

Pattern of circulating granulocyte colony stimulating factor among trauma hemorrhagic shock

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Abstract

Introduction: Circulating peripheral blood granulocyte colony stimulating factor (G-CSF) may contribute to the pathophysiology of bone marrow dysfunction among trauma hemorrhagic shock patients (T/HS). However, the pattern of peripheral blood G-CSF in T/HS and trauma victim without haemorrhagic shock (TVWHS) is not well understood. Therefore, purpose of the study was to explore circulating peripheral blood G-CSF at different time points i.e., at day 0, 3 and 7, and its correlation with clinical outcomes in term of survival or death.

Methods: Prospective cohort study enrolled 105 patients. Blood sample from 55 T/HS patients were collected at the time of admission and follow-up day 3 (n=31) and day 7 (n=19) for the determination of circulating serum levels of G-CSF. Moreover, compare with 25 healthy volunteer and 25 TVWHS patients. Demographic details were collected, and whether patient was in shock. Laboratory parameters were also recorded.

Results: Elevated circulating levels of G-CSF at day 0 (at the time of admission) when compared with day 3 and 7 [255 (102.5-696.6) vs 125 (75-202.5) vs 147.5 (118.75-316.25), $p < 0.001$]. G-CSF were also elevated in T/HS when compared with TVWHS and healthy volunteer (2691.2 ± 41.6 vs. 1980.0 ± 48.0 , $p < 0.001$, and 2691.2 ± 41.6 vs. 183.7 ± 35 , $p < 0.001$). Elevated serum level of G-CSF were also found in TVWHS when compared with healthy volunteer (1980.0 ± 48.0 vs. 183.7 ± 35 , $p < 0.001$).

Conclusions: Circulating G-CSF is markedly elevated after traumatic injury and is greater in patients who present in T/HS. Elevated circulating G-CSF was also associated with prolonged mobilization of hematopoietic progenitor cells (HPC). Elevation of G-CSF in humans following T/HS and TVWHS may play a significant role in the development of post traumatic bone marrow dysfunction (BMD), anaemia and infection.

Biography

Manoj Kumar has completed his PhD at the age of 30 years from All India Institute of Medical Sciences, New Delhi and postdoctoral studies from JPN Apex Trauma Centre, AIIMS, New Delhi. He is the Molecular Consultant Diagnostic, CNC Path Lab, New Delhi. He has published more than 21 papers in reputed journals and has been serving as an editorial board member of repute.



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