Increase of serum cyclophilin C levels in the follow-up of coronary artery disease: a biomarker and possible clinical predictor

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Background: Traditional cardiovascular risk factors and a large number of biomarkers are well known in their association with the diagnosis and prognosis of coronary artery disease (CAD). Cyclophilin C (CypC) is a subfamily of immunophilins that modulates macrophage activation and redox homeostasis.

Purpose: This study is aimed at investigating the changes in serum CypC levels and their relationship with cardiovascular events at 12 months of follow-up in CAD patients.

Methods: The study included a total of 125 subjects (40 patients with acute CAD, 40 patients with chronic CAD and 45 control volunteers). We analyzed plasma CypC levels from baseline to 6 and 12 months for a better understanding of its behaviour in atherosclerosis.

Results: Serum CypC levels were shown to be gradually increased in CAD patients [(30.63 pg/mL ± 3.77 at baseline, 38.70 pg/mL ± 6.41 at 6 months (p=0.25) and 47.27 pg/mL ± 5.65 at 12 months (p=0.007)]. In addition, serum CypC levels during the follow-up were a significant predictor of CAD (c-statistic 0.76 at 6 months and 0.89 at 12 months; p<0.001). Despite it, there was no significant association between CypC and cardiovascular events, but serum CypC levels tended to be higher in patients suffering cardiovascular events during the follow-up (29.02 pg/mL ± 6.39 vs 79.96 pg/mL ± 22.18; p=0.029). In this regard, plasma levels of hsCRP >2.3 mg/L plus NT-proBNP >300pg/mL together were significant predictors of cardiovascular events during the follow-up in CAD patients with CypC levels >17.5 pg/mL (p=0.048).

Conclusions: Taken together, our results suggest that serum CypC levels increase during the follow-up in CAD patients and could be a novel biomarker with a possible prognostic value in combination with hsCRP and NT-proBNP.