ASSESMENT OF PEAK-EXPIRATORY FLOW RATE IN POST-COVID PATIENT.

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ABSTRACT

Background: COVID-19 is characterized by a rapid change in the patient`s condition with major charged occurring over a few Day. We aimed to develop and evaluate an emergency system for morning. In December 2019 an outbreak of pneumonia of unknown origin was reported in WHUHAN, china in pneumonia cases.

Methodology: A descriptive observation study was carried out on 30 post COVID patient. The purpose of the study was explained and informed consent was taken. The PEFR was measured using peak expiratory flow meter.

Result: The procedure of using peak flow meter that was carried out for 3 times and the highest value from the three was considered as peak flow rate, using statistical method mean and standard deviation were calculated. The mean of Peak Expiratory Flow Rate is 314.8272 ± 56.72807 SD.

Conclusion: This study concluded that the peak expiratory flow rate is reduced in post COVID patient.

Keywords: post COVID-19 patient, viral infections diseases, PEFR, peak expiratory flow meter diseases.

INTRODUCTION

Physiotherapist working in primary health care or dedicated COVID healthcare plays an important role in the management and post COVID rehabilitation of critically ill patient. Physiotherapist working primary health care or dedicated COVID rehabilitation of critically ill patient. Physiotherapist are in direct contact with patient suspected / confirmed case COVID-19 Working in such pandemic era quite a stressful experience hence. It is equally important to emphasize on the overall experience of patient and physiotherapist fighting this pandemic. The past decade, coronavirus (COVs). has been associated with significant diseases outbreak in East Asia and the middle east respiratory syndrome (MERS) began to emerge in 20012, respectively recently a novel coronavirus, sever acute respiratory syndrome coronavirus disease 2019 (COVID) emerged in late 2019 Global heaths threat, causing an ongoing pandemic in many countries. Heaths workers worldwide are currently marking efforts to control organization (WHO) announced the official designation for the current COV (originally named 2019 COV), which was first identified in WUHAN city, HUBAI province, china, an 12 December 2019 on 11 FEBRUARY 2020. The world heaths

organization (WHO) announced the official designation for the current COV-associated disease to be COVID-19, caused by SARS-COV2-COV-2.

The Virus (Sars-Cov-2)- Coronavirus are positive-sense RNA viruses having an extensive and promiscuous range of natural hosts and affect multiple system coronavirus can cause clinical diseases in humans that may extend from the common cold to more severe respiratory disease. COVID-19 are variable, ranging from mild symptom to severe illness. common symptom include headache, loss of small are taste, nasal congestion and runny nose, cough, muscle pain sore throat, fever, diarrhea, and loss of smell and breathing difficulties people with some infection may have different symptom, and their symptom may change over time. Three common clusters of symptoms have been identified; one is respiratory symptom cluster with cough, sputum, shortness of breath and fever; a musculoskeletal symptom cluster with muscle and joint pain, headache, and fatigue; a cluster of digestive symptoms with abnormal pain, vomiting and diarrhea in people without prior ear, nose and throat disorder.

NEED FOR STUDY

As patient with COVID-19 Pneumonia affect the patient's lung functions it leads to abnormality in gaseous exchange V/Q mismatch and restrictive ventilatory effect. The patient also prone to develop pulmonary complication. Peak expiratory flow rate also affected in patient who require ventilatory support and 02 support for me one week or more than one week. Therefore, this study is undertaken to measure the peak expiratory flow rate in moderate to severe post COVID-19 patients.

METHODOLOGY-

Source of Data: The source of data was collected from POST COVID patient in pravara rural hospital, Loni.

Method of collection of data: Data was collected by the primary investigator.

Study Design: Descriptive Observational Study.

Sample size: Sample size for the study was 30 participants.

Participants: Young POST COVID patient workers in Loni.

Sampling Method: Simple Random sampling

Study Duration: 6 months.

According to simple random sampling there were 24 male participants and 6 female participants.

EQUIPMENT'S

Peak Flow Meter.

Lifeline peak flow meter

The features of this device are:

- It is convenient and portable to use

- Wide flow rate 60-800 L/min

- It is suitable for all age groups

Material

- pen

- book

- consent form

- recording sheet

- 0 disposable card-board mouth pieces that fit the device.

SELECTION CRITERIA

Inclusion criteria

- All the participants within the age group of 20-40 years.

- Both male and female workers.

- Moderate to Severe Disease as per HRCT Score.

- Patient on BIPAP or O2 Support

Exclusion criteria

- Acute or chronic respiratory disorder.

- Systemic illness which directly or indirectly affects the respiratory system.

- Known case of bronchial asthma.

- Any neurological condition involving respiratory muscles.

PROCEDURE:

PEFR MEASUREMENT PROCEDURE

Ask the participant to loosen any tight clothing that might prevent them from breathing deeply.

Make sure that the participant is in sitting or standing position with back straight while taking the test.

Use a peak expiratory flow monitor to perform the PEFR test.

This is a handheld instrument with a mouthpiece on one end and a scale on the other.

The device should be hold horizontally making sure that the fingers are not on the scale and not obstructing

the holes which are at the end of the apparatus Cursor is set to zero mark.

Give the instruction as breathe in as deeply as you can.

Place the mouth piece in between the teeth and the lips maintain air tight seal.

Blow into the mouth piece as quickly and as hard as you can in one shot.

Do not put your tongue on the mouth piece as it will obstruct the air entry in the device.

When air entries the device through the mouthpiece a small plastic arrow on the device moves. This measures the airflow speeds.

Then the cursor is moved to zero and more two times the test is taken.

The test is done three times. While doing analysis the highest score is considered.

Once a participant is done with the test the mouth piece is changed in order to ensure their safety. The assessment of peak expiratory flow meter was done for all participants.

The procedure using peak flow meter was carried out three times and the highest value from the three of peak cough flow is measured using statistical method mean and standard deviation.

STUDY PROCEDURE

Total 30 participants were selected according to the inclusion and exclusion criteria. They were asked to fill the informed consent. Than the peak expiratory flow rate was measured using the device and analysis was done.

Flow chart (Study Procedure)
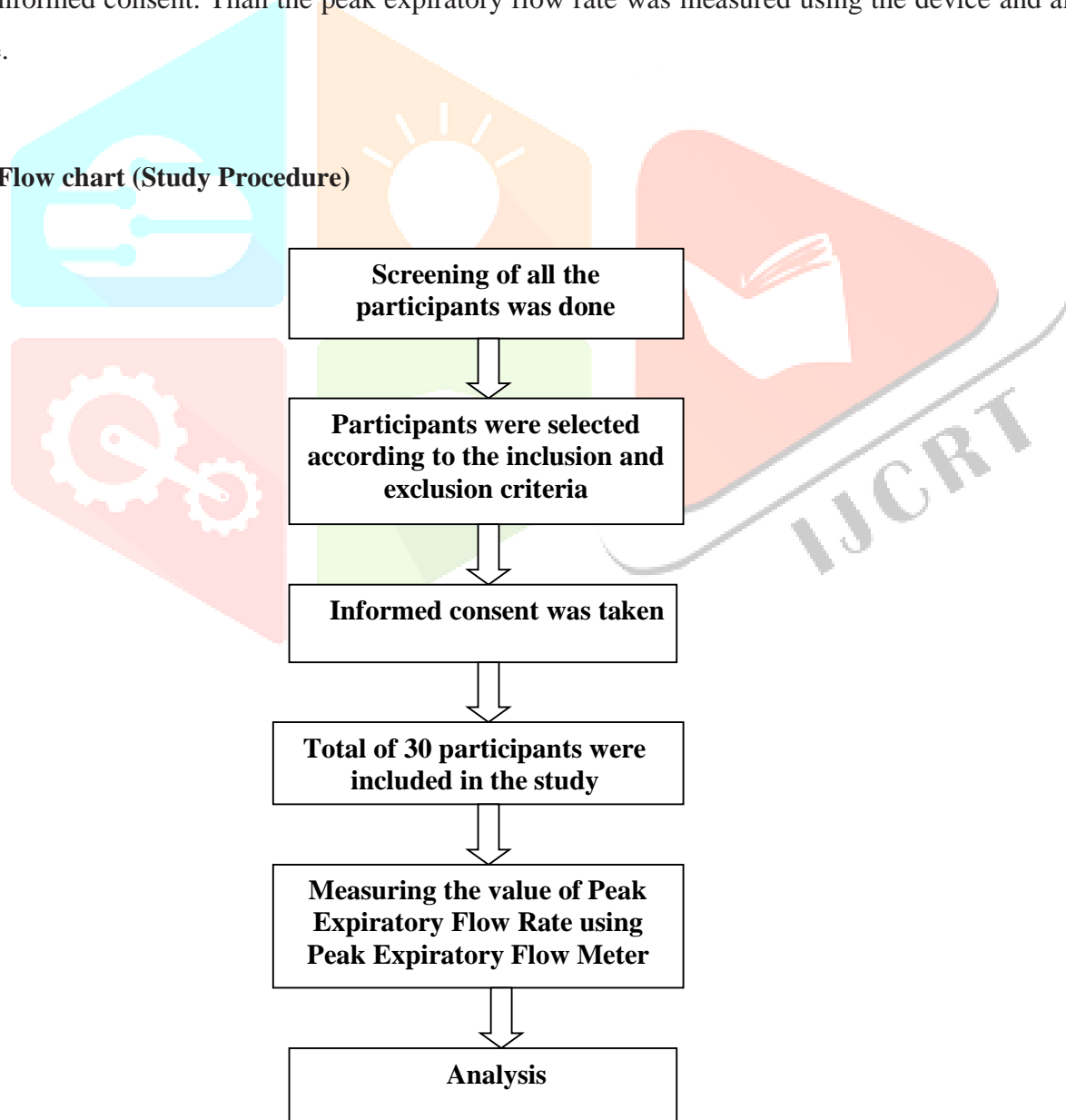
RESULT-

The present study was done in Pravara Institute of Medical Sciences, Loni including 30 post COVID patient in pravara hospital. The procedure of using peak flow meter that was carried out for 3 times and the highest value from the three was considered as peak cough flow, using statistical method mean and standard value were calculated. The mean of Peak Expiratory Flow

Rate is 314.8276 ± 56.7280 SD.

DISCUSSION

The present study **Assessment of Peak Expiratory Flow Rate in post COVID patient** was conducted in Pravara institute of medical sciences, Loni where pravara hospital was going on. The mean of Peak expiratory flow rate

COVID-19 is a highly infection respiratory disease that leads to respiratory, physical, and psychological dysfunction in patient .in most patient (81%) COVID-19 infections confers mild diseases with fever (88.7%) cough (57.6%) and dyspnoea (45.6) however, for a considerable number of patients. generally, those age >65 years with comorbidities such as Hypertension and diabetes, the sequelae. Among patient requiring. Hospitalization, a relatively high percentage. (20.3%) require management in the ICU, often for acute respiratory distress syndrome (ARDS) these Patient can also experiences multiorgan failure Isolation is an effective method of reducing transmission of highly contagious SARS-COV-2) Most patient have fever, fatigue muscles pain, and may remain bedridden for a long period.

The current evidence in discharged patient with (SARS) as will as the clinical experiences of patient with AROS, patient discharged after have breathing difficulties after exertion as well as muscle wasting (including of the respiratory disorder such as post-traumatic stress disorder for these reasons ,patient with mild pulmonary dysfunction should be prescribed a rehabilitation program to restore fitness and reduce anxiety and depression patient who are seriously ill with COVID-19 and who have passed the critical phases of lungs symptoms of pulmonary . The sever acute respiratory syndrome coronavirus 2 (SARS-COV-2). the SARS -COV, the respiratory syndrome owing to 80% genomic sequence identity. The interaction between the viral spike (S) protein and angiotensin-converting evolved in the coronavirus manifestation of COVID-19.

CONCLUSION

This study concluded that the Peak Expiratory Flow Rate is reduced in post COVID patient. The current COVOD-19pandimic is clearly an international public health problem. There have been rapid advances in what we know about pathogen, how it infects cell and causes the world should increase attention into disease. surveillance. system and scale up country readiness and response operation including establishing rapid responses teams and improving the capacity of the national laboratory system.

RECORD SHEET-

SR NO	NAME	AGE/GEDER	MONTHS	HRCT SCORE	PEFR-I
1	NANESH GODHAKAR	33/MALE	JUNE	8	250
2	SHRADDHA RADHAVE	25/FEMALE	MARCH	10	230
3	VIRAJ KALE	30/MALE	MARCH	11	380
4	AMRUTA MORE	33/FEMALE	OCTOBER	11	340
5	NITIN KOTE	34/MALE	SEPTEMBER	16	330
6	SAYALI KOTE	29/FEMALE	OCTOBER	12	230
7	SHEKHAR GULAVE	32/MALE	MARCH	14	340
8	BALASAHEB KALE	40/MALE	JUNE	11	350
9	RAJ NAYAK	23/MALE	JULY	13	360
10	MONIKA MAID	36/FEMALE	OCTOBER	18	250
11	HARISH MAID	38/MALE	DECEMBER	19	250
12	ARATI MAID	33/FEMALE	MARCH	20	260
13	RADHIKA	28/FEMALE	DECEMBER	11	210

	MAID				
14	NILESH GORADE	34/MALE	APRIL	5	400
15	KANCHAN GORADE	28/FEMALE	MARCH	8	340
16	PRATIKSHA SAWANT	21/FEMALE	APRIL	11	360
17	AKSHAY SAWANT	27/MALE	MARCH	15	370
18	MONIKA GADEKAR	25/FEMALE	APRIL	12	380
19	AMIT SHINDE	37/MALE	DECEMBER	7	390
20	AKASH VIKHE	27/MALE	OCTOBER	12	360
21	DEEPTI SHINDE	25/FEMALE	JANUARY	11	380
22	SONAL DIMBER	33/MALE	JULY	12	320
23	PRADNYA MOTE	29/FEMALE	APRIL	12	310
24	SAHIL MOTE	30/MALE	AUGUST	12	230
25	PRATIBHA PATI	37/FEMAKE	APRIL	17	260
26	RAJ GUPTA	26/MALE	MARCH	12	280
27	NISHANT MODAK	38/MALE	APRIL	8	290
28	SUJAY DHAMAK	35/MALE	MARCH	15	360
29	MODAK MAYUR	29/MALE	OCTOBER	18	320

30	VIDHI KULKARNI	39/MALE	APRIL	11	

REFERENCES

1.   Mohankumar P, Gopalakrishnan S, M. M. Morbidity Profile and Associated Risk Factors among Construction Workers in an Urban Area of Kancheepuram District, Tamil Nadu, India. J Clin Diagn Res. 2018 Jul 6;12:6–9.

2.   Jayakrishnan T, Thomas B, Rao B, George B. Occupational health problems of construction workers in India. Int J Med Public Health. 2013;3(4):225–9.

3.   Ramesh N. Respiratory function of workers at a construction company in Bangalore Urban district. Int J Occup Saf Health. 2015 Feb 20;4.

4.   Fadli Ramadhansyah M, Astorina YD N, Onny S. Dust Exposure and Symptomps of Respiratory Disorder on Worker of Sikatak Bridge Development Project. Warsito B,Sudarno, Triadi Putranto T, editors. E3S Web Conf. 2020;202: 12002.

5.   Purani R, Shah N. Prevalence of Respiratory Symptoms in Construction Workers in Gujarat: A Cross-sectional Survey. Int J Med Public Health. 2019 Jun 17;9(2):55–

6.   Khademi J, Sadeghi M, Ahmodpoor R, Tamadon Yolme J, Mirzaie MA, Izadi N, et al. Pulmonary Function Testing in Cement Transport Workers at Incheh Borun Border,Northeast of Iran. Iran J Public Health. 2019 Jul;48(7):1362–8.

7.   Rahman SAA, Yatim SRM, Abdullah AH, Zainuddin NA, Samah MAA. Exposure of particulate matter 2.5 (PM2.5) on lung function performance of construction workers. In Penang, Malaysia; 2019 [cited 2021 Mar 14]. p. 020030. Available from: http://aip.scitation.org/doi/abs/10.1063/1.51170.