

Exercise-based cardiac rehabilitation adaptation protocol during COVID-19 pandemic achieved similar results as compared to non-pandemic usual practice: a single-center retrospective study

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Background: During the COVID-19 pandemic, exercise-based cardiac rehabilitation (EBCR) faced challenges. Patients could not freely attend EBCR in hospital. In our hospital, cardiac rehabilitation (CR) service adapted to the pandemic condition by reducing to sessions per week.

Purpose: This study aimed to investigate whether the adaptation protocol of EBCR during COVID-19 period influenced the CR result.

Methods: This was a retrospective cohort study. The subjects were patients underwent EBCR program in CR Service of our hospital. We retrieved the CR program registry and divided it into two periods, namely the non-pandemic period (January 2019 – February 2020) and the COVID-19 period (March 2020 – December 2020). During the non-pandemic period, subjects performed EBCR 3 times (@45 min) per week for 10-12 total sessions. During the COVID-19 period, the EBCR session was reduced 2 times (@45 min) per week for 10-12 total sessions. However, patients might modify the sessions provided space availability and acceptable reason. After total sessions were completed, the treadmill test evaluation was performed. We compared the duration and metabolic equivalent (METs) achieved in the treadmill test evaluation.

Results: There was nearly 50% reduction in patients who underwent EBCR during the COVID-19 pandemic (n = 48), compared to during the non-pandemic period (n = 96). Post septal defect closure (42.7% vs. 60.4%) and mitral valve surgery (35.4% vs. 29.2%) predominated subjects registered for EBCR during the non-pandemic and the COVID-19 period, whereas post CABG was the minority (4.2% vs. 4.2%). Among 144 registered subjects, majority completed EBCR sessions and underwent treadmill test evaluation (79 (82.3%) vs. 37 (77.1%) during the non-pandemic and the COVID-19 period). During the COVID-19 period, the most common sessions were 2 times per week (48.6%), followed by 5 times per week (32.4%), whereas during the non-pandemic period, 3 times per week was the most common (77.2%), followed by 5 times per week (19.0%) (p < 0.001). Total sessions did not significantly differ between the non pandemic and the COVID-19 period. Total sessions also did not significantly differ among subjects undergoing 2 times per week, 3 times per week, and 5 times per week sessions. There was no difference in duration (7.1 ± 1.9 min vs. 6.6 ± 1.9 min, p = 0.136) and METs (7.5 ± 1.8 vs. 6.9 ± 1.9, p = 0.192) achieved on treadmill evaluation between subjects on two time periods. There was no significant difference in duration (6.9 ± 1.9 min, 7.0 ± 1.9 min and 6.8 ± 1.8 min) and METs (7.1 ± 1.9, 7.3 ± 1.7 and 7.4 ± 2.1) achieved on treadmill evaluation among subjects who underwent EBCR 2 times per week, 3 times per week and 5 times per week respectively.

Conclusion: The adaptation protocol of EBCR during the COVID-19 period by reducing sessions per week did not influence the duration and METs achieved on treadmill evaluation at the end of CR as compared to usual EBCR practice.