METHOD

Three aliquots of blood were prepared from expired packed red cells and plasma to produce PCV's in the polycythaemia, moderate and very marked anaemia categories. These aliquots were then divided into EDTA tubes. PCV's from 24 EDTA tubes were measured by two of the authors separately according to World Health Organisation (WHO) guidelines. Final year veterinary students and veterinary surgeons were given three samples in duplicate, being blinded to the duplicate, and asked to perform PCV measurement. Subjects were asked their confidence prior to measurement and their confidence in the result after measurement. Once the subject has completed the task, the PCV was checked by one author. Tube fill and use of duplicate tubes was also recorded. A result within 2% was considered acceptable.

RESULTS

Aliquot PCV's were: A, 10.5–12.5%, B, 27–29% and C,

58.5–60%. 44 final year veterinary students and 11 veterinary surgeons completed the task. 311 PCV measurements were recorded. 30 (68%) students and 10 (90.9%) vets filled the tubes out-with the WHO recommended amount. 41 students and seven vets tested the samples singly. Mean PCV values, standard deviation(sd), minimum and maximum error were: A, 12%, sd 1.79, –6 to 7; B, 27.9%, sd 3.4, –15 to 11; C, 58.3%, sd 3.7, –15 to 10. 23 students and 10 vets obtained acceptable results. 11 students had results consistent with inadequate mixing. 10 students and one vet obtained results consistent with inaccurate reading of the tube.

CONCLUSION

Significant operator variation was present in analysis of PCV measurement which appeared to reduce with increased experience. A standard protocol may reduce this variation.

Platelet counts in canine fresh whole blood after collection and storage

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INTRODUCTION

Fresh whole blood (FWB) is often transfused in an attempt to increase circulating platelet counts in thrombocytopenic dogs. However, the effect of collection and storage on the platelet count of canine FWB has been incompletely described. The goal of this study was to determine if platelet count decreases upon collection and storage of canine FWB. Our hypothesis was that the platelet count of FWB would decrease after collection and throughout storage compared to the baseline platelet counts.

METHODS

One unit of blood (450 mLs) was collected from five healthy adult dogs using a standard closed blood collection system containing citrate-phosphate-dextrose-adenosine (CPDA-1). Two mLs were simultaneously collected from a peripheral vein and placed into tubes containing ethylenediaminetetraacetic

acid (EDTA) for determination of baseline platelet counts. Units of FWB were stored at 27° C for 6 hours and then refrigerated at 4° C for an additional 18 hours. Samples were collected from each unit at 0, 2, 4, 6, and 24 hours through the end of a standard IV administration set to mimic a clinical situation in which FWB is collected and administered to a patient within 6 hours or stored refrigerated for possible use for 24 hours. Complete blood counts (CBCs) were measured with a Cell-Dyn 3700 hematology analyzer. Absence of platelet clumping was confirmed by blood smear evaluation. One-way ANOVA and Tukey's multiple comparison tests were performed. Alpha was set to 0.05.

RESULTS

Platelet counts were significantly decreased at all time points as compared to baseline. The mean percentage decrease of the platelet count was 18.3% at time 0, 22.4% at 2 hours, 19.3% at 4 hours, 19% at 6 hours and 20.6% at 24 hours ($p < 0.001$). All platelet counts remained within the reference interval.

CONCLUSION

A significant decrease in FWB platelet count compared to the donor's baseline circulating platelet count is seen immediately at the time of blood collection. The decreased platelet count is sustained throughout the duration of storage. Further clinical studies are warranted to determine whether the platelet count of a FWB unit is associated with a concomitant rise in platelet count in the recipient.