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Dynamic association of cytokines (IL-6, IL-8, IL-10, IL-12, TNF-α, IL-1 β) in trauma hemorrhagic shock patients

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Objective: This study investigates the serum cytokines levels in patients with trauma hemorrhagic shock and the relationship of these cytokines with clinical outcome.

Background: Trauma remains a significant public health issue and is the leading cause of death in persons younger than 40 years. Up to 50% of early deaths are due to massive hemorrhage. Severe injury and hemorrhagic shock may result is an excessive production of pro-inflammatory cytokine and mediators, which play a significant role in the development of multiple organ dysfunctions.

Design: Prospective cohort study

Patients: Seventy patients with trauma hemorrhagic shock, thirty with normal healthy control.

Intervention: Peripheral blood samples were collected in each patient for determination of serum cytokines concentration. Samples were obtained within 8 h of post injury with T/HS patients. Standard resuscitation techniques as per Advance Trauma Life Support were used in each patient. Clinical and laboratory data were prospectively collected.

Methodology: High concentrations of circulating IL-6, IL-10, IL-8, IL-12, (p<0.05) but not TNF- α , IL-1 β) were detected in a trauma hemorrhagic shock as compared with healthy control group. At study entry, IL-8 concentrations were higher in non-survivors as compared with survivors T/HS patients but not TNF- α , IL-1 β , IL-6, IL10. Increased IL-6 value was an indicator of the development of an infection in patients of trauma hemorrhagic shock.

Conclusions: In trauma hemorrhagic shock, increased IL-6, IL-10, IL-8, IL-12 are detected while compared to normal healthy control. In these patients, increased IL-8 value in non-survivors as compared to survivors and TNF- α , IL-1 β , IL6, IL10 do not correlate with clinical outcome. This study suggests a much higher degree of activation of immune-inflammatory in T/HS than in normal healthy control. Increased IL-8 values were found to be reliable markers of mortality following T/HS.

Biography

Manoj Kumar is Member of Indian immunology Society (ISS), Indian Society of Trauma and Acute (ISTAC) and International Society of Cellular Therapy (ISCT). He has done M.Phil, Microbiology, Ch. Charan Singh University, Meerut, India. Now, he is doing PhD, Department of Emergency Medicine, JPN Apex Trauma Center at All India institute of Medical Sciences, New Delhi, India. His expertise includes, Hematopoietic Stem cells, Immunology (cytokine analysis) patients with Trauma hemorrhagic shock.

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