



Gemcitabine

What names may be used for this medication?

Gemcitabine, Gemzar

How and why is this medicine given?

Gemcitabine 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). 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?

Gemcitabine mimics one of the components of DNA (the machinery or “brain” that runs each cell) so that when cells are building new DNA during cell division, the cells “mistakenly” utilize the gemcitabine instead of the normal substance. This leads to a stopping of DNA production, which leads to cell death. Gemcitabine can also become incorporated into the cell’s RNA (a “copy” of DNA that leads to protein synthesis needed for normal cellular activity). When this happens, a protein that is unable to perform its normal function is created, which can also lead to cell death. Gemcitabine 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 detecting and repairing the damage caused by gemcitabine, the cancer cells die and your normal cells repair the damage so they can resume their normal function. The side effects you experience from gemcitabine are a result of this damage prior to your healthy cells having a chance to repair themselves.

Gemcitabine is cleared from your body through the kidneys. The kidney's filtering process prevents the drug from staying in your body too long and causing excessive damage to 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's 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 gemcitabine from your body.

How often is this medicine given?

Gemcitabine is typically given weekly for three consecutive weeks out of a four week cycle (on days 1, 8, and 15 of a 28 day cycle). Some treatment regimens only give the gemcitabine for two consecutive weeks, especially when combined with other chemotherapy drugs. The most appropriate administration regimen and the total number of treatment cycles 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 (typically only once during the 28 day cycle, but occasionally prior to each weekly infusion), and blood tests will be reviewed prior to each weekly infusion 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 gemcitabine. 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.

- ❖ Hair loss is typically minimal with gemcitabine, but some patients do experience more hair loss than others. Hair growth should return upon completion of treatment.
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- ❖ 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.
 - ❖ Nerve toxicity can be seen, but it is uncommon in patients taking gemcitabine. Numbness, tingling, burning, or pain in your hands or feet, or ringing in your ears may be signs of nerve injury. These symptoms are more likely in patients with diabetes, heavy alcohol use, or when gemcitabine is given with other neurotoxic drugs (such as cisplatin). Please report these symptoms if present at your next office visit. These symptoms may or may not resolve after stopping treatment and can lead to difficulties with daily activities such as clasping jewelry, buttoning clothes, or clumsiness with walking or writing, among others.
 - ❖ 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 gemcitabine. 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 may occur with gemcitabine but 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.
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- ❖ Flu-like symptoms with headache, myalgias, and arthralgias (aches and pains in the muscles and joints), and fatigue are commonly experienced for a few days to a week following a gemcitabine infusion. Over the counter agents such as ibuprofen and acetaminophen typically provide adequate relief, but prescription pain medicine can be given if needed.
 - ❖ Mild diarrhea is occasionally seen with gemcitabine. However, some patients actually develop constipation because of medication they take for their diarrhea or for the myalgias mentioned previously. For your comfort, keep your bowels regular with a regimen that works best for you and your lifestyle.
 - ❖ Infusion reactions to gemcitabine can occur with a rash/hives, itching, lowered blood pressure, facial swelling, and occasional difficulty breathing. This is typically related to the infusion rate and resolves with slowing of the infusion rate.
 - ❖ An itchy rash that is raised and red on the arms, legs, back, or chest is sometimes seen with gemcitabine. Please notify the office if you develop a bothersome rash.
 - ❖ Gemcitabine can cause problems with fertility. It is not uncommon to stop having periods while receiving gemcitabine, 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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