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C3 CONVERTASE AND THE FRAMINGHAM SCORE CALIBRATED FOR SPANISH POPULATION: A WELL-MATCHED MARRIAGE

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Objectives: The aim of the study was to investigate the correlation between serum C3 convertase levels and REGICOR model.

Material and method: Population: We evaluated 332 subjects from the endothelial pathology unit, who had serum C3 determinations in their first visit. Patients with coronary heart disease (CHD), type 1, LADA and MODY diabetes were excluded. C3 convertase was measured by nephelometry (mg/dl). Outliers were excluded (mean ± 3-fold SD). Biochemical parameters of glucose and cholesterol were measured by an HITACHI autoanalyzer and blood pressure by an OMRON 705 CP sphygmomanometer. Cardiovascular risk assessed according to the REGICOR model, (Framingham function calibrated for Spanish population). Statistical analysis: Continuous variables described as mean (SD: standard deviation). Pearson's correlation coeficient. Comparison between groups: student's t-test. Normality assessed by Kolmogorov–Smirnov test. Levene test for equality of variances. p = 0.05.

Results: Population: aged 55.5 (10.7) range 35 to 74 years, 59.0% males, 55.1% hypertensives, 22.9% smokers, 27.7% with Type 2 diabetes mellitus. Females were slightly older than males (57.1 (10.7) vs 54.3 (10.6)). C3 serum levels ranged from 65 to 216 mg/dl. Mean 133.1 (SD: 26.4). No signiicant differences were found in C3 levels between males and females. C3 levels were not correlated to age. 10-years coronary risk in overall population: 4.6% (3.6), range: 0.1 to 23.1. Males had higher risk than females (5.4(4.0) vs 3.5 (2.6); p < 0.001). C3 was positively correlated to coronary risk (r = 0.167; p = 0.003) in our whole population. We divided the population into groups by sex and age. Just in males between 35 and 44 y.o. C3 was signiicantly correlated to coronary risk (r = 0.316; p = 0.041). In females, C3 was linearly related to coronary risk in every age group below 65 y.o. From 35 to 44 y.o: r = 0453, borderline signiicance. 45-54 y.o: r = 0573, p < 0.001. 55-64 y.o.: r = 0.437, p = 0.004.

Discussion: The C3 complement factor is an acute phase reactant, produced by the liver, a cytokine secreted by activated macrophages at inlammation sites and adipocytes. It has been associated with atherosclerosis and cardiovascular risk (Muscari et al. 2000; Onat et al. 2005). The evidence indicates the crucial role of inflammatory processes in all stages of atheroma formation, including infiltration of inflammatory cells in the intima and secretion of cytokines. Therefore systemic inlammatory proteins have been evaluated as predictive biomarkers of cardiovascular disease. The C3 was the unique

inflammatory marker independent of body mass index, insulin and other inlammatory markers (Engstrom et al. 2005). However, the association of C3 with the full development of. metabolic syndrome and cardiovascular risk has not been studied independently until today.

Conclusions: High levels of C3 convertase are correlated with increased risk of primary cardiovascular event in the overall population of our study. High levels of C3 come forward as good predictors of cardiovascular risk in young patients and very signiicantly in premenopausal/perimenopausal women. Our study is consolidating a relationship between primary cardiovascular risk in women with C3 serum levels.