



To evaluate the hemolysis biomarkers of packed red blood cells transfused by two different linear peristaltic infusion pumps at two infusion rates” Wilson et al (2018).

Abstract:

OBJECTIVE: To evaluate the hemolysis biomarkers of packed red blood cells transfused by two different linear peristaltic infusion pumps at two infusion rates.

METHOD: An experimental and randomized study was designed simulating the clinical practice of transfusion. Two linear peristaltic infusion pumps from different manufactures were studied in triplicate at 100 mL/h and 300mL/h infusion rates. The chosen hemolysis biomarkers were total hemoglobin, free hemoglobin, hematocrit, potassium and degree of hemolysis. They were analyzed before and after each infusion.

RESULTS: Potassium showed statistically significant variations in all scenarios of the experiment ($P < 0.010$). In a separated analysis, potassium increased mainly at 300mL/h rate ($P = 0.021$) and free hemoglobin had significant variation when comparing infusion pumps from different manufacturers ($P = 0.026$). Although hematocrit, total hemoglobin and degree of hemolysis had increased after infusion, no statistically significance variations were identified. **CONCLUSIONS:** Hemolysis risk induced by a linear peristaltic infusion pump was identified by an increase in free hemoglobin and potassium markers. As the potassium biomarker is often increased in aged packed red blood cells, we do not recommend using

them in this scenario. Additional studies should be performed about other markers and using larger samples in order to reinforce the transfusion practice in nursing.

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Reference:

Wilson, A.M.M.M., Peterlini, M.A.S. and Pedreira, M.D.L.G. (2018) Hemolysis risk after packed red blood cells transfusion with infusion pumps. *Revista Latino-Americana de Enfermagem*. October 11th. . .

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