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EVALUATION OF HEMATOPOIETIC PROGENITOR CELLS IN PATIENTS WITH TRAUMA HEMORRHAGIC SHOCK AND ITS CORRELATION WITH OUTCOMES

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Background: Hemorrhagic shock accounts up to 50% of early trauma deaths. Hematopoietic failure has been observed in experimental animals and human following shock and injury. One of the facets of bone marrow failure is multiple organ dysfunction syndrome and is commonly seen in patients recovering from severe trauma and hemorrhagic shock. Bone Marrow (BM) dysfunction is associated with mobilization of hematopoietic progenitor cells (HPCs) into peripheral blood. Present study explored the association of peripheral blood HPCs with mortality in trauma hemorrhagic shock patients (T/HS).

Material and Methods: Prospective cohort studies of patients presenting within 8 hrs of injury with T/HS to the Department of Emergency Medicine, Jai Prakash Narayan Apex Trauma Center, All India Institute of Medical Sciences were recruited. Peripheral blood samples were collected in each patient for measurement of peripheral blood HPCs. Peripheral blood progenitor cell (PBPC) quantification was performed by measuring HPCs counts using the hematology analyzer (Sysmex XE-2100). Clinical and laboratory data were prospectively collected after consent. Ethical approval was taken and data was analysed by Stata 11.2.

Results: 39 patients with trauma hemorrhagic shock and 30 normal healthy controls were recruited. HPCs were significantly higher ($P < 0.001$) in the T/HS as compared to control. Among study group, 14 patients died within 24 h. at the hospital admission, and found HPCs concentrations were highly significant (<0.001) in non-survivors (n = 14) when compared with survivors (n = 25) among T/HS patients.

Conclusions: Our studies suggest the peripheral blood HPCs may be early prognostic marker for mortality among patients who presented with trauma hemorrhagic shock on admission.

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