

The impact of face to face pulmonary rehabilitation on the recovery of patients who have been diagnosed with severe COVID-19 requiring non-invasive and invasive ventilation

Lucey A¹, Lewis V¹, Jones S¹, Fairbairn S¹

¹ Royal Gwent University Hospital

Background:

During March to July 2020, in the COVID-19 pandemic, Aneurin Bevan University Health board reported 2,761 patients diagnosed with COVID-19. Many of those with severe COVID-19 showed persisting fatigue, shortness of breath, muscle mass loss and deconditioning with resultant decreased exercise tolerance, in addition to ongoing psychological and complex health concerns.

There is significant evidence to support PR in other respiratory conditions and It was felt this could benefit patients recovering from COVID-19. A bespoke face to face COVID-19 pulmonary rehabilitation (PR) programme was setup to maximise patient recovery.

Aim:

1. To assess the impact of PR on the Modified Fatigue Impact Scale (MFIS) of patients diagnosed with severe COVID-19.
2. To assess the impact of PR on 6 minute walk test, sit to stand test and Borg dyspnoea score.
3. To identify patients most likely to benefit from PR in the future.

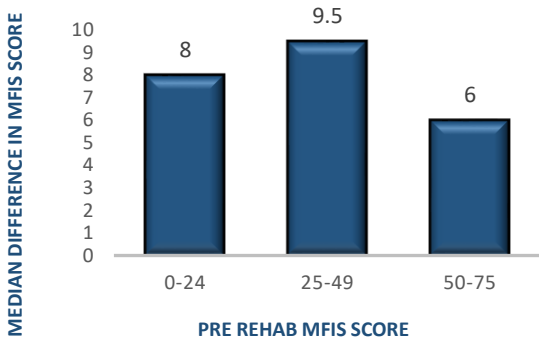
Method:

- Patients were identified as ‘severe COVID-19’ and referred for PR by consultant case review of patients requiring non-invasive and invasive ventilation in either the respiratory high care unit (RHCU) or intensive care unit (ICU).
- Referred patients were assessed by a multidisciplinary team (MDT) to ensure appropriateness for the PR programme.
- Patients consented for PR programme and trial by MDT.
- Patients completed MFIS
- Patients assessed on a variety of physical and psychological measures, including;
 - 6 minute walk test
 - sit to stand test
 - Borg dyspnoea score
- During weekly PR sessions patients engaged with a tailored programme, which included
 - cardio exercised
 - strengthening exercises
 - Flexibility exercises Pilates)
- Patients repeated the assessments after six weeks.

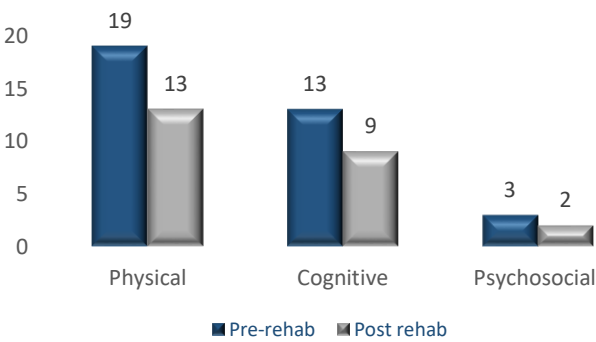
Results:

- Total number of patients 31.
- 97% of patients attended 80-100% of sessions.
- The median change in total MFIS was -16%. There was a decrease in MFIS in all subcategories.
- Six minute walk test median increase of 23%
- Sit to stand median increase of 36%.
- BORG score median change -0.5(-50%).

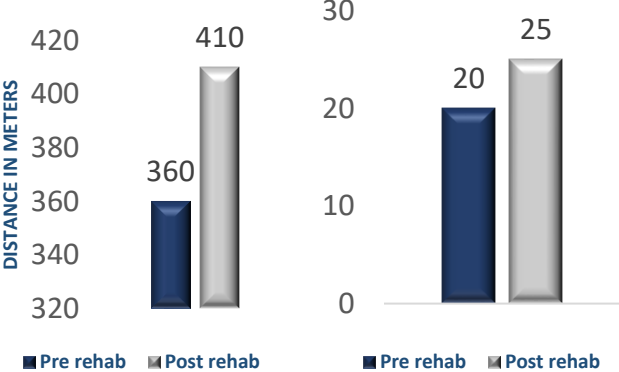
Difference in MFIS in ‘low’, ‘medium’, ‘high’ score categories



Difference in MFIS sub categories pre and post rehab



Median 6 minute walk test Median sit to stand



Conclusion:

Face to face pulmonary rehab is an effective treatment for patients who have been diagnosed with severe COVID-19 in improving physical abilities and psychological wellbeing.

Improvements were seen in MFIS in all 3 MFIS severity categories