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Evaluation of Immature Platelet Fraction in the Sysmex XN-2000V in healthy and thrombocytopenic dogs

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Background. The Immature Platelet Fraction (IPF) measures the proportion of newly released platelets and serves as an indicator of bone marrow activity. Using a specific fluorescent channel, the Sysmex XN-2000V analyzer can quantify both total platelet counts and IPF.

Objectives. This study aimed to assess whether there was a statistically significant difference in IPF values between thrombocytopenic and healthy dogs, and to evaluate the potential of IPF as a parameter of bone marrow function.

Material and Methods. Fifty CBCs with corresponding blood smears, were evaluated from thrombocytopenic dogs and compared with fifty from healthy controls. Platelet counts were measured using three different methods: optical (O), impedance (I) and fluorescence (F). The absolute IPF, IPF%, Mean Platelet Volume (MPV) and Platelet Large Cell Ratio (P-LCR%) were compared.

Results. Median (Me) platelet values in thrombocytopenic dogs for PLT-O, PLT-I and PLT-F were 60, 30 and 73 (10^3/µL), respectively. Absolute IPF and IPF% were significantly higher in thrombocytopenic dogs compared to healthy controls (Me 10.5 vs 6.4; p=0.0327 and Me 13.5% vs 2.2%; p<0.0001, respectively). P-LCR% was also increased (Me 40.0% vs 33.9%; p=0.0071) whereas MPV did not differ significantly (Me 11.30 fl vs 10.80 fl; p=0.1729).

Conclusion. Thrombocytopenic dogs showed elevated levels of both absolute IPF and IPF% compared to controls, indicating an active bone marrow response. An increase in P-LCR% was observed, but it was not significant enough to affect the MPV. IPF appears to be a useful non-invasive parameter of thrombopoietic activity, suitable for diagnostic evaluation and monitoring.

Keywords: dog, Sysmex XN-V analyzer, Immature Platelet Fraction, thrombocytopenia, MPV

Reference:
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