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Reference Intervals for platelet parameters and Immature Platelet Fraction in healthy dogs measured using the Sysmex XN-2000V

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Topic: Hematology

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Background:
Accurate reference intervals (RIs) for platelet parameters are essential for interpreting haematological findings in dogs, particularly in thrombocytopenic disorders and bone marrow response. The Sysmex XN-2000V is an automated veterinary haematology analyser able to determine platelet count using impedance (I), optical (O), and fluorescence (F) methods. The fluorescence channel also allows evaluation of the Immature Platelet Fraction (IPF), an emerging marker of thrombopoietic activity.

Objectives
The aims of this study were to establish RIs for platelet parameters and IPF in healthy dogs and to evaluate the correlation among the three platelet counting methods.

Materials & Methods:
150 CBCs with corresponding blood smears from clinically healthy dogs, excluding Cavalier King Charles Spaniels, were evaluated. Platelet counts were measured using impedance, optical, and fluorescence methods. Mean Platelet Volume (MPV), Plateletcrit (PCT) Platelet Large Cell Ratio (P-LCR%), IPF% and absolute IPF (IPF#) were also assessed. RIs based on percentile methods were determined for all parameters. Correlation analysis among PLT-I, PLT-O, and PLT-F was performed.

Results:
Proposed RIs were: PLT-I 124-469 $\times 10^3/\mu L$; PLT-O 167-467$\times 10^3/\mu L$; PLT-F 169-471 $\times 10^3/\mu L$; MPV 8.9-12.7 fL; PCT 0.15-0.48%; P-LCR 15.6-48.9%; IPF 0-6%; and IPF# 2-13 $\times 10^3/\mu L$. Correlation between PLT-F vs PLT-I, PLT-F vs PLT-O and PLT-I vs PLT-O ($r=0.9477$, $P<0.0001$; $r=0.8935$, $P<0.0001$ and $r=0.8452$, $P<0.0001$, respectively) was strong.

Conclusion:
Canine-specific RIs for platelet parameters and IPF may improve the diagnostic interpretation of platelet abnormalities and support the clinical application of advanced platelet analysis in veterinary haematology. A strong correlation among platelet counting methods further confirms their analytical reliability.