Trial of Virtual Pulmonary Rehabilitation during COVID-19 Pandemic

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Introduction

Pulmonary Rehabilitation (PR) is one of the most effective and financially efficient treatments for patients with Chronic lung conditions especially COPD. [1] In response to COVID-19 pandemic face to face PR classes across the country were temporarily suspended and national restoration of face to faces classes' remains uncertain.

PR provides patients living with chronic respiratory disease with the skills, knowledge and confidence to successfully manage their condition, limiting exacerbations reducing the risk of complications and preventing the need to accessing secondary care. [2]

In response to the unprecedented national restrictions the BCHC Adult Community Respiratory Team were compelled to sustain the delivery of PR through a virtual medium to continue to provide the best possible care and minimise the clinical impact of COVID-19.

Methods

53 patients located across Birmingham on the waiting list to commence PR with a range of chronic lung conditions (Asthma, Bronchiectasis and COPD) were pre-assessed for virtual PR. Subjective telephone assessments were completed, including the lung information needs questionnaire (LINQ), COPD assessment tool (CAT), chronic respiratory questionnaire (CRQ) and a subjective medical assessment. Following the completion of all subjective assessments, a single home visit was completed to assess the patients exercise response and ensure the patient was safe to continue.

The one minute sit to stand test was used to assess exercise tolerance as it was impractical to complete the incremental shuttle walk test within patients' homes. The 1 minute STS has been proven to be as effective as the 6 minute walk test which has previously been used in PR assessments. Home exercise diaries, Theraband©, and a clear explanation of the BORG scale were given at the home visit.

The class ran with 2 cohorts A + B with a maximum of 10 patients in each. Each cohort received two classes a week delivered over Microsoft Teams. Each class included a personalised exercise programme using a mixture of strength and

cardiovascular exercises followed by an education session. All education information was then emailed or posted to the patients for future reference.

Results

15 patients 10 female, 5 male with a mean age of 61 completed the course, with both pre and post assessments completed. Completion rate was defined as completing 12 sessions with a pre & post assessment. 10 patients dropped out prior to the class starting due to lack of technology or difficulty accessing the class. 16 patients did not attend 2 or more classes and 12 patients did not complete the course due to a number of reasons, being unwell, out of area, work commitments, being unsafe to exercise and wanting to wait for face to face classes.

Of the 15 patients that completed the course; 80% of patients' demonstrated an improvement CAT scores (65% Oct NACAP 2019) 80% of virtual patients demonstrated an improvement on LINQ scores.

The following improvements were demonstrated on the CRQ:

CRQ D 47%, (53% Oct NACAP 2019)

CRQ F 73%, CRQ E 60%, CRQ M 67%.

Objectively we saw 60% improvement on exercise tolerance using the one minute sit to stand test.

Discussion

Virtual PR has been shown to be effective in both subjective and objective outcome measures, however as you might expect there are multiple challenges and it would appear it is only useful to a selective group with only 15 of a possible 53 patients (28%) completing the course. DNA rate is comparable 30% with One systematic review [3] reported that the number of referred patients who failed to attend PR initial assessments ranged from 8.3% to 49.6%, and the numbers of PR dropouts following the pre assessment ranged from 9.7% to 31.8%.

One of the biggest challenges was due to technical issues and the subjective feedback was regarding the lack of confidence within our patient population has to use technology. That said, younger patients, who perhaps still worked, reported this to be a lot more effective way of delivering treatment.

We feel although virtual PR will not replace face to face PR, it would be beneficial to run virtual PR alongside face to face PR utilising existing methods such a pre-hab to minimise DNA rate. This will enable us to support our patients who are confident with technology, possibly those who still work and patients who are housebound to ensure our service is accessible and inclusive to all. Further work into the efficacy of virtual PR pre-hab is ongoing.

References:

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