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ABSTRACTS

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Manual Immature Reticulocyte Fraction: a Reliable Marker to Assess Post Traumatic Blood Loss.

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Haemorrhage is a common stress condition following acute trauma that needs prompt medical attention as it can be fatal. Traumatic hemorrhage be classified into three categories; mild, moderate, and severe, based on clinical manifestations and outcomes expected with each. However, in some instances, clinical features may not reflect the exact degree of blood loss due to other comorbid factors etc. Rapid marrow response to hemorrhage includes the release of more immature red cells; reticulocytes and normoblasts depending on haemopoietic stimulus. Therefore, the presence of red cell precursors in peripheral blood is an expected marker following acute hemorrhage. Among reticulocyte parameters, Immature Reticulocyte Fraction (IRF) is widely used to indicate the erythropoietic activity of the bone marrow in stress conditions. Even though the manual reticulocyte count is performed in laboratories, calculation of manual IRF is not routinely practiced. Based on morphology, reticulocytes can be classified into immature and mature sub types. Although automated method is available, it is costly to use. Therefore, this study was performed to evaluate the relationship of manual IRF with degree of hemorrhage in acute trauma. In this analytical cross-sectional study, 38 blood samples of acute trauma patients admitted to emergency trauma care at a tertiary care hospital were analyzed. The IRF values were significantly higher in study subjects with severe hemorrhage than mild and moderate. When the time duration from trauma to admission was considered, subjects with clinically severe hemorrhage showed high IRF values within one hour. Appearance of the most immature (stage I) reticulocytes were noted after two hours of trauma in study subjects. Therefore, this study supports the ability of manual IRF in objective assessment of early marrow response to hemorrhage thus assessment of severity of acute trauma. Thus, the manual IRF in peripheral blood can be considered an important, reliable, and cheap laboratory indicator in acute trauma care in the diagnosis and management of acute blood loss.

Key words: *Immature Reticulocyte Fraction, Degree of hemorrhage, Acute trauma*