kamath V, Teli JG, Olakkengil ND, Radhakrishnan B, Markanday K. Study of post COVID-19 sequelae at a tertiary rural health care center. APIK J Int Med. 2023;11(1):45.
21. Patel M, Khanpara H, Prajapati A, Thakar P. A follow up study of discharged COVID-19 patients admitted at tertiary care hospital of Ahmedabad city. Indian J Comm Heal. 2022;34(1).
22. Gao Y, Liang WQ, Li YR, He JX, Guan WJ. The short-and long-term clinical, radiological and functional consequences of COVID-19. Archivos de Bronconeumología. 2022;13.
23. Wahlgren C, Divanoglou A, Larsson M, Nilsson E, Balkhed ÅÖ, Niward K, et al. Rehabilitation needs following COVID-19: Five-month post-discharge clinical follow-up of individuals with concerning self-reported symptoms. E-Clin Med. 2022;43:101219.
24. Spinicci M, Vellere I, Graziani L, Tilli M, Borchi B, Mencarini J, et al. Clinical and laboratory follow-up after hospitalization for COVID-19 at an Italian tertiary care center. InOpen forum infectious diseases. 2021;8(3):ofab049.
25. Firdose SR, Mattoo P, Malik AH, Viqar A. HRCT Chest in Patients Suffering from COVID-19: Experience from a Tertiary Care Centre in India During Second Wave of the Pandemic. Imaging. 2022.
26. Sinha V, Kalita PP, Dutta AJ, Sarma P, Dutta H, Sarma P. Epidemiological and clinical profile of Covid 19 patients in a tertiary care hospital: A retrospective analysis. IOSR J Dent Med Sci. 2020;19(11):16-23.
27. Guler SA, Ebner L, Aubry-Beigelman C, Bridevaux PO, Brutsche M, Clarenbach C, et al. Pulmonary function and radiological features 4 months after COVID-19: first results from the national prospective observational Swiss COVID-19 lung study. Eur Respiratory J. 2021;57(4).

Cite this article as: Penmetsa CS, Yalamanchili VK, Yendapu RS, Pratti PVSS. Clinical and radiological follow up of post-COVID patients in tertiary care centre. Int J Community Med Public Health 2023;10:639-43.