

## **Serum Granulocyte Colony Stimulating Factor is a Potent Stimulator of Hematopoietic Progenitor Cells Mobilization in Trauma Hemorrhagic Shock**

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**Abstract :** Background: Hematopoietic progenitor cells (HPC) mobilized from bone marrow to peripheral blood has been observed in severe trauma and hemorrhagic shock patients. Granulocyte-colony stimulating factor (G-CSF) is a potent stimulator that mobilized HPC from bone marrow to peripheral blood. Objective: Our aim of the study was to investigate the serum G-CSF levels and correlate with HPC and outcome. Methods: Peripheral blood sample from 50 hemorrhagic shock patients was collected on arrival for determination of G-CSF and peripheral blood HPC (PBHPC) and compared with healthy control (n=15). Determination of serum levels of G-CSF by sandwich ELISA and PBHPC by Sysmex XE-2100. Data were categorized by age, sex, Injury Severity Score (ISS), and laboratory data was prospectively collected. Data are expressed as mean±SD and median (min, max). Results: Significantly increased the serum level of G-CSF (264.8 vs. 79.1 pg/ml) and peripheral blood HPC (0.1 vs. 0.01 %) in the T/HS patients when compared with control group. Conclusions: Our studies suggest serum G-CSF elevated in T/HS patients. The elevated in G-CSF was also associated with mobilization of HPC from BM to peripheral blood HPC. Increased the levels of G-CSF in T/HS may play a significant role in the alteration of the hematopoietic compartment.

**Keywords :** granulocyte colony stimulating factor, G-CSF, hematopoietic progenitor cells, HPC, trauma hemorrhagic shock, T/HS, outcome

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