

DOXORUBICIN (generic name)

Trade names: Adriamycin, Doxil, Rubex

How is this medication useful?

It is used to treat many different types of cancer, especially cancers which do not respond to other drugs. It is probably the most widely used anti-cancer drug in veterinary medicine.

Are there conditions or times where it might cause problems?

Yes. Doxorubicin is a double edged sword. On one hand, it works to kill cancer when many other things won't. But on the other hand, if side effects occur, they can be very serious, and rarely even fatal.

Doxorubicin should not be given to dogs with bone marrow problems or heart problems, since it can be hard on these two areas of the body. Only a certain amount of doxorubicin can be given to each dog. In general dogs usually don't get more than 6-8 doses. Giving more than this can increase risk of damage to the heart muscle. Occasionally when nothing else works, we will give a few more doses, while giving medications to protect the heart. We usually do this only when we have no other options that are better. Breeds who are predisposed to problems with weak heart muscle should be monitored very carefully by doing ultrasound studies of the heart when doxorubicin is administered (Doberman pinschers, Great Danes, Boxers and Rottweilers). Even dogs with healthy hearts will get a heart ultrasound after about 5 doses. Any dog with a heart murmur should have a heart ultrasound prior to receiving this drug, and should be monitored carefully throughout the treatment period.

Kidney function should be monitored carefully by doing bloodwork when this drug is given to cats.

What side effects can be seen?

Dogs who do not shed in the spring and fall can lose hair, or the color or texture of their hair can change after taking this drug (poodles, terriers, etc).

Doxorubicin can cause upset stomach and diarrhea. This can occur on the day the drug is given and several days after (usually 2-5 days or less). We give anti-nausea medicine 30 minutes before giving this drug by an IV drip, and you have anti-nausea pills to use at home if needed. If there is any vomiting or if your pet won't eat at all for an entire day, please call us. This drug can also sometimes cause soreness in the mouth.

Like many chemotherapy drugs, doxorubicin can suppress the bone marrow and increase risk of infection. If your pet has fever, or bruising or bleeding, call your veterinarian immediately.

Allergic reaction has been reported while or shortly after the IV drip is given. If your pet is prednisone or dexamethasone, this will protect against allergic reaction. We also give an antihistamine (usually Benadryl) injection 30 minutes before starting the IV drip to prevent problems with allergic reaction. Though this reaction is not common, if it happens it can be severe, so we always use preventative drugs each time this medication is given. Allergic reaction almost never happens the first time doxorubicin is given. If you see hives, swelling of the face or paws, or difficult breathing after your pet gets this medication, call your veterinarian immediately.

If this drug gets outside the vein (called "extravasation"), this can cause very serious problems. We are extra careful to place the IV catheter on the "first stick," and we always have someone with your pet the entire time the doxorubicin is dripping. A large volume of fluids are given before any drug is given, in order to ensure that fluids and the drug are going directly into the vein. And the drug is flushed well away from the catheter before the IV line is removed. I have never yet in my 20 years of practice seen a problem with this. However, if extravasation were to occur, your pet would be immediately taken to

surgery, and the drug surgically removed from the tissues. If drug is allowed to damage the tissues, large areas of tissue can be lost, and there have been cases where tissue damage has been so severe that the involved limb had to be amputated. If a large amount of drug were to get into the tissues and be absorbed, heart failure could result.

Doxorubicin can cause the bone marrow to stop producing as many blood cells. These effects on bone marrow usually occur within 1-2 weeks of treatment and will take a few weeks to recover if they should occur. Because suppressing the bone marrow also can suppress the immune system, your pet might be more susceptible to infections while on this medication. If you notice your pet not feeling well, please take a rectal temperature. If it is 103°F or greater, give the amoxicillin that you have, and call us immediately.

Like many chemotherapy drugs, doxorubicin should not be used in pregnant or nursing dogs or cats, or in male pets to be used for breeding.

How Should It Be Given?

This drug should be given only under the direct supervision of a veterinarian.

What other information is important about this medication?

We will show you where the injection was given. Please watch this area for any redness, swelling, scabbing or discharge, and call us immediately if there are any problems.

Any urination accidents from your pet should be cleaned up with gloves for at least 48 hours after the last treatment with doxorubicin. Waste should be disposed of in a sealed plastic bag. Doxorubicin may cause urine to be colored orange to red for 1-2 days after dosing.

While we don't want you to panic over the possible side effects of this drug, we do want you to be aware that there are some possible side effects, that while uncommon, can be severe if they happen. We give this drug often, and most of the time, it is tolerated very well.

Some other drugs can interact with this medication so tell your veterinarian about any drugs or foods that you currently give your animal. Do not give new foods or medications without first asking your veterinarian. Modified Live vaccines should never be given to any animal on cancer chemotherapy.