The Impact of the Metabolic Status on Treatment and Prognosis in Patients with Myocardial Infarction

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Purpose: It has been demonstrated that hypoalbuminemia is in close relation to the inflammation status, plaque instability, hypercoagulability and reduced drug efficacy. The aim of the present study was to assess the therapeutic and prognostic significance of on-admission serum albumin levels in patients with acute myocardial infarction (AMI).
Methods: We studied 2777 patients admitted with AMI for whom albumin serum levels tested on-admission. Hypoalbuminemia was defined as a level below 3.5 mg/dl. The study population was grouped according to serum albumin level and use of invasive or conservative strategy. The mean follow-up was 36.5 months. Kaplan-Maier and Cox models were used to assess the behavior and relationship between the albumin levels, therapeutic strategy and long term mortality.
Results: Hypoalbuminemia was detected in 1064 (38.3%) patients. Of them, 457 (42.9%) had PCI, while the remainder were treated conservatively. In the normal albumin group, PCI had been performed in 968 (56.5%) patients, with the rest being treated conservatively. The crude mortality for the hypoalbuminemia/no-PCI, hypoalbuminemia/PCI, normal albumin/no-PCI and normal albumin/PCI groups were 43.0%, 19.0%, 26.7% and 7.3% ($p<0.0001$) respectively. The hazard ratios (HR) for long term mortality for hypoalbuminemia/no-PCI, hypoalbuminemia/PCI and normal albumin/no-PCI, as compared to normal albumin/PCI groups were 9.47 (95%CI 6.79-13.20, $p<0.0001$), 3.52 (95%CI 2.39-5.18, $p<0.0001$) and 5.01 (95%CI 3.58-7.02, $p<0.0001$). After adjusting for age, gender, Killip class, diabetes mellitus, ST elevation AMI, anterior wall infarction and creatinine clearance, the HR were 4.00 (95%CI 3.00-5.32, $p<0.0001$), 2.23 (95%CI 1.62-3.09, $p<0.0001$) and 2.79 (95%CI 2.10-3.70, $p<0.0001$) respectively.
Conclusion: On-admission hypoalbuminemia is a marker for high risk population suffering an AMI. Despite the metabolic imbalance, an invasive strategy should be the preferred therapeutic strategy adopted.