A COMPARISON OF HAEMATOLOGY ANALYSERS.

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ABSTRACT

There has been a rapid development in haematology analysers over the last decade. As a result, veterinarians in clinical practice are faced with a number of options when it comes to laboratory services. Choices include using an in-clinic analyser, making use of government and private veterinary diagnostic laboratories, or private medical and hospital laboratories.

Fundamental problems exist with using animal blood on analysers designed for human blood. Erythrocytes from some animals are much smaller than those of humans and may be confused with platelets. Furthermore there are species differences with regards to both total white cell count and the proportions of the different leucocytes.

In this study a widely used veterinary haematology analyser (ABX Minos Vet) was compared with two medical analysers (Technicon H1 and the Coulter VCS) using blood from cats and dogs with normal and abnormal haemograms. Also included in the comparison were the Automated and Manual QBC-V analysers which are being marketed to Veterinarians for in-clinic use.

The values obtained by all analysers were in close agreement when estimating the packed cell volume of both cats and dogs. Total white cell counts in dogs were also relatively consistent across all analysers , but in cats there was considerable variation in estimates of total white cell count between analysers and when compared with manual estimation using a haemocytometer. This variation highlights the difficulty in obtaining accurate total white cell counts in cats, probably due to interference by clumping of platelets.

Platelet counts obtained by the ABX Minos Vet in dogs correlated well with those counts obtained by both medical analysers but not with the QBC-V analysers. In cats, there was poor correlation of platelet counts between all analysers thus emphasising the problems caused by platelet clumping in this species. The total platelet counts in cats, and to a lesser extent in dogs,

should not therefore be interpreted rigidly and should be checked by visual appraisal of blood smears.

Measurements obtained by the Automated QBC-V most closely correlated with those of the ABX Minos Vet rather than with the Manual QBC-V, suggesting that it is capable of providing more accurate results.

A further study was carried out to determine the effects of time on blood parameters as, in a normal clinical setting there can be considerable variation in the time elapsing between collection of the blood sample and its analysis.

Blood from five cats and five dogs was tested on the three specially adapted veterinary haematology analysers (both QBC-V models and the ABX Minos Vet), over a 24 hour period. The packed cell volumes in both dogs and cats remained consistent over this time period.

The platelet counts in four of the five cats dropped into the thrombocytopenic range at either two or four hours post collection, on all of the analysers. This coincided with a peak in the white cell count observed on the ABX Minos Vet. It is likely that aggregated platelets were being recognised as white cells by the ABX Minos Vet. These results suggest that measurement of the total platelets and white cell counts in cats at two and four hours after blood collection may be less reliable than measurements made either immediately after collection or later than four hours. In dogs, the total platelet counts and white cell counts were relatively consistent over the 24 hour period and any variation encountered would not have altered the interpretation of the results.

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