

Prognostic Value of Serum Matrix Metalloproteinase (MMP-9) in Critically Ill Septic Patients

Authors : Sherif Sabri, Nael Samir, Mohamed Ali, Ahmed ElSakhawy

Abstract : Introduction: There is growing evidence to support the hypothesis that serum matrix metalloproteinase -9 in could be an early predictor of mortality in septic patients. Aim of the work: Study the relationship of matrix metalloproteinase 9 in patients with SIRS in comparison to septic patients in day 0 and day 2. Patients and Methods: This is a prospective observational study conducted on 40 adult critically ill patients staying more than 24 hours in ICU either surgical or medical department, El Fayoum General Hospital in the period from November 2014 to March 2015. Patients met at least two of the criteria for severe inflammatory response syndrome (SIRS). Diagnostic criteria include several clinical and laboratory findings of sepsis induced tissue hypoperfusion or organ dysfunction. Samples were grouped as drawn either at admission, or at day 2 after admission. Results: Patients were divided into two groups: The non-sepsis (SIRS) group, which included 15 (37.5%) patients with no later evidence of sepsis were enrolled as controls. The Sepsis group, which included 25 patients diagnosed to have SIRS with later evidence of sepsis with positive culture. Exploring serum level of MMP-9 in non-survivors and survivors, there was significant increase in non-survivors if compared to survivors at admission p-value 0.001 (mean value in survivors $4.4\text{mg/dl} \pm 4.1\text{mg/dl}$ at admission versus mean value in non-survivors $11.9\text{mg/dl} \pm 5.8\text{mg/dl}$) and after two days of admission was also significant increase p-value 0.001 (mean value in survivors $10.9\text{mg/dl} \pm 9.4\text{mg/dl}$ versus mean value in non-survivors $22.6\text{mg/dl} \pm 10.4$). Conclusion: MMP-9 levels in septic patients have a beneficial role in ICU for high-risk stratification as it is an independent marker of mortality in severe sepsis.

Keywords : matrix metalloproteinase (MMP-9), sepsis, septic shock, systemic inflammatory response syndrome

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