ABSTRACT

Background: The focus in obesity management has shifted from total body fat assessment to more specific regional visceral adipose tissue (VAT) estimation and its reduction. Epicardial adipose tissue thickness measured by Echocardiography (EEATT) has been found to be a reliable indicator of VAT in the body and metabolic syndrome. Although exercise is considered as an integral part of obesity management, there is limited research on the effect on aerobic exercise on EEATT. The objective of the study was to study the effect of 12 weeks aerobic exercise training on EEATT in healthy overweight and obese adults.

Methods: 170 overweight and obese individuals were randomly allocated to study group who participated in 12 weeks aerobic exercise program and control group who did not participate in supervised aerobic exercise program. The baseline evaluation of body weight, body mass index, body fat percentage and visceral fat levels measured by bioelectric impedance analyser, aerobic exercise capacity, blood lipids, fasting blood sugar and high sensitive C - reactive protein tests were conducted. All the participants underwent Transthoracic Echocardiography to measure epicardial adipose tissue thickness at end systole in parasternal view. 64 participants completed 12 weeks of aerobic exercise and 62 participants came for follow-up after 12 weeks with no lifestyle modification. All the outcomes were repeated. Descriptive statistics, Pearson’s correlation coefficient and repeated measures ANOVA tests were used to analyse the data.

Results: EEATT values significantly reduced by -16.24% (3.12±1.18 to 2.70±1.04, p<0.05) following 12 weeks of aerobic exercise along with a reduction in weight by 2.96% (80.66±12.12 to 8.27±12.31), body mass index by 3.11% (29.20±2.71 to 28.29±2.81, p<0.05), waist circumference by 2.29% (94.82±7.23 to 92.64±7.33, p<0.05). The study group also witnessed changes in TC by -2.60%, LDL-C by-4.23%, HDL-C by 5.18%, TG by -6.53%, FBS by -3.08% and VO2 peak by 12.18% (33.74±3.38 to 40.42±2.91, p<0.05), whereas there were no significant changes seen in the control group.

Conclusion: 12 weeks of aerobic exercise has been found to be effective in reducing EEATT in overweight and obese individuals. There was significant improvement observed in body composition, blood lipids, FBS, HS-CRP and aerobic capacity in study group compared to control group.