



Bleomycin

What names may be used for this medication?

Bleomycin, Blenoxane

How and why is this medicine given?

Bleomycin is given by an intravenous push (a rapid infusion into a vein of your hand or arm or through a port) or subcutaneously (SQ: injection into the layer of fat underneath your skin) to treat many different types of cancers. We use it most commonly in our office for the treatment of gestational trophoblastic disease, certain types of ovarian cancers, and occasionally vulvar or cervical cancer. It may be used by itself or combined with other chemotherapy drugs. Bleomycin is also sometimes used to sclerose (cause scarring) fluid filled spaces that do not have fluid under normal circumstances (for example, the space around the lungs can fill up with fluid due to cancer; this is called a *pleural effusion*).

How does the medicine work?

Bleomycin generates *oxygen free radicals*. These are supercharged oxygen molecules that cause damage to DNA (the machinery or “brain” that runs each cell) that prevents the DNA from replicating, which prevents the cell itself from reproducing. Bleomycin 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 bleomycin, the cancer cells die and your normal cells repair the damage so they can resume their normal function. The side effects you experience from bleomycin are a result of this damage to your healthy cells before they have a chance to repair themselves.

Bleomycin is partially broken down by enzymes inside both normal and cancer cells. The kidney’s filtering process removes bleomycin and its metabolites (broken down components) from your body

in efforts to prevent the drug from staying in your body too long and causing excessive damage to the normal cells. It is therefore important that you keep yourself well hydrated (8-10 glasses of water per day) in efforts to keep the kidneys working at their best. We will monitor your kidney function through blood tests performed prior to each treatment cycle. We will also review your list of medications that you take for other medical problems (diabetes, blood pressure, etc.) at each visit to be sure that none of these other medicines are interfering with clearing the bleomycin from your body.

How often is this medicine given?

Bleomycin is most commonly given on a weekly or bi-weekly schedule. The precise timing of treatment and the total number of treatments recommended will vary based on your clinical circumstances. An initial plan will be outlined for you by your doctor at the initiation of therapy. The treatments are typically 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 (typically only once during the treatment cycle, but occasionally prior to each weekly infusion), and blood tests will be reviewed prior to all infusions to be sure it is safe to administer your 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 bleomycin. 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.

- ❖ Pulmonary toxicity (damage to your lungs) can occur with bleomycin. This is seen more commonly among older patients, in those who have had prior chest radiation, and in those receiving higher cumulative doses of bleomycin. However, lung damage can be experienced by any patient receiving bleomycin. This typically presents like pneumonia—cough, wheezing, and/or trouble breathing. This may progress to a permanent scarring in the lungs called *pulmonary fibrosis*. It is very important that you always remember the name of this medication as high concentrations of
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oxygen (for example while under general anesthesia) may make any pulmonary damage worse, even after completing treatment. Your lung function will be evaluated before treatment and monitored during treatment.

- ❖ Skin toxicity with redness, darkening of the skin/nails, and sensitivity to the sun can occur with bleomycin. Direct sun exposure and tanning beds should be avoided, and sun protection (SPF 15 or higher) should be used liberally while receiving bleomycin. Skin and nail changes usually fade away after therapy is completed.
 - ❖ Allergic reactions to bleomycin can occur. This typically presents during the initial few minutes of an infusion with fevers and chills, and occasionally rash/hives, itching, lowered blood pressure, and difficulty breathing. You will be given a test dose to be sure you tolerate the medication prior to beginning treatment.
 - ❖ Fever and chills may present up to 8-10 hours after treatment and last for 2-3 days. Over the counter agents such as acetaminophen and ibuprofen may be used as desired/needed.
 - ❖ Hair loss can be experienced with bleomycin, but it may take several weeks before this is seen. Some patients do experience more hair loss than others. If hair loss occurs, hair growth should return upon completion of treatment.
 - ❖ *Mucositis* is sores/ulcers in the mouth that can cause pain and difficulty with eating or swallowing. This may occur with bleomycin. 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.
 - ❖ Diarrhea is sometimes seen with bleomycin treatments. A bland diet and limiting dairy intake may help. Over the counter agents such as Immodium are safe to use, and should be started with the first watery stool—do not allow yourself to become dehydrated. If you are unable to control your diarrhea with these measures or feel you may be getting dehydrated, please call the office for further instructions.
 - ❖ Nausea and vomiting are mild and are even less common today than in the past because of much improved anti-nausea medications. You will be given prescriptions for medications for 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.
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- ❖ 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 bleomycin. This is rare and only mild when it occurs with bleomycin. 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.
 - ❖ Bleomycin can cause problems with fertility. It is not uncommon to stop having periods while receiving bleomycin, 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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