



Liposomal Doxorubicin

What names may be used for this medication?

Liposomal doxorubicin, Doxil, Caylx, liposomal adriamycin

How and why is this medicine given?

Liposomal doxorubicin is given by an intravenous (IV) infusion (a slow drip through a needle into your port or through a vein in your arm or hand) to treat many different types of cancers. We use it most commonly in our office for the treatment of ovarian cancers. It may be used by itself or combined with other chemotherapy drugs.

How does the medicine work?

Liposomal doxorubicin binds to your body's DNA (the machinery or "brain" that runs each cell) causing damage that prevents the DNA from replicating, which prevents the cell itself from reproducing. Liposomal doxorubicin also inhibits the activity of certain enzymes involved in the replication of DNA and forms superoxide free radicals which cause DNA damage. Liposomal doxorubicin is not able to discriminate between good cells and cancer cells, so it can affect many parts of your body besides the cancer. Since non-cancer cells are better than the cancer cells at repairing the damage caused by liposomal doxorubicin, the cancer cells die and your normal cells repair the damage so they can resume their normal function. The side effects you experience from liposomal doxorubicin are a result of this damage prior to your healthy cells having a chance to repair themselves.

Liposomal doxorubicin is cleared from your body through the liver by your biliary system. The enzyme systems that cause this metabolism can be influenced by other medications. It is therefore very important for you to be sure your list of medications that you take for other health problems (such as blood pressure, diabetes, etc.) stays accurate and up to date in our office. We will review your medication list at each visit, and we will monitor your liver's function through blood tests performed prior to each treatment cycle.

How often is this medicine given?

Liposomal doxorubicin is typically given once every 4 weeks (every 28 days). The total number of treatments recommended will vary based on your clinical circumstances, but an initial plan will be outlined for you by your doctor. The infusions are given in the infusion center at the Cancer & Research Center (white building located across the parking lot from our office). Prior to each treatment, you will be seen in the office for an exam, and blood tests will be reviewed to be sure it is safe to administer your next treatment. It is, of course, very important to keep all of your appointments for chemotherapy and lab testing.

What side effects does this medicine cause?

There are many possible side effects of all chemotherapy drugs, so the following is only inclusive of the most common or serious possibilities from liposomal doxorubicin. You will be asked to complete a symptom form at each visit in order for us to accurately assess the side effects that you may be experiencing. This form helps your doctor be sure that no adverse effects of treatment are overlooked, and it serves to help you recall which symptoms you may have experienced since your last treatment.

- ❖ The heart can be affected by liposomal doxorubicin. This may be a rhythm disturbance or inflammation of the heart and occurs within 3-4 days of treatment; this is most often asymptomatic and typically transient. A more significant long term cardiac toxicity is thought to be dose related and can result in heart failure. With the parent compound, doxorubicin, this was a much more of a
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significant concern than it is with the liposomal encapsulated doxorubicin. We monitor your cardiac function throughout treatment to be sure your heart remains stable.

- ❖ Hair loss is unusual with liposomal doxorubicin, but some patients do experience more hair loss than others. If hair loss occurs, hair growth should return upon completion of treatment.
 - ❖ Nausea and vomiting are not unusual but are less common today than in the past because of much improved anti-nausea medications. You will be given prescriptions for medications to prevent nausea, and it is important that you take them as directed in order for them to be most effective. If you have questions, do not hesitate to call the office.
 - ❖ Bone marrow suppression is when the bone marrow cannot make enough red cells, white cells, or platelets to keep up with demand, and this is a side effect of most chemotherapy medications, including liposomal doxorubicin. All of your blood counts will be monitored regularly throughout treatment.
 - ◆ *Anemia* is the result of not enough red blood cells and may cause fatigue, chest pain, shortness of breath, or dizziness.
 - ◆ *Neutropenia* results when your white blood cell count goes too low, and this will put you at an increased risk for infection. It is very important that you avoid sick friends and family; be diligent about hand-washing as well. This does not mean that you cannot be out in public, and in fact you can continue to participate in normal activities such as going to church or a movie, etc. If you think you may have an infection or have a fever of 100.5°F or more, call the office immediately.
 - ◆ *Thrombocytopenia* is the term for too low of a platelet count. This can lead to excessive bruising or bleeding with only minor injury such as brushing your teeth or blowing your nose.
 - ❖ *Mucositis* is sores/ulcers in the mouth that can cause pain and difficulty eating or swallowing. This can occur with liposomal doxorubicin. This can be minimized with good oral hygiene and a warm salt-water solution gargled after each meal. Prescription medication is also available if these steps are ineffective at resolving your symptoms.
 - ❖ Hand-foot syndrome (*palmar-plantar erythrodysesthesia*; PPE) with redness, pain, and peeling of the skin of the palms and soles can occur with liposomal doxorubicin. The frequency of this can be
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decreased by avoiding continued pressure on your skin, staying in cool places and avoiding direct heat on your skin (e.g. hot tubs, sun-bathing, etc.), and by avoiding repetitive friction causing activities (e.g. sweeping, chopping hard food such as carrots) and adhesives on your skin.

- ❖ An infusion reaction can occur in 5-10% of patients with flushing, shortness of breath, headache, facial swelling, and/or tightness of the chest and throat. This usually occurs with the first treatment if it is going to occur.
- ❖ Your urine may temporarily turn red or orange with liposomal doxorubicin.
- ❖ Radiation recall can occur with liposomal doxorubicin leading to a skin reaction in areas of prior radiation exposure.
- ❖ Liposomal doxorubicin can cause problems with fertility. It is not uncommon to stop having periods while receiving liposomal doxorubicin, but these typically return to normal after stopping treatment. Your doctor will discuss this in more detail if applicable to you.
- ❖ If you are pregnant or become pregnant during therapy, you should notify your doctor immediately.

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