

## **Comprehensive Analysis of Liberal and Restrictive Transfusion Strategies in Pediatric Intensive Care Unit.**

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Akyildiz B(1), Ulgen Tekerek N(1), Pamukcu O(2), Dursun A(1), Karakukcu M(3),  
Narin N(2), Yay M(4), Elmali F(5).

**Background:** We prospectively compared restrictive and liberal transfusion strategies for critically ill children regarding hemodynamic and laboratory parameters.

**Methods:** A total of 180 children requiring packed red blood cells (PRBCs) were randomized into two groups: the liberal transfusion strategy group (transfusion trigger < 10 g/dL, Group 1) and the restrictive transfusion strategy group (transfusion trigger  $\leq$  7 g/dL, Group 2). Basal variables including venous/arterial hemoglobin, hematocrit and lactate levels; stroke volume; and cardiac output were recorded at the beginning and end of the transfusion. Oxygen saturation, noninvasive total hemoglobin, noninvasive total oxygen content, perfusion index (PI), heart rate and systolic and diastolic blood pressures were assessed via the Radical-7 Pulse co-oximeter (Masimo, Irvine, CA, USA) with the Root monitor, initially and at 4 h.

**Results:** In all, 160 children were eligible for final analysis. The baseline hemoglobin level for the PRBC transfusion was  $7.38 \pm 0.98$  g/dL for all patients. At the end of the PRBC transfusion, cardiac output decreased by 9.9% in Group 1 and by 24% in Group 2 ( $p < 0.001$ ); PI increased by 10% in Group 1 and by 45% in Group 2 ( $p < 0.001$ ). Lactate decreased by 9.8% in Group 1 and by 31.68% in Group 2 ( $p < 0.001$ ).

**Conclusion:** Restrictive blood transfusion strategy is better than liberal transfusion strategy with regard to the hemodynamic and laboratory values during the early period. PI also provides valuable information regarding the efficacy of PRBC transfusion in clinical practice.