Southern Oregon
VETERINARY SPECIALTY CENTER

Darbopoietin vs Erythropoietin

DID YOU KNOW?

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Recently at SOVSC, based on communications with Dr. Larry Cowgill, DVM, DACVIM, we have replaced epoetin alfa (Epogen® or Procrit®) with darbepoetin alfa (Aranesp®) for treatment of anemia associated with chronic renal failure in dogs and cats. While Epogen has been used reliably in the past, the development of antibodies with long term use can lead to irreversible anemia. Antibody production with Epogen is reported in the 20 to 30% range, while reported the development of antibodies when using darbepoetin is reported to be ≤5%. With equivalent erythropoietin potency, increased dosing intervals and a fraction of the antigen delivery we are encouraging all veterinarians to consider this change. The following is a summary of Dr. Cowgill's recommendations.

Darbopoietin vs Erythropoietin: Structurally, darbepoetin differs from Epogen by the addition of two N-glycosylation sites which extend the biologic half-life by 3 times. Aranesp provides equivalent erythropoietin potency with a fraction of the antigen delivery, antigenicity, and potential of anti-r-HuEPO antibodies production seen with Epogen administration. These molecular characteristics may also make Aranesp potentially useful as a rescue drug for animals that have developed antibodies and pure red cell aplasia following Epogen administration.

Therapy: Erythropoietin replacement therapy is indicated in all animals symptomatic for the hypoproliferative anemia of renal failure. In general, patients with non-regenerative anemia are evidenced by depressed reticulocyte counts and pathologic review are candidates for treatment. Clinical symptoms of anemia including weakness, obtunded mentation, anorexia, tachypnea, tachycardia, hypothermia, etc. and are all indications to initiate therapy. In addition to the above symptoms, we recommend initiating treatment in pets with PCV's of 20% and below, and in some cases therapy is initiated in conjunction with a transfusion. The treatment target is a hematocrit of 37%-45% for dogs and 30%-40% for cats. Initial dosing is **0.45mcg/kg/week**, until the target PCV is reached. If the target hematocrit is not achieved within 8-12 weeks, the initial dose can be incremented progressively by 25-50% every 3 to 4 weeks while maintaining the weekly dosage interval. Once the target PCV is achieved increasing the dosing interval and decreasing the dose to the smallest amount needed to maintain red cell mass is recommended. Generally, the dose can be titrated to **0.25-0.5 mcg/kg** of Aranesp subcutaneously every 2 to 3 weeks.

Monitoring: The hematocrit should be monitored weekly until it is within the target range. A complete blood count including an absolute reticulocyte count should be performed biweekly during induction, and then monthly or bimonthly to insure adequacy of the erythropoietic response and to monitor for adverse hematologic reactions.

Adverse events: A sudden decrease in hematocrit, absolute reticulocyte count, or development of anemia in the face of adequate doses of r-HuEPO may signal development of iron deficiency, external blood loss, hemolytic disease, concurrent infectious, inflammatory or neoplastic diseases, or the development of anti-r-HuEPO antibodies that could diminish erythropoiesis. The development of these disorders should be investigated before the dosage is increased.

If we can help you with your cases don't hesitate to call us 24/7!!

Next Edition: "Aerosol Therapy" by Brendan C. McKiernan, DVM, Diplomate ACVIM-SAIM