Long term pronostic role of lipoprotein-associated phospholipase A2 levels in patients with acute heart failure without acute coronary syndrome

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Background: Vascular inflammation increased in HF and produced pro-inflammatory cytokines, activation of complement and adhesion molecules that sustain inflammatory state. Lipoprotein-associated phospholipase A2 (Lp-PLA2) hydrolyze phospholipids and is a marker of inflammation that plays a critical role in atherogenesis and endothelial dysfunction.

Aims: In this study, we evaluated (1) predictive value of Lp-PLA2 in patients with de novo cardiogenic shock (CS) without acute coronary syndrome (ACS), (2) evolution of this biomarker when cardiac function improved upon cardiac treatment during a 30±3 month follow-up.

Methods: Inclusion criteria for patients: CS defined by systolic BP<90 mmHg with peripheral hypoperfusion. Exclusion criteria: pace makers or other shock etiologies. All patients had cardiac (echocardiography, coronarography) and biological evaluations (troponin; NT-proBNP; Lp-PLA2 with turbidimetric immunoassay).

Results: 22 consecutive patients with CS (95% men, 57.5±10.7y, LVEF 25.1±7.5%, proBNP 8540 ng/L) were included: 7 ischemic CM, 15 dilated CM [12 idiopathic, 2 toxic and 1 myocarditis]. Cardiovascular risks: diabetes (n=11), HBP (n=7), tabacco (n=9), dyslipidemia (n=8). At 30 months, HF symptoms decreased in 6 patients and 3 normalized their LVEF. Mortality was 23% (due to cardiac complications) and morbidity 48% (iterative hospitalizations for HF and/or arrhythmia).

Lp-PLA2 were elevated in CS (226±77 μg/L), when referred to our controls (156±45.0 μg/L, p=0.005). Upon admission, Lp-PLA2 was more elevated in ICM than DCM group (266±74 and 203±72 μg/L, p=0.08).

In ICM, Lp-PLA2 levels significantly decreased when inotrope treatment was withdrawn (208±63 vs 266±74; p=0.03) without significant difference with DCM group.

Using multivariate regression Lp-PLA2 appears to be an independent prognostic factor for the major cardiac events (death, HF rehospitalization, arrhythmias) (total r=0.76; p=0.005) with a a predictive rule-out of 254 μg/L

Conclusion: 1) Lp-PLA2 concentrations were elevated in population with CS and more elevated in ICM group than DCM group; 2) Lp-PLA2 might be a good predictive factor for major cardiac events.

Lp-PLA2 levels decreased significantly upon inotrope.