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Impact of exercise on the activity of the autonomic nervous system among patients with acute myocardial infarction

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Abstract:

Considering the diversity of proposed programs, various studies yielded different findings in this regard. The aim of the present study was to evaluate different types of exercise as a method of rehabilitation after acute myocardial infarction on the activity of the autonomic nervous system.

Methods:

In this case-control and prospective study, a total of 60 patients with the first acute myocardial infarction were randomly selected. Controlled treadmill exercise was performed for 15-20 minutes three days a week for three consecutive weeks and then 5 weeks of home-based exercise, including 30-minute walking 3 times a week based on heart rate in the two groups (n= 20 people per group). The control group performed home-based exercise for 8 weeks.

Results:

In A, B, and control groups, the mean changes in SDNN (28.30, 29.28, and 15.40, respectively), LF (57.10, 198.8 and -47.70, respectively), HF (-11.70, 120.60, and -58.10, respectively) (192.80, 1251.20, and -0.225, respectively), pNN50 (0.80, 4.60, TP and -0.40, respectively), SDNN index (90.20, 13.4, and -0.20, respectively), and SDANN (80.80, 22.24, and 16.20, respectively) were significantly higher in the intervention groups, but there was no statistically significant difference between the two intervention groups (A and B).

Conclusion:

The present study showed that in-hospital exercise-based rehabilitation can have a more favorable effect on the activity of the autonomic nervous system after acute myocardial infarction. It seems necessary to establish rehabilitation centers in hospitals, because uncontrolled home-based rehabilitation is probably less effective for various reasons, such as lack of strict adherence to the instructions.

Keywords:

Rehabilitation, Exercise, Acute myocardial infarction, Activity of autonomic nervous system, Heart rate variability