Improvement of sleep quality by home-based exercise rehabilitation in telehealth mode in patients with atrial fibrillation after catheter ablation

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Introduction: 50~55% of the patients with atrial fibrillation (AF) have impaired sleep quality. Radiofrequency catheter ablation (RFCA) could significantly relieve the symptoms of AF, but its effect on sleep quality is unclear. The objective of this research is to investigate the sleep quality in patients with atrial fibrillation after RFCA and to analyze the effect of home-based exercise rehabilitation in telehealth mode.

Methods: A total of 103 patients with AF underwent catheter ablation at the First Affiliated Hospital of Nanjing Medical University were consecutively enrolled. The participants were randomly allocated into rehabilitation group \( n=51 \) and control group \( n=52 \). Both of the groups received conventional postoperative care. Additionally, the patients of rehabilitation group received 8 weeks of home-based exercise rehabilitation proposal which started 1 month after the RFCA. Individualized exercise prescription was made according to physical evaluation including CPET. Patients were inquired to report the completion and intensity of exercise via smartphone and heart rate belt. Exercise prescription was also set in the APP in the form of varies combinations of movements video, which was easily for patients to carry out. The exercise prescription was dynamically adjusted according to patients’ feedback and monitoring records by researchers through the APP during the study. Pittsburgh sleep quality index (PSQI) questionnaire was used to access the self-rated sleep quality of the two groups before and after intervention.

Result: At baseline, the mean total PSQI score of these 103 patients was 8.45±2.92. One month after RFCA, the mean total PSQI score increased to 10.66±3.27 with a significant difference, which meant that the sleep quality was remarkable impaired after RFCA \( (P<0.05) \). After 8-week rehabilitation intervention, the mean total PSQI score of the rehabilitation group was 6.80±2.35, which was significantly lower than that \( (9.12±3.18) \) in the control group \( (P<0.05) \) and lower than the value \( 8.45±2.92 \) before RFCA \( (P<0.05) \) and the value \( 10.66±3.27 \) 1 month after RFCA \( (P<0.05) \).

Conclusion: The incidence of poor sleep quality is 61% in AF patients before RFCA and increased to 87% after radio-frequency ablation. Home-based exercise rehabilitation in telehealth mode could improve sleep quality of these patients.