

## 4<sup>th</sup> World Congress on

# Cell Science & Stem Cell Research

June 24-26, 2014 Valencia Conference Centre, Valencia, Spain

## Peripheral blood hematopoietic progenitor cells (HPCs) correlate with clinical outcome of trauma hemorrhagic shock

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**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. Late death following these injuries is usually associated with infection and sepsis, which leads to the multiple organ dysfunction syndrome. Hematopoietic failure has been observed in experimental animals and humans 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.

**Aim:** This study was designed to find out peripheral blood hematopoietic progenitor cells (HPC) from bone marrow association with mortality following trauma hemorrhagic shock.

**Methodology:** The prospective cohort study include those patients admitted (n=39) within 8 h post injury. 25 T/HS patients survival who had peripheral blood HPC <0.05% 14 T/HS nonsurvival who had peripheral blood HPC >0.372%. Peripheral blood progenitor cell (PBPC) quantification was performed measuring HPC counts by the Sysmex XE-2100 haematology analyser. Than assessed with clinical parameter with outcome and demographic, and laboratory were included.

**Statistical analysis:** Bivariate and multivariate logistic regression analyses were done to identify the risk factors associated with mortality.

**Results:** Peripheral blood stem cell (PBSC)/ HPC were significantly ( $p < 0.05$ ) increased in a non-survivors as compared to survivors.

**Conclusions:** HPC significantly increased in non-survivors patients with trauma hemorrhagic shock as compared to control. But the exact molecular mechanism and signalling pathway involved in change the behaviour of bone marrow microenvironment is still unclear.

## Biography

Manoj Kumar is member of Indian Immunology Society (ISS), and Indian Society of Trauma and Acute (ISTAC). He has done MPhil, 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 haemorrhagic shock.

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