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Appraisal

Critically appraised paper: In people reporting dyspnoea following COVID-19 hospitalisation, additional telerehabilitation is more effective at improving exercise capacity, muscle strength and the physical component of quality of life than education alone

Synopsis

Summary of: Li J, Xia W, Zhan C, et al. A telerehabilitation programme in post-discharge COVID-19 patients (TERECO): a randomised controlled trial. *Thorax* Published Online First: 26 July 2021. https://doi.org/10.1136/thoraxjnl-2021-217382

Question: In people reporting dyspnoea following COVID-19 hospitalisation, is an additional telerehabilitation program more effective at improving exercise capacity, muscle strength, health-related quality of life and dyspnoea than education alone? ***Design***: Randomised controlled trial with concealed allocation and blinded assessor. ***Setting***: Three hospitals in China. ***Participants***: Adults reporting a modified Medical Research Council dyspnoea scale score of 2 or 3 after COVID-19 hospitalisation. Exclusion criteria: resting heart rate > 100 bpm, uncontrolled chronic disease, history of severe cognitive disorder, and inability to walk independently. Randomisation of 120 participants allocated 59 to an experimental group and 61 to a control group. ***Interventions***: Both groups received 10 minutes of education and written instruction on topics such as physical activity, diet and sleep. In addition, the intervention group underwent a 6-week home exercise program delivered via a telerehabilitation smartphone application. The program sessons were 40 to 60 minutes in duration, with three to four sessions per week of breathing exercises, walking or running and lower limb resistance exercises. ***Outcome measures***: The primary outcome was change in 6-minute walk distance from baseline to 6 weeks. Secondary outcome measures included the static squat test, health-related quality of life (Short Form Health Survey-12) and the percentage of participants who were dyspnoea-free. Assessments occurred at baseline, 6 and 28 weeks. ***Results***: 105 participants completed the study (50 in the experimental group and 55 in the control group). On completion of the 6-week intervention period, the change in 6-minute walk distance was greater in the experimental group (MD 65 m, 95% CI 44 to 87). The experimental group also had better performance on the static squat test (MD 20 seconds, 95% CI 12 to 28), a higher score on the physical component of the Short Form Health Survey-12 (MD 3.8, 95% CI 1.2 to 6.4) and more dyspnoea-free participants (adjusted RR 1.46, 95% CI 1.17 to 1.82). All between-group differences, except the percentage of participants who were dyspnoea-free, were maintained at 28 weeks. ***Conclusion***: In people reporting dyspnoea following COVID-19 hospitalisation, a 6-week additional telerehabilitation program was more effective at producing sustained improvements in exercise capacity, muscle strength and the physical component of health-related quality of life than education alone.

Provenance: Invited. Not peer reviewed.

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Commentary

Despite COVID-19 leaving millions of people with rehabilitation needs, services have been reliant on general rehabilitation principles, clinical expertise and consensus guidance based on evidence from other conditions.[1] This trial provides evidence of the effects of rehabilitation for patients admitted to hospital with COVID-19 who had moderate breathlessness at discharge.

The group-level differences in the primary outcome of functional exercise capacity at 6 and 28 weeks were striking. They were twice the minimum clinically important difference, meaning that most participants perceived the change, reflected in their quality of life scores. They also far exceeded changes after a similar intervention following admission for exacerbation of chronic respiratory disease.[2] This may be related to differences in pre-admission function and the potential recovery trajectory.

The primary finding is also impressive, given the delivery model with minimal therapist contact and supervision. The COVID-19 pandemic has led to rapid growth in digital healthcare interventions, making efficient use of therapist time and promoting patient self-management and empowerment. However, such interventions can introduce inequality due to costs and digital capability (hardware ownership, literacy, etc). Patient choice and preference should guide use, and communication to understand each patient's goals, motivations and challenges remains important.

Although not widely recognised early in the pandemic, 'Long COVID' is now understood as a key consideration in post-viral disease. It may explain some of the adverse events, discontinuations and re-hospitalisations observed in this trial, which were higher in the intervention group but were not attributed to the intervention. Clinicians should vigilantly screen for oxygen desaturation, post-exertional symptom exacerbation, cardiac impairment and autonomic dysfunction during and after rehabilitation interventions. Given the multi-dimensional, episodic and unpredictable nature of Long COVID, pacing (activity management) and symptom-titrated activities are advocated, whereas graded or fixed incremental exercise prescriptions are not.[3]

Provenance: Invited. Not peer reviewed.

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References

1. Goodwin VA, et al. *Physiotherapy*. 2021;111:4–22.
2. Greening N, et al. *BMJ*. 2014;349:g4315.
3. *World Physiotherapy*. 2021. ISBN: 978-1-914952-00-5.

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