

Large-Form Babesiosis & Reticulocyte Counts

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In the Literature

Piane L, Young K, Giraud L, Bourges-Abella N, Trumel C. Spurious reticulocyte profiles in dogs with large form babesiosis: a retrospective study. *Vet Clin Pathol.* 2016;45(4):598-603.

FROM THE PAGE ...

One of the best methods to assess RBC regeneration is quantification of peripheral blood reticulocytes recently released by bone marrow.

Optimal quantification involves obtaining automated reticulocyte counts via an automated analyzer that can distinguish between mature RBCs and reticulocytes by cell size and degree of RNA staining. Reticulocytes are larger than mature RBCs and contain variable amounts of ribosomal RNA, depending on the degree of maturation. In some instances, presence of an interfering substance can lead to detection of cells that are misinterpreted as reticulocytes.

This retrospective study investigated how reticulocyte quantification in dogs with large-form babesiosis (LFB) using 2 types of automated hematology analyzers could lead to spuriously increased reticulocyte numbers due to interference by *Babesia* spp piroplasms. It was speculated that the analyzers incorrectly interpreted nucleic acid from the parasites as reticulocyte nucleic acid.

The study found that this type of interference did not occur in all dogs with LFB. Of 92 dogs with LFB, 20 were found to have abnormal reticulocyte scatter plots with 3 distinct patterns; therefore, absence of an abnormal reticulocyte scatter plot does not preclude the possibility of LFB.

Of the 6980 dogs without LFB evaluated, only 13 (including 3 with leukemia) had abnormal scatter plots; thus, interference leading to spurious reticulocytosis could occur with processes other than LFB. However, such processes would be less likely than LFB to cause this interference.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** LFB in dogs with a high degree of parasitemia may result in interference in some automated analyzers and lead to falsely increased reticulocyte counts. The expertise of a clinical pathologist is typically needed to recognize this.
- 2** Certain abnormal reticulocyte scatter plots associated with spurious reticulocytosis can be the first sign a dog might have LFB and may warrant blood smear review by a clinical pathologist.
- 3** Follow-up microscopic evaluation of blood smears is an essential component of diagnostic evaluation to confirm presence of polychromatophils/reticulocytes and presence or absence of hemoparasites.
- 4** Absence of spurious reticulocytosis does not rule out LFB in dogs.