

Effect of real-time remote-based cardiac rehabilitation on subjective satisfaction and objective performance during the coronavirus disease 2019 pandemic

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Funding Acknowledgement: Type of funding sources: Private company. Main funding source(s): Sanei Medicis company.

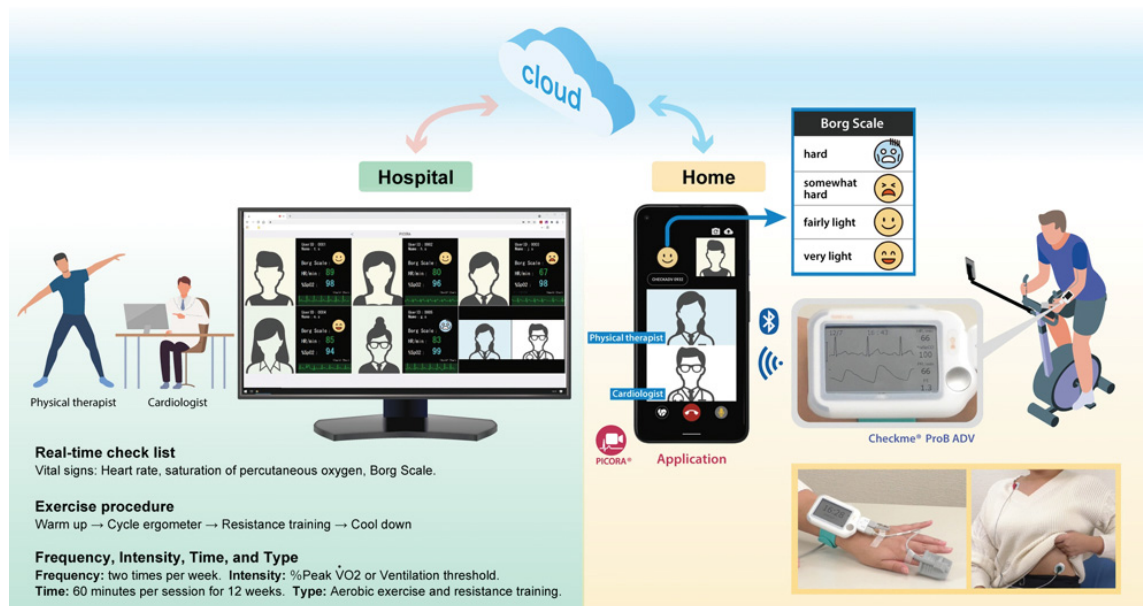
Background: Real-time remote-based cardiac rehabilitation (CR) programmes improve exercise capacity. However, satisfaction and performance improvements after remote-based CR remain unclear. In addition to physical function, subjective satisfaction and objective performance may be adversely affected during the coronavirus disease 2019 pandemic.

Purpose: This study aimed to compare the effectiveness of real-time remote-based CR versus hospital-based CR in improving physical function, subjective satisfaction, and objective performance (i.e., activity limitations and participation restrictions).

Methods: We conducted a quasi-randomised controlled trial and recruited 38 patients with cardiovascular disease (CVD). The patients participated in 4 weeks of hospital-based CR, followed by 12 weeks of remote or hospital-based CR based on quasi-randomised allocation. We assessed the participants at baseline and after 12 weeks of remote or hospital-based CR using the shortened version of the World Health Organization Quality of Life scale (WHOQOL-BREF) for subjective satisfaction, the World Health Organization Disability Assessment Schedule (WHODAS 2.0) for objective performance, and peak oxygen uptake (peak VO₂) using the cardiopulmonary exercise test, for physical function. We evaluated individual results by measuring baseline to post-CR changes (i.e., delta [Δ]) (paired t-test) and then compared the remote and hospital-based CR programmes (unpaired t-test).

Results: Sixteen patients (72.2±10.4 years) completed remote-based CR and fifteen patients (77.3±4.8 years) completed hospital-based CR. Seven patients were excluded owing to other health complications (n=2) and inability to attend hospital based-CR (n=5). In the remote-based CR group, the peak VO₂ (before: 12.0±2.7 mL min⁻¹ kg⁻¹; after: 14.9±3.9 mL min⁻¹ kg⁻¹; p<0.05) and the WHOQOL-BREF score (before: 77.4±12.8 points; after: 93.9±12.9 points; p<0.001) were significantly higher, whereas the WHODAS 2.0 score was significantly lower (before: 19.9±13.2 points; after: 11.3±6.8 points; p<0.05) after rehabilitation than at baseline. The post-CR physical function differed significantly between the two groups (Δpeak VO₂, remote: 2.8±3.0 mL min⁻¹ kg⁻¹; hospital: 0.84±1.8 mL min⁻¹ kg⁻¹; p<0.05). The post-CR change in the WHOQOL-BREF score was not significantly different between the groups. The post-CR change in the WHODAS 2.0 score was significantly lower in the remote-based CR group than in the hospital-based CR group. (ΔWHODAS 2.0 score, remote: -8.56±14.2 points; hospital: 2.14±7.6 points; p<0.01).

Conclusions: Remote-based CR significantly improved physical function and objective performance in patients with CVD. Remote-based CR could be an effective treatment for stable patients who are unable to visit the hospital during the coronavirus disease 2019 pandemic. In the future, risk stratification according to severity of illness is needed.



Real-time remote cardiac rehabilitation