



Anemia in Cats and Dogs

micro drip study guide

version 1

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RBC Indices



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MCV – mean corpuscular volume

- Average volume of single erythrocyte

MCHC – mean corpuscular hemoglobin concentration

- Average concentration of hemoglobin in an erythrocyte

RDW - red cell distribution width

- The amount of RBC variation in volume & size

Absolute reticulocyte count

- Recently releases from bone marrow
- Still has visible reticular (mesh-like) network of ribosomal RNA

One of the major takeaways from this presentation is a gentle reminder to please pay attention to your red blood cell indices. All those fun other little data that are printed out on a complete blood count like mean corpuscular volume, MCV, and mean corpuscular hemoglobin concentration, MCHC. I think everybody is very comfortable looking at reticulocyte counts, but here's a big important point about reticulocytes.

We need to know the absolute reticulocyte count. The percentage of reticulocytes is not a fair assessment of regeneration of reticulocytosis. If you get a result back that only lists your percentage of reticulocytes, it's relatively useless unless you have a concurrent red blood cell count. Hopefully, you do. And then, you need to do just a little simple math to calculate the absolute hemoabdomen. count from your red blood cell count and the percent of reticulocytes. But to make it easy on yourself, just always ask for an absolute reticulocyte count.

Indices May Help Differentiate



Regenerative Anemia

- MCV
 - Normal to increased
 - Macrocytosis is common
- MCHC
 - Normal to decreased
 - Hypochromia is common
- Increased RDW
- Absolute reticulocytes
 - Cats: >60 K/uL
 - Dogs: >95 K/uL

Non-Regenerative Anemia

- MCV
 - Normal to decreased
 - Microcytosis is common with Fe deficiency
- MCHC
 - Normal to decreased
 - Normal RDW
- Absolute reticulocytes
 - Cats: <60 K/uL
 - Dogs: <95 K/uL

And the reason that I want people to feel comfortable reviewing these red blood cell indices is because they may help us differentiate regenerative from non-regenerative anemias. It's not a failsafe, but the data can be helpful. For example, regenerative anemias are often associated with normal to increased mean corpuscular volume or MCV, while non-regenerative anemias may be normal to decreased. The classic example of a decreased MCV or microcytosis is a patient with some disease contributing to iron deficiency.

Sometimes looking at indices isn't helpful. For example, MCHC in both could be normal to decreased. And, of course, we know to look for specific values of absolute reticulocytes. For cats, to call something regenerative, we want greater than 60,000. And for our canine friends, we want to see an absolute reticulocyte count greater than 95,000.