In-Hospital Metabolic Changes and the Consequences on Short and Long Term Outcome in Patients with Acute Myocardial Infarction

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Aim: It has been demonstrated that albumin is a negative phase reactant and the development of hypoalbuminemia is in close relation to the inflammation status. In this light, the aim of the present study was to assess the prevalence and prognostic significance of changes in serum albumin levels along hospitalization in patients with acute myocardial infarction (AMI).

Methods: We prospectively studied 1418 consecutive patients admitted with AMI and normal synthetic liver function. Serum albumin concentration was tested daily during hospitalization. The mean follow-up period was 24 months. Multivariate Cox models were used to assess the relationship between nadir albumin level and long term survival.

Results: During hospitalization 54.5% of study population developed hypoalbuminemia (<3.5 g/dl). The mean nadir albumin was 3.38±0.58 g/dl (median 3.5, IQR 3.1-3.8), 0.31 g/dl lower then admission levels ($p<0.0001$). In-hospital mortality according to nadir albumin quartiles (from lowest to highest) was: 21.9%, 4.8%, 2.3% and 2.3% respectively ($p<0.0001$). During long term follow-up, we observed a mortality of: 30.2%, 10.1%, 5.5% and 3.9% respectively ($p<0.0001$). After adjusting for age, gender, diabetes mellitus, hypertension, ST-elevation AMI, anterior wall involvement, left ventricular systolic function and creatinine clearance, the nadir albumin in lowest quartile (<3.1 g/dl) remained a strong predictor for mortality (HR 3.23, 95% CI [1.24-8.40], $p<0.016$).

Conclusion: The development of hypoalbuminemia is frequent during hospitalization of patients with AMI and is strongly related to a worse short and long term outcome.