

To Know the Effectiveness of Physical Therapy Exercises to Guillain Barre Syndrome Improve the Pulmonary Function Covid-19 Patients

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Abstract

- **An out break of 2019 novel coronavirus disease in wuhan, china has spread quickly nation wide.**
- **corona viruses multiple systemic infections the respiratory complications are the most obvious symptoms.**
- **We describe symptoms of Guillain barre syndrome in one infected patient with COVID-19. First time. fever, severe headache, fatigue, shortness of breath.**
- **Patient lung capacity is increased residual volume increased, decreased FEV1 and FVC ratio.**
- **Given physical therapist given treatment improve pulmonary function.**
- **Reduce the decrease vital capacity &residual volume. improve the FEV1 and Fvc ratio.**

- Expiratory FVC decreases .Monitoring for respiratory failure, bulbar weakness, difficulty swallowing help to anticipate complications, lung expansion and ventilatory status is needed including management of vital capacity decreases to less than 18 ml/kg, decrease in oxygen saturation, arterial $po_2 < 70$ mmHg.
- Patients with an FVC of less than 15-20 ml/kg, inspiratory pressure of less than 30 cm.
- Negative inspiratory force a relatively easy bedside test to measure respiratory muscle function.
- Chest Physical therapy is the group of treatment used for improve Guillain barre syndrome pulmonary function COVID-19 .
- Postural drainage and chest percussion and deep breathing and inspiratory resistance training exercises.

I. INTRODUCTION

- Gullian barre syndrome is the most frequent cause of acute generalized weakness now that polio is all but eradicated. It is referred to ad syndrome because it resprents a group of demyelinating inflammatory polyradiculoneuropathies.
- Guillain barre syndrome is rare with an incident of 1 per 1000 people. It occurs in all age groups including adults .
- The majority of individuals who acquire gullian barre syndrome experience respiratory illness.
- Gullian baree syndrome the diaphragm is the major muscle of ventlatory weakness of shoulder elevator and neck flexion parallels diaphragmatic weakness.
- Novel out break with corona virus 2019 began since 31 December 2019 wuhan city.
- Which enters the cell via fusion with angiotensin converting enzyme 2 receptor.
- COVID-19 can cause multiple systemic infection that respiratory complications are the most obvious symptoms of Guillain barre syndrome in one infection patient with COVID-19 for the first time.
- The symptoms of corona virus 19 are dependent on the age and the patients under lying medical illness and also the condition of the immune system.
- Corona virus can cause multiple systemic infections the respiratory complication are the most recognizable symptoms to respiratory syndrome coronavirus (SARS-COV).
- The most prevelous symptoms at the onset of disease after an quatrine period of approximately 8days are fever,cough,dysnea,headache, severe breathlessness.

➤ *Recommended Cleaning For Spirometry Devices:*

In light of the COVID-19 pademic it is more important that ever that spirometry device are completely clean and decontaminated, when necessary. Use a new bacterial viral filter(BVF) for every patient using spirometer or Respiratory monitor, The outside surfaces of vitlograph devices and flow head alcohol impregnated cloth to remove any visible soili for low level disinfection. if thesuspect your device has become contaminated or if a higher level is required here are instructions on how to clean your spirometry devices correctly.

Vitalography has produced guidance. on how to safely continue spirometry test is with respect to COVID-19, national guidance has also been released regardis respiratory. Cleaning the exterior surface of the spirometer.which are in contact with the patient with a 70%IPA wipe after every patient significantly reduces the risk of it acting as a vector for transmission of COVID-19.

Additionally it is important that a new .BVF is used for every patient as these offer a high level of protection from cross infection to health care professional as well as subsequent patients.

The most effective was to reduce the chances of transmission og COVID-19 (or) an other infectious agent to use a new BVF for every patient and to clean exterior surface of the that contact the patient with 70%.

IPA wipe after every patient. See 'Reputable Links ' section for national responses.

BVF provide a very high level of protection from bacterial and viruses including COVID-19 with >99.999% efficiency.

➤ *Patient Characteristics :*

A 56 years old female gullian barre syndrome patient was admitted to the emergency department with symptoms of headache and fever severe breathlessness, cough, fatigue, dyspnea so patient admitted quarantine 8 days. At same time she referred to an infectious disease specialist was diagnosed with COVID-19. After examining oropharyngeal sampling, chest computerized tomography, Reverse transcription-polymer chain reaction (RT-PCR) for COVID-19 was positive and patient treated deep breathing exercises, inspiratory resistance training exercises given and chest percussion and postural drainage treated some patients improve the pulmonary function and reduce volume and vital capacity increased, increased FEV1 and FVC ratio.

➤ *Aim :*

To know the effectiveness of physical therapy exercise to gullian barre syndrome improve the pulmonary function coronavirus patients improve pulmonary function.

➤ *Objective :*

To study effectiveness of physical exercises (Deep breathing exercises & chest percussion, inspiratory resisting, training exercise, postural drainage) improve the pulmonary function in gullian barre syndrome coronavirus patients.

➤ *Clinical Examination:*

• *Pulmonary Function Test :*

- ✓ The patient included into the study were put to physiotherapy treatment before and after treatment pulmonary function using flow vitalography spirometer.
- ✓ Patients were given clear instructions and demonstration of pulmonary function test technique in a sitting position.
- ✓ Before physiotherapy treatment pulmonary function was taken.
- ✓ After physiotherapy treatment pulmonary function test was taken.

• *Lung Computed Tomography :*

- ✓ Showed diffused consolidation and ground glass opacities in both lungs bilateral pleural effusion.

➤ *Clinical Impression:*

• *Hypothesis :*

✓ *Null Hypothesis :*

There is no significant change in effectiveness of physical therapy exercise to improve gullian barre syndrome pulmonary function in coronavirus (COVID-19) patients.

✓ *Alternative Hypothesis:*

There will be significant change in effectiveness of physical therapy exercise to improve gullian barre syndrome pulmonary function in coronavirus (COVID-19) patients.

II. MATERIALS AND METHODOLOGY

➤ *Study Design: Experimental study.*

➤ *Sample Method: simple random sampling.*

➤ *Source of Study:*

Subjects selected for the study are those diagnosed and operated with gullian barre syndrome coronavirus treatment in hospital.

➤ *Sample Size :*

10 patients randomly selected and assigned in two groups

- **GROUP A :** 5 members
- **GROUP B :** 5 members

➤ *Criteria For Sample Selection :*

• *Inclusion Criteria :*

- ✓ Subject who had undergone gullian barre syndrome
- ✓ Subjects between age group 55 -70 years of age.
- ✓ Subjects include to female or male.

• *Exclusion Criteria :*

- Patients diagnosed as
- ✓ Fever, cough, difficulty breathing.
- ✓ Shortness of breath, dyspnea, headache
- ✓ COPD (chronic obstructive pulmonary disease), pneumonia.
- ✓ Severe acute Respiratory
- ✓ Restrictive pulmonary function is associated with sleep hypercapnia & hypoxia.
- ✓ Respiratory muscle fatigue.

➤ *Duration Of The Study :*

3 weeks

➤ *Measuring Tools :*

Pulmonary function test (spirometer). Each minute every patient uses sanitizers.

Pulmonary function test vitalography spirometer. Bacterial viral filter for every patient using spirometer (or) respiratory monitor.

➤ *Outcome Measures*

FEV-1, FVC (vitalography spirometry).

➤ *Materials Used:*

- Physical therapist used PPE, gowns, gloves, N95 mask, goggles, shoes, sanitizers, face shield.
- Patients pillows, bed sheets, sanitizer.

➤ *Procedure :*

- 10 subjects are randomly selected and randomly assigned in groups. Group-A 5 , Group-B 5, before treatment and After treatment pulmonary function reading were taken.
- Subjects were treated daily after quarantine 8th day.
- Subjects in group A were asked to perform deep breathing exercises & inspiratory resistive training once per hour for 30 minutes when awake.
- Subjects in group B were asked to perform chest percussion and postural drainage breaths 30 minutes when awake.
- The Subjects are provided with an explanation of risk .benefits and procedures of the study along with the subjects being shown the correct technique for each of exercises.

❖ *Interventions/Physiotherapy Management :*➤ *Deep breathing exercises :*

- The patient sits upright in the bed or chair and patient asked to inhale the air through nose and abdomen will push out and contract and exhale the air through mouth diaphragmatic breathing exercises patients were given clear instructions and demonstration of pulmonary function test technique in a sitting position .patients were allowed to practice for 6-8 times during the training for pulmonary function test.gullian barre syndrome pulmonary function test was taken on the pervious 8days quarantine period .

➤ *Chest percussion:*

- This technique includes treating the patients with massage manipulation like clapping, cupping.
- This used to break up thick secretions of the lungs for easy removal .

➤ *Inspiratory resistance training :*

- This method increases the strength and endurance of inspiratory muscle and decreases inspiratory muscle fatigue.
- This is through the breathing device called resistor.
- The resistor is put in the patient mouth and the patient inhales through the dev that gives resistance to the inspiratory muscle. The more narrow is the diameter of the airway,
- The more is the resistance .The should be gradual increase of time 20 to 30 minutes.one strength and endurance is increased, the diameter of the tube is decreased.

➤ *Postural drainage:*

This techniques involves the drainage the secretions from the lung to central airway and from there secretions can be removed either by coughing or suction. The patient is in gravity assisted position with head or chest down position kept for 15 minutes. The percussion and vibration are performed with postural drainage.

III. DATA ANALYSIS

A Experimental study 10subjects in Group A(deep breathing exercises and inspiratory resistance training exercises) and 5 subjects in Group B (postural drainage and chest percussion is under taken to study the effectiveness of physical therapy exercises to improve gullian barre syndrome pulmonary function COVID-19 and the effectiveness of deepbreathing and inspiratory resistance training exercises & chest percussion &postural drainage in improving pulmonary function following gullian barre syndrome COVID-19 patients.

- Explains the distribution of subjects according to age in both group The age group is being classified as 56 to 60 61 to 65 and 66 to 70.
- Group A has 5 member of sample out of which there are 2 subjects age group 56-60, 2 in 61 to 65 in.66 to 70 corresponding to 5% 25% and 10% of the sample.
- The mean standard deviation 44,00 +-4.03.
- Group B has 5 samples out which there are 2 subjects age group 56-60, 2 in 61 to 65 in.66 to 70 corresponding to 5% 25% and 10% of the sample 44+_3.32.
- Group A has 4 males 65% and 1 females 35% of sample.
- Group B has 2 males 70% and 3females 30%.
- The effectiveness of physical therapy exercises gullian barre syndrome pulmonary function test group A, group B the study variable s of FEV1/ FVC were 69.82+_10.24 value 0.09 and 95% .
- The effectiveness deep breathing exercises and inspiratory resistance training exercises &chest percussion exercises postural drainage exercises reading of the study variance fev1/fvc 53,26+_ 15.05 with delta 12.68 +_ 22.10 ,p value 0.005 and 95% .
- Group A FVC,FEV1,FEV1/FVC values 1.12+_ 0.47. Group B FVC,FVE1/FVC4.9 +_1.55 respectively.
- The p value of group A and group B show improving pulmonary function.

IV. RESULTS

- There was a significant increase in the FVC,FEV1, FEV1/ FVC both groups.
- Decrease in the pulmonary complications and increased FVC and FEV1 values.
- Reduce residual volume, increase in fvc ratio.
- The result obtained was the patients in the groups group A ,group b exercises showed a more significant increase in gullian barre syndrome pulmonary function COVID-19 stastical p value p<0.005.

❖ *Outcome Evidence:*

- Improve pulmonary function .
- Increase pulmonary function .
- Reduce residual volume .
- FVC &FEV 1values increased.

V. DISCUSSION

- The study is to find out the effectiveness of deep breathing and inspiratory resistance training exercises and postural drainage and chest percussion techniques in improving pulmonary function in gullian barre syndrome pulmonary function COVID-19 patients.
- The data from 10 patients was analyzed with 5 patients in each group .inform consent was obtained from the patients spirometer was used to measure the FEV1 and FVC and FEV1/FVC values.
- Group A subjects to exercise were given deep breathing exercises and inspiratory resistance training exercises 1reptitations for every walking 30 minutes.
- Group B subjected to chest percussion and postural exercises.
- FEV-1 and FVc values are were increased ,the pulmonary complications were decreased gradually.
- With the stastical analysis hence proved that group A and group B subjects were strongly sugnificant improved Gullian barre syndrome pulmonary function COVID-19 .

VI. CONCUSSION

- Deep breathing exercises and inspiratory resistance training groupA, postural drinage and chest percussion exercises showed gullian barre pulmonary function COVID-19 values. Each group taken quarantine 8th day.
- Experimental study .improve the pulmonary function gullian barre syndrome COVID-19 patients.

SUMMARY

- This was a Experimental evaluate study conducted at hospitals.
- The study included 10 subjects 5 in each subject each group.
- Group A was given deep breathing and inspiratory resistance training exercises and group B chest percussion and postural drainage for quarantine 8th day.
- The pulmonary function recovery measurement were noted with help of pulmonary function test values. Pulmonary function test values of both group showed significant .
- Improve pulmonary function gullian barre syndrome COVID-19 patients.
- Each patients used sanitizers each minutes and precautions.

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