

Coronary artery disease (CAD) remains the leading cause of death in women. There is now some controversy on the potential beneficial effects of estrogen in primary prevention.

Methods: We conducted a preliminary study of 234 perimenopausal and post menopausal women, aged 50 to 74 years. All women were asymptomatic, apparently healthy, and referred for Coronary Calcium (CC) scanning to measure CV risk. Women were interviewed by a research nurse prior to their cardiac scan on estrogen use, menopausal status and exercise. Women underwent CC measure using an Electron Beam Scanner. Measure of other known cardiovascular risk factors were performed. Multivariate regression analysis was utilized to evaluate the relationship between CC, hormone replacement therapy (HRT) and physical activity.

Results: Fifty-two percent of the population studied (n=122) reported HRT use. HRT users had a significant lower prevalence of CC (37%) than non-users (50%, $p=0.04$), and mean calcium scores of HRT users were significantly lower than non-users ($p=0.02$), after controlling for all cardiovascular risk factors. Logistic regression demonstrated a significant difference in the presence of CC in HRT users as compared to non-users with an odds ratio of 0.58 ($p=0.04$). A strong positive relationship was found between age and the presence of coronary calcium as shown by logistic regression ($p=0.01$), with an odds ratio of 1.79 for every 10 years of age. Body mass index was not significantly related to the presence of CC ($p=0.52$, OR=1.02). In regards to physical exercise, logistic regression women's CC scores improved with increasing levels of physical activity, and logistic regression indicated a significant interaction between physical activity and HRT ($p=0.03$, OR=4.05).

Conclusions: The coronary calcium score, and prevalence of calcification were found to be significantly lower in postmenopausal women receiving HRT than for postmenopausal women not receiving HRT. Also, physical activity is significantly and inversely associated with CC on EBT. These findings suggest that long-term use of HRT (and physical exercise), in a primary prevention population, might have a protective effect upon a woman's cardiovascular profile.

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