



OPEN ACCESS

EDITED BY
Tanmoy Rana,
West Bengal University of Animal and
Fishery Sciences, India

REVIEWED BY
Yu Ueda,
North Carolina State University,
United States
Ibrahim Emam,
Cairo University, Egypt

*CORRESPONDENCE
Mahmood Ahmadi-hamedani
ahmadi.hamedani@semnan.ac.ir

SPECIALTY SECTION

This article was submitted to
Veterinary Emergency and Critical
Care Medicine,
a section of the journal
Frontiers in Veterinary Science

RECEIVED 29 August 2022
ACCEPTED 23 November 2022
PUBLISHED 08 December 2022

CITATION
Hosseinpour H, Ahmadi-hamedani M,
Masoudifard M, Shirani D and Narenj
Sani R (2022) Assessment of the utility
of platelet indices to diagnose clinical
benign prostatic hyperplasia in dogs.
Front. Vet. Sci. 9:1031292.
doi: 10.3389/fvets.2022.1031292

COPYRIGHT

© 2022 Hosseinpour,
Ahmadi-hamedani, Masoudifard,
Shirani and Narenj Sani. This is an
open-access article distributed under
the terms of the Creative Commons
Attribution License (CC BY). The use,
distribution or reproduction in other
forums is permitted, provided the
original author(s) and the copyright
owner(s) are credited and that the
original publication in this journal is
cited, in accordance with accepted
academic practice. No use, distribution
or reproduction is permitted which
does not comply with these terms.

Assessment of the utility of platelet indices to diagnose clinical benign prostatic hyperplasia in dogs

Hediyeh Hosseinpour¹, Mahmood Ahmadi-hamedani^{1*},
Majid Masoudifard², Darush Shirani³ and Reza Narenj Sani¹

¹Department of Clinical Sciences, Faculty of Veterinary Medicine, Semnan University, Semnan, Iran, ²Department of Surgery and Radiology, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran, ³Department of Internal Medicine, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

Introduction: Platelet indices changes in severely ill people and in dogs with inflammation are compatible findings. This study aimed to compare platelet indices between dogs with clinical benign prostatic hyperplasia (BPH) and healthy controls. Additionally, to determine whether there is a correlation between the relative prostatic size (S_{rel}) and the platelet indices in BPH dogs.

Methods: Thirty-five adult intact male dogs of different breeds were allocated to the experimental groups: dogs with clinical BPH (groups A; $n = 24$; median age of 6 years; the median weight of 8.50 kg) and healthy dogs (group B; $n = 11$; median age 5.50 years; the median weight of 7.00 kg) based on physical examination, clinical signs, and S_{rel} detected by ultrasonographic findings. The individual prostatic volume (IPV) was divided by the expected prostatic volume (EPV) to determine the relative prostatic size in dogs over 4 years old. Platelet indices were compared between the two groups, and a correlation between S_{rel} and these indices was calculated.

Results: The median S_{rel} of dogs in group A was significantly higher ($P = 0.001$), and the mean plateletcrit (PCT) was significantly lower ($P = 0.003$) compared with those in group B. S_{rel} showed a significant negative correlation with PLT and PCT ($r = -0.388$; $P = 0.02$ and $r = -0.402$; $P = 0.01$). Receiver operating characteristic (ROC) analysis showed PLT and PCT thresholds for estimating $S_{rel} > 1$ with 75% and 87.5% sensitivity and 71.82 and 63.64% specificity.

Discussion: The findings of this study support the use of platelet indices like PLT and PCT to detect clinical BPH in dogs. However, more research is needed to confirm their utility in conjunction with other previously described diagnostic factors.

KEYWORDS

area under curve, dogs, BPH, platelet indices, relative prostatic size