



IMAGING BIOMARKERS OF ATHEROSCLEROSIS AND ESTROGEN EXPOSURE: FURTHER ON THE WINDOW HYPOTHESIS

Cano A (ES) [1]

Context

Atherosclerosis initiates with endothelial dysfunction leading to early lesions in the vascular wall. Experimental and clinical evidence supports a protective role of estrogens at that stage. An adequate estrogenic milieu may protect against atherosclerosis in the menopausal transition and early post-menopause. Recent data confirm that some well-recognised estrogen actions, like the reduction in the frequency and intensity of hot flushes, are translating a good control of the underlying vascular spasmodic responses at the central nervous system.

Objective

To update evidence on the value of vascular imaging biomarkers as support of the estrogenic window hypothesis during the menopausal transition and early post-menopause.

Results and conclusion

The interest on the effect of estrogens on cardiovascular disease has migrated from risk factors to biomarkers, i.e., indicators of the presence of disease at the vascular wall, whichever the stage. Imaging techniques are being helpful at two main arterial territories, the carotid and the coronary tree. The intima-media thickness (IMT) may be easily measured at the carotid by high-frequency ultrasound, while computer tomography (CT) and magnetic resonance (RM) are used for directly exploring the coronaries. Current research is assessing the potential of the identified lesions at each territory, carotid or coronaries, as predictors of CV events. The performance of IMT as a valuable biomarker to predict cardiovascular events, at both the brain and the heart, is preferred by many investigators due to the operability of the technique. Indeed, regression and multivariable models are showing the exposure to estrogens with favourable variance in IMT. Also, the technique has been used in studies to check the window hypothesis, like in the recently published ELITE trial or different analyses of the SWAN cohort. Of burning interest, IMT values have been shown to correlate with menopausal symptoms like hot flushes that, in correspondence, have been shown to bridge symptoms with cardiovascular events. Data with CT and RM are less abundant because of the more invasive nature and higher cost of both techniques. Nonetheless, results relate estrogen exposure with coronary artery calcium (CAC) score, as

[1] University Valencia-INCLIVA

measured by CT, and other features of the coronary wall, as detected by CT or RM. In conclusion, the accelerated progression in imaging is paving the way to important advances about the relationship between estrogens and atherosclerosis.