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Post COVID weight change in adults in Ernakulam district

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Abstract

Aim: To evaluate the post covid weight change.

Materials and Methods: The study was conducted in adult patients who were diagnosed with covid 19 admitted in an intensive care unit / non-ICU unit at hospitals in the Ernakulam district. Diagnosis of covid 19 based on positive SARS-CoV2 RT PCR test, initial weight (using weighing machine) and height (using stadiometers) was collected with the help of hospital record. On the day 30th after patient discharge, the data regarding post covid symptoms, nutritional status, self-evaluation of food intake, weight and performance status scale (PS) value was collected using questionnaire. The subjects measured their weight using a weighing machine and provided data through teleconsultations.

Results: Among 199 covid participants who had visited the clinic at Amrita Institute of Medical Sciences (Ernakulam) for checkup were included in the study. In the analysis, majority of 109 subjects (or 55.8%) were men and 90 subjects (45.2%) were women. With a mean loss of 1.33 kg, the comparison of weight before and after covid was shown to be statistically significant (p 0.001) with a mean decrease of 0.57. The comparison of BMI before and after covid was shown to be statistically significant (p 0.001).

Conclusion: This study shows that subjects who survived a severe COVID 19 had a high risk of persistent malnutrition due to weight loss. Improved nutritional support is required in clinical practice, particularly for patients who remain in the critical care unit. In order to improve nutritional status, screening for malnutrition should begin as soon as therapy is given due to these circumstances. The need of developing better care systems to enable recovery and adaptation to new disability following acute infectious illness is emphasized by this prospective observational research. Changes to the homecare healthcare systems will hasten recovery and lower the possibility of difficulties in the future.

Keywords: Post COVID, weight change, nutritional assessment, malnutrition

Introduction

COVID-19 is a severe infectious disease particularly of the respiratory system characterized by fatal complications such as severe acute respiratory distress syndrome (SARS), pneumonia, cardiac arrhythmia, kidney failure/ multiple organ failure and even death. On March 11, 2020, the World Health Organization (WHO) will designate it a global pandemic. Since being deemed a global pandemic, COVID-19 has devastated numerous nations and overtaxed numerous healthcare systems. SARS-CoV-2, like other RNA viruses, is susceptible to genetic evolution with the emergence of mutations over time, resulting in mutant forms that may have distinct properties from its ancestral strains. This is true even when SARS-CoV-2 adapts to its new human hosts^[1].

About 1,202,320 confirmed COVID-19 cases have been reported across the world's continents, with Europe accounting for 51.2% of cases, North America for 27.7%, Asia for 17.9%, and South America for 1.96 percent. Africa and Australia have reported 0.8 percent and 0.5 percent, respectively, of confirmed COVID-19 cases. the number of confirmed COVID-19 cases increased significantly in 2021, rising by 109,555 in Asia, 8,658 in Africa, 332,866 in North America, 20,269 in South America, 568,894 in Europe, 5,051 in Australia, and 1,045,403 worldwide (excluding Antarctica)^[2].

People who have healed from COVID19 but continue to display symptoms for a significantly longer period of time than is normal are referred to as Long COVID in general. After the diagnosis of SARS-CoV2 infection, the symptoms start to manifest; nevertheless, this condition presents some challenges because not everyone infected with SARS-CoV2 receives a diagnosis.

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The following integrative classification is suggested based on the relapsing/remitting nature of post COVID symptoms: possibly infection related symptoms (up to 4-5 weeks), acute post COVID symptoms (from week 5 to week 12), long post COVID symptoms (from week 12 to week 24), and persistent post-COVID symptoms (lasting more than 24 weeks) [3].

Review of literature

To determine the frequency of post-COVID-19 conditions in a community environment, cross-sectional research was conducted. Data regarding symptoms were collected using a standardized questionnaire from a random sample of 579 people belonging to three different primary healthcare facilities. An overall population prevalence of post-COVID-19 of 14.34 percent (95 percent CI 11.58-17.46 percent) was discovered. In the trial, just 9% of individuals required hospitalization. The most common persistent symptoms were tiredness (44.6 percent), smell impairment (27.7 percent), and dyspnea (24.09 percent), and prevalence was greater in women than in males (15.63 percent vs. 13.06 percent). [4]

The degree of nutritional deficiency in a person has a major effect on that person's susceptibility to COVID-19, treatment response, and long-term effects of infection. As a result, it is crucial to take into account how a healthy lifestyle and nutrition would affect the pandemic. For all COVID-19 patients, especially those who had cardiac or pulmonary distress or who have been critically sick owing to the weight loss, frailty, or sarcopenia associated with these disorders, a decent nutritious, balanced diet is essential to their recovery.

These patients require individualized dietary assistance that is timely and adequate to allow for maximum metabolic utilization to speed recovery, and should begin early in their life. To promote rapid and successful recovery and to lower the danger of hospital readmissions or the length of long-COVID-19, nutritional rehabilitation has to be at the center of the community treatment of these patient's post-hospital release. To lessen vulnerability and the long-lasting impacts of COVID-19, governments and people together should prioritize availability to healthful diets [5].

Methodology

The study was conducted in adult in patients (age between 18 year to 60 years.) who were diagnosed with covid 19 and admitted in an intensive care unit or non ICU unit at hospitals in Ernakulum district. Diagnosis of covid 19 was based on positive SARS-CoV2 RT PCR test. Data will be collected using questionnaire regarding symptoms, nutritional status, self-evaluation of food intake, performance status scale and weight at time of discharge & collected after 30 days of patient discharge. During hospital stay patients weight will be assessed from the hospital records. In order to assess the nutritional status teleconsultation was provided to discharged covid patients for 30 days. After 30 days of discharge, patient weight was monitored through teleconsultation.

Study design

Prospective observational study

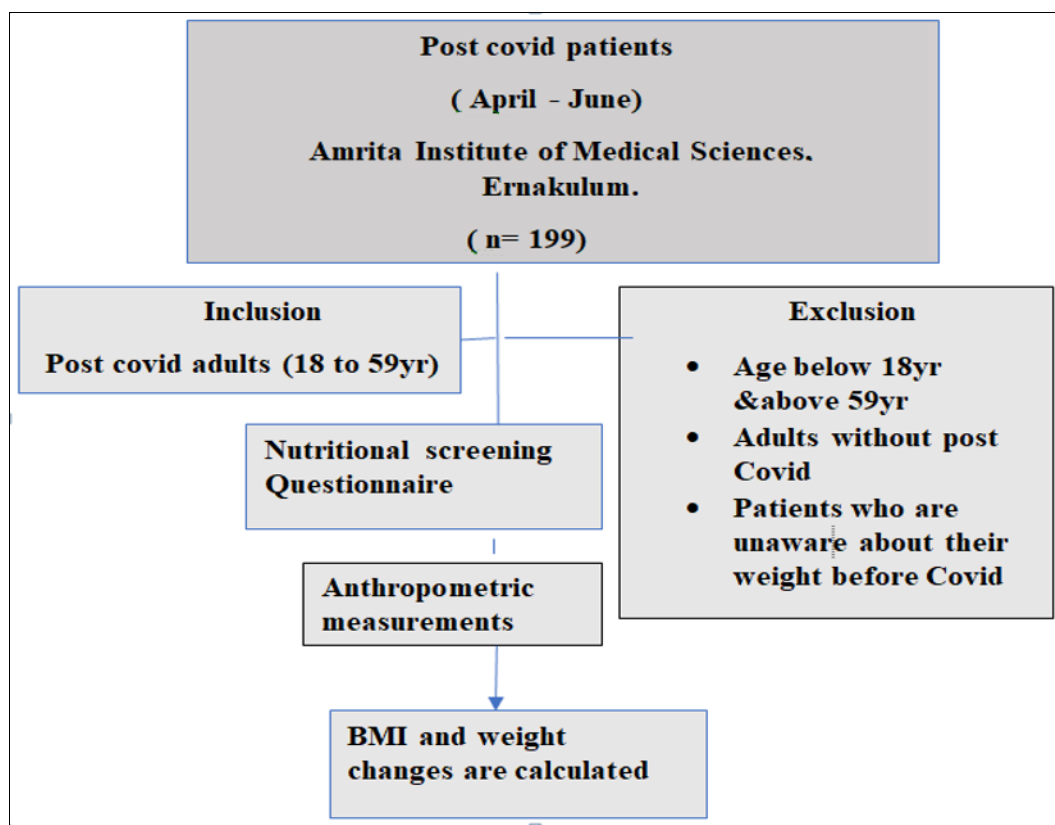


Fig 1: Prospective observational study

Results and Discussion

The study included 199 covid subjects who had come for check up in the clinic at the Amrita Institute of Medical Sciences, Ernakulam. In the analysis 90 (45.2%) were female patients and 109 (54.8%) were male patients. Among them 8 patients were hospitalized in ICU while the other 191

patients were not. In this demographic, 6.5 percent of patients experienced edema whereas the other 93.5 percent did not.

In the series of 199 patients only 109 (54.8%) were males while the rest 90(45.2%) were females. Out of 199 subjects 151(75.9%) were employed. About 43(21.6%) were unemployed and the rest 5(2.5%) were retired. Out of 199

subjects 129 (64.8) were married while the rest 70 (35.2%) were living single.

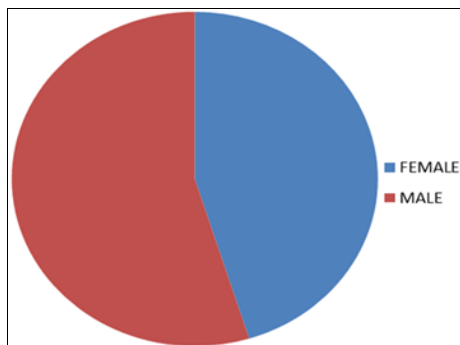


Fig 2: Distribution percentage of gender

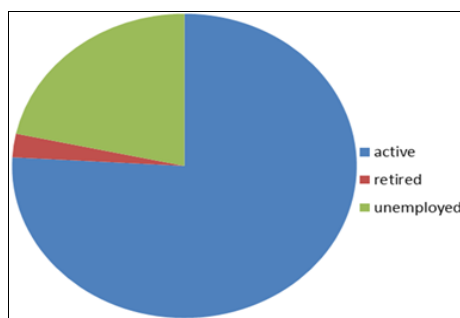


Fig 3: Distribution percentage of occupation

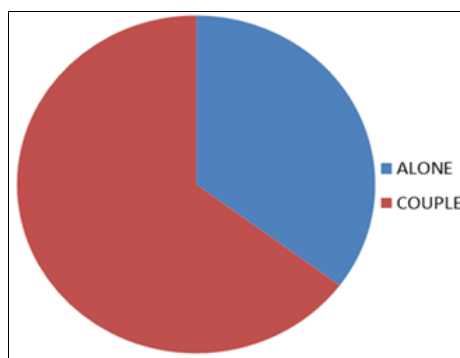


Fig 4: Distribution percentage of living status

Table 1: Comparison of weight before and after covid

	n	Mean ± SD	p value
Pre covid weight (kg)	199	60.09±7.4	<0.001
Weight after 30 days (kg)	199	58.75±7.2	

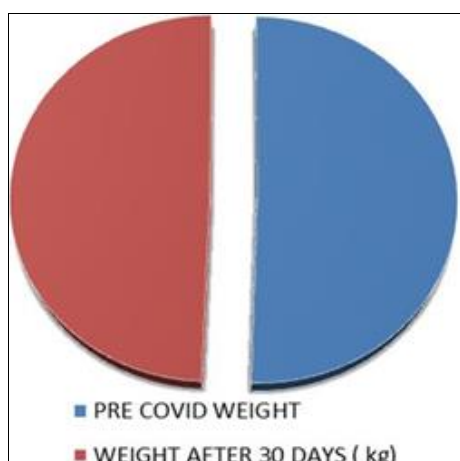


Fig 5: Distribution of mean weight

The comparison of weight before and after covid was found to be statistically significant ($p < 0.001$) with a mean reduction of 1.33.

Table 2: Comparison of BMI before and after covid

	n	Mean ±SD	p value
pre covid BMI (kg/m ²)	199	24.27±3.12	<0.001
Post covid BMI (kg/m ²)	199	23.70±3.17	

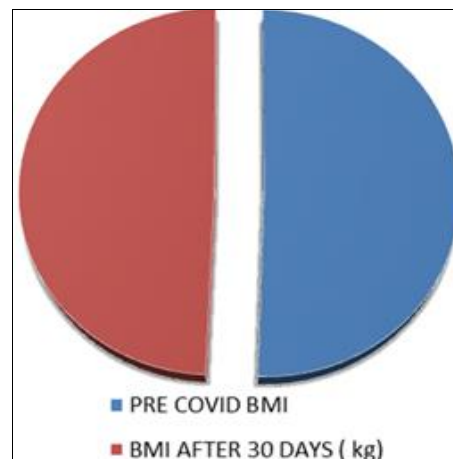


Fig 6: Distribution of mean BMI

The comparison of BMI before and after covid was found to be statistically significant ($p < 0.001$) with a mean reduction of 0.57522.

In this randomized intervention study conducted in the tertiary hospital, we attempted to check the weight changes in post covid patients after 30 days with the help of anthropometric values.

In our study, we included 199 subjects. Out of these 199 subjects, 8 (4%) of the subjects stayed in ICU. The present study showed that on 30th day there was a reduction in mean weight as 58.75kg from the initial mean weight of 60.09 kg.

In our study, the subjects were assessed according to their age and gender. Among the 199 subjects, all are within the age group from 18- 59yrs. The majority of the subjects 54.8%, were male, while the rest 45.2%, were female. Out of them, 75.9% were employed, 21.6% were unemployed and only 2.5% were retired. About 10.6% of people were smokers, and 15.6% of people consumed alcohol daily. One of the studies conducted showed that lifestyle factors like smoking and alcohol consumption are major factors that can contribute to the increasing severity of covid 19. Smokers had a higher chance of developing severe or critical COVID-19. In COVID-19 patients, the history of alcohol use is a significant predictor of disease severity and ICU admission as well as a factor in treatment planning [6].

In the present study, it was found that the majority of subjects (53.8%) consume fish, meat, and poultry twice a day. About 31.7% of subjects included this once a day, while 11.6% of subjects consumed it three times a day and the remaining 2% of the subject had fish, meat and poultry four times a day. When it comes to fat intake, the majority (51.8%) of subjects did not consume adequate fat, and only 48.2% of the subject's added fat.

In terms of dairy product consumption, 13.6% of subjects consumed curd, cheese, paneer, or buttermilk, regularly in their diet. About 44.7% of subjects consumed these products twice a day, and 38.2% consumed them thrice a day and the rest 1% of the subjects consumed it four times a day.

The present study shows a variation in eating patterns within

the study population. About 23.6% of the subjects consumes three meals a day. 54.3% of the population consumes four times, 21.1

% consumes five times, and the remaining 1% consumes six times meals a day.

In these subjects, the time gap between onset of covid 19 symptoms and hospitalization showed a maximum length of 7 days in 5% subjects, 1% of the subjects came within 4 days after onset of symptoms whereas 8.5% of them came within 3 days while 14.1% subjects came within 2 days and the majority of the population came immediately on the 1st day (75.9%) for treatment.

The subjects were analyzed during COVID and, after 1 month of discharge, the patients' weight was monitored through telecommunication. In the analysis, it showed that there is a mean weight change of 1.33 kg after 30 days. The BMI changed on average by 0.57kg/m² respectively, there by showing that the subjects were losing weight in post covid period.

Stadiometers and weighing machines are used to measure the details. These measurements were taken before and after the 30 days of discharge. The correlation of all these parameters taken before and after 30 days of discharge was statistically significant (p-value = 0.0001). From the results, it was observed that the mean BMI difference before and after 30 days of discharge, was 0.57 kg/m².

Strengths and limitations

Strengths

There is no survey conducted in the Indian population related to the weight changes in post covid subjects. The present survey evaluates the post-covid weight change in the Indian population (Ernakulum district).

- As the sample size is adequate this added better impact for accurate results.
- Our study confirms that there is evident weight loss in post covid subjects.
- It will help to understand the need for further nutritional support in post covid patients.

Limitations

The limitations of the study are that the subjects were assessed with the help of telecommunication after 30 days of discharge; hence there is a chance of getting biased data. The muscle strength was not assessed in order to find whether the weight loss is due to muscle wasting. A long follow-up period with a larger sample size would increase the scope of the study.

Conclusion

This study shows that in severe variants of COVID-19, post-COVID weight loss is highly common. In clinical practice, nutritional assistance needs to be improved, especially for patients who need to stay in the intensive care unit. Due to these factors, screening for malnutrition should start as soon as treatment is provided with the goal of enhancing nutritional status. This prospective observational study emphasizes the need of creating improved care systems to support healing and adaption to new impairment following acute infectious disease. This modification of homecare healthcare systems ought to facilitate a speedy recovery and lower the possibility of subsequent difficulties.

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