The Effects of Simple Eight-week Regular Exercise on Cardiovascular Disease Risk Factors in Middle-aged Women at Risk in Taiwan

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Background: The effects of exercise on cardiovascular disease risk factors among middle-aged women at risk of the disease in Taiwan remained unclear.

Methods: Thirty-six women (35-64 years) with more than 1 traditional cardiovascular risk factor were equally assigned into the exercise group (with a treadmill training program for 30 minutes each time, 3 times a week for 8 weeks, n = 18) and a control group (maintained their previous lifestyles, n = 18). Blood biochemistries, resting blood pressure, body composition, and mood state were evaluated before and after the 8-week period.

Results: Compared with the baseline, the exercise group had significantly lower body mass index ($p = 0.01$), waist-to-hip ratio ($p = 0.04$), and systolic ($p = 0.01$) and diastolic ($p < 0.001$) blood pressure, as well as a better mood state ($p < 0.01$) after 8 weeks of exercise. However, the control group did not have significant changes in the parameters. Comparison between the groups showed that the exercise group had significant changes in waist-to-hip ratio ($p = 0.03$) and mood state ($p = 0.04$).

Using multivariable linear regression model, we demonstrated that exercise was significantly related to waist to hip ratio ($\beta = -0.43$, $p = 0.02$) and total mood scores ($\beta = -0.37$, $p = 0.04$) after adjustment for age, menopause, and previous hormone replacement therapy.

Conclusion: A simple 8-week exercise program is able to effectively modify cardiovascular risk factors, such as the waist-to-hip ratio, blood pressure, and the mood state in Taiwanese women at risk of the disease.

Key Words: Exercise • Women • Cardiovascular disease • Risk factors

INTRODUCTION

Cardiovascular disease in Taiwan is the third major cause of death in women.1 The fatality rate within one year of myocardial infarction can be as high as 42%, which is at least 50% higher than that of men.2 Owing to the structural change of blood vessels and enhanced activation of sympathetic nerve system post menopause, women beyond 55 years old are known to have a higher rate of cardiovascular disease.3 Among the major risk factors of cardiovascular disease, physical inactivity has become more prevalent.4 According to the study by the Department of Health of Taiwan, there are 44.5% of Taiwanese women without regular exercise.1 Previous studies have reported that, for people with physical inactivity, the relative risk of cardiovascular disease is 1.5-