Reference Intervals and innovative parameters using Sysmex XN-2000V in horses

Chiara Masci[1], Caterina Fani [2], Martina Quagliardi[1], Giacomo Rossi[1] and Alessandra Gavazza[1]

[1] School of Biosciences and Veterinary Medicine, University of Camerino, Matelica (MC), Italy

[2]CDVET Veterinary Analysis Laboratories, Rome, Italy

The evaluation of the hemogram is a key component in diagnosing diseases and monitoring animal health. This study aims to establish reference intervals (RIs) for healthy horses using a next-generation hematology analyzer designed for veterinary medicine (Sysmex XN-2000V). In addition to conventional hemogram parameters, this instrument provides innovative indices such as immature reticulocyte fraction (IRF) and can determine platelet count by three methods: impedance (PLT-I), optical (PLT-O), and fluorescence (PLT-F). Moreover, a specific fluorescent platelet channel can determine an important thrombopoietic marker named immature platelets fraction (IPF).

For this study, hemograms from 50 clinically healthy adult horses were analyzed. Mean, median and standard deviation were assessed, and RIs were calculated using the percentile method (2.5%; 97.5%). The following RIs were determined: HCT (26.94–39.24 %), HGB (9.89–14.10 g/dl), RBC (5.5–8.3 10^6/µL), MCH (15.52–17.90 g/dl), MCHC (34.16–37.40 g/dl), MCV (43.13–50.04 fL), RDW (19.4–22.27 %), RET-HE (18.90–24.50 pg), RETICULOCYTES (0.05–0.22 %), RPI (0.00–0.10), WBC (4.50–8.70 10^3/µL), corrected WBC (4.50–8.70 10^3/µL), BAS (0.00–0.10 10^3//µL), EOS (0.00–0.30 10^3/µL), LYMPH (1.30–3.47 10^3/µL), MON (0.20–0.40 10^3/µL), NEU (2.40–5.41 10^3/µL), MPV (7.12–8.70 fL), PCT (0.08–0.13 %), PLT-I (61.20–152.80 10^3/µL), PLT-O (96.90–170.00 10^3/µL), PLT-F (96.75–160.60 10^3/µL), HFR (0.00–11.40 %), IRF (0.00–11.8 7%), LFR (59.95–100.00 %), MFR (0.00–2.14%), IPF (0.30–4.06 %), PDW (6.51–15.21 fL), P-LCR (4.32–15.21 %), IPF# (0.4–4.14 10^3/µL).

Establishing species-specific RIs based on the analytical instrument used is essential for accurately assessing the health status of both healthy and diseased horses, covering both standard and innovative parameters.

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[1] e-mail: chiara.masci@unicam.it