Background

Limited data exist on the efficacy of multifactorial lifestyle programs on impacting the progression of atherosclerosis and body fat measures. We examined the efficacy of a lifestyle intervention program combined with a full body CT scan on progression of coronary artery calcium (CAC), thoracic and epicardial fat.

Methods

We studied 73 participants randomized to the RENEW [TM] lifestyle intervention program or standard of care. The RENEW [TM] Program included modules on responding to stress, enhancing the effects of relaxation, nourishing the immune system, physical activity, and social support. Participants received baseline and 2-year follow-up measures of risk factors and CAC (volume and Agatston score) from whole body computed tomography (CT); the intervention group also received a comprehensive physician consultation on the scan results. A subset also had epicardial and thoracic fat assessed by CT. We examined baseline-follow-up changes in CAC, epicardial and thoracic fat between treatment groups.

Results

Among 73 subjects (35 control and 38 intervention) who completed the program over 2 year follow-up, after adjustment for baseline CAC, age, gender, and risk factors, there were increases in (natural log units) both CAC volume (mean=0.17, 95 % confidence interval= [0.07–0.25] cm3) and CAC score (0.24 [0.11–0.36]) in the control group relative to the intervention group (–0.29 [-0.63–0.02] cm3 for volume (p=0.0071 relative to controls) and –0.25 [-0.58–0.09] for score (p=0.0031 relative to controls). In a subset of 42 subjects with measures of epicardial and thoracic fat, intervention pre-post changes in epicardial fat volume were 10.6 [-4.5–25.2] cm3 in controls and –6.9 [-19.2–5.3] cm3 in intervention group participants (p=0.081 for difference) and thoracic fat volume changes were 4.6 [-20.2–28.6] cm3 and –29.9 [-49.5 to –9.3] (p=0.044 for difference) in fully adjusted analyses.

Conclusions

Our findings suggest a potentially beneficial impact of a multifactorial behavioral intervention program combined with a full body CT scan consultation on retarding progression of CAC and on reducing epicardial and thoracic fat volume. Larger scale trials are needed to confirm findings and implications on cardiovascular outcomes.

**Key words**

Behavior, coronary calcium, cardiovascular disease, computed tomography, fat.