Effects of Exercise-based Cardiac Rehabilitation on Exercise Capacity and Cardiac Function in Patients With Atrial Fibrillation

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Introduction: We sought to determine whether exercise-based cardiac rehabilitation (ECR) improves maximal exercise capacity, left ventricular function, and quality of life (QoL) in patients with atrial fibrillation (AF).

Methods: In a prospective study, a total of 53 patients with AF (age 64±1 years) were randomized into supervised ECR program in addition to medical treatment (ECR, n = 25) or medical treatment alone (MT, n = 28) groups. Exercise training was performed as running or cycling on a treadmill or bicycle ergometer 3 times a week for 12 weeks. Each session started with a 10-minute warmup at 60% to 70% of maximal heart rate (HRpeak), followed by four 4-minute intervals at 80% to 90% of HRpeak with 3 minutes of active recovery at 60% to 70% of HRpeak between intervals, ending with a 5-minute cooldown period. During AF, patients exercised at the same treadmill or cycling speed and watt as in the previous sessions in sinus rhythm. Peak exercise oxygen consumption (Vo2), left ventricular function, plasma lipid level, N-terminal pro B-type natriuretic peptide, and QoL were measured at baseline and follow-up assessments. The primary endpoint was the change in peak Vo2 after 3 months. Secondary endpoints included effects on cardiac function, lipid status, and QoL.

Result: ECR increased the peak Vo2 (ECR: 25.2±6.8 ml/kg/min vs. MT: 22.0±5.9 ml/kg/min, p=0.0001) and the physical functioning score (36-Item Short-form Health Survey), and decreased the total cholesterol level (ECR: 143.7±35.5 mg/dl vs. MT: 175.8±39.7 mg/dl, p=0.045). However, resting left ventricular systolic and diastolic functions were not different after 3 months, with no intergroup differences.

Conclusion: These results suggest that as AF patients become more tolerant of exertion, they experience less fatigue and dyspnea, and become more comfortable in performing tasks of daily living. Further studies should be observed for long-term ECR effects with a larger sample size.