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Evaluation of MCP-1 serum levels as biomarker for predicting prognosis in sepsis patients

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There is a critical need to find biomarkers for sepsis which has a high mortality to predict the outcome. To date, all of the cytokines investigated as prognostic biomarkers for sepsis have lacked sufficient specificity or sensitivity to be routinely employed in clinical practice. We sought to identify new cytokines for use as efficient prognostic biomarkers for sepsis. This study included 143 patients with sepsis, who were divided into survivor and non-survivor groups according to their 28-day mortality status. Plasma samples from two randomly selected patients in each group were subjected to protein chip array analysis. The results shows significant difference between the groups were submitted to enzyme-linked immunosorbent assays (ELISAs), using plasma samples of 20 patients in each group. Confirmatory ELISAs were performed in samples from all 143 patients. The initial protein array revealed seven cytokines with significantly and consistently different expression levels between non-survivors and survivors. The protein array showed IL-6, MCP-1, RANTES, EGF, VEGF R3, MIP-1δ, LAP MCP-1 which were significantly different between non-survivors and survivors group, but only the level of MCP-1 and EGF in serum were confirmed to be different between the two groups by the first ELISA. Subsequent validating ELISAs with 143 plasma samples showed MCP-1 expression to be the most useful biomarker to predict the outcome in sepsis patients. Non-surviving patients with sepsis exhibited higher plasma concentrations of MCP-1 compared to survivors. The plasma MCP-1 level can be used as a biomarker for predicting prognosis in sepsis patients.

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