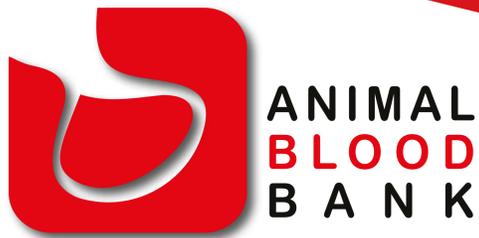


LEUKOREDUCTION EFFECT ON THE HAEMOLYSIS OF CANINE PACKED RED BLOOD CELLS UNITS

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INTRODUCTION

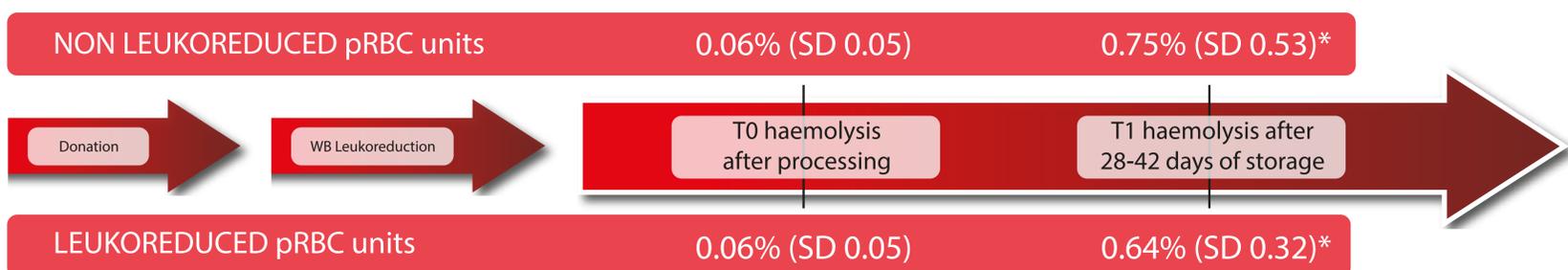
Leukoreduction is a common practice in human blood banks, but not routinely performed in most canine blood banks. Removal of WBCs prior to pRBC storage will decrease inflammatory responses to transfusion in dogs. Human studies also highlighted the significant odds reduction of postoperative and injured patients' infections, along with lower rates of non-febrile haemolytic transfusion reactions. Changes in cell membranes, described as storage lesions, also decrease after leukoreduction, as lower levels of microparticles formation were found in stored canine pRBC units. This study aimed to evaluate haemolysis in leukoreduced (LR) and non-leukoreduced (non-LR) pRBC units before and after storage.

METHODS

A total of 1294 non-LR pRBC units collected with a triple pack system with CPD and SAG-Manitol (Terumo®) were evaluated for haemolysis (HemoCue® Hb and Plasma Low Hb) - 389 immediately after whole blood processing (T0) and 905 after 28-42 days of storage at 2-6°C (T1). The same analysis was performed in 1649 LR pRBC units collected in quadruple pack systems with CPD, SAG-Manitol and WBC filter (Fresenius®) - 361 at T0 and 1283 at T1. Leukoreduction was performed in the whole blood units before

$$\text{Haemolysis} = \frac{\text{Free Haemoglobin}}{\text{Total Haemoglobin}} \times (100 - \text{Haematocrit})$$

RESULTS



*Haemolysis of pRBC at T1 presented significant differences between LR and Non-LR Units $p=0.05$. No difference was registered between the same units at T0. Mann-Whitney test was used as p value from Kolmogorov-Smirnov test < 0.001 .

25.5% of non-LR and 21.4% of LR units presented a haemolysis higher than 0,8% at T1

CONCLUSION

In this studied group, the use of leukoreduction filters did not increase haemolysis in pre-stored pRBC units, as the mean haemolysis % was the same in both non-LR and LR groups, suggesting that WBC filters may be safely used in canine blood banks. Results obtained after pRBC storage also highlight the benefits of their use, as LR units presented a lower mean haemolysis than non-LR units. Furthermore, according to our study, the use of these filters will significantly decrease discharged units, if a maximum 0.8% haemolysis is accepted as recommended by European Council.

