**Gemcitabine**

**Generic name:** Gemcitabine

**Brand name:** GEMCIMAX®

**Dosage form:** Concentrate for solution for infusion 100mg/ml - 200 & 1000mg

**Drug class:** Antimetabolites

**Indications:**

* Gemcitabine is used to treat cancers of the pancreas, lung, ovary, and breast.
* Treatment of patients with locally advanced or metastatic adenocarcinoma of the pancreas.
* Treatment of locally advanced or metastatic bladder cancer in combination with cisplatin.
* First-line treatment of patients with locally advanced or metastatic non-small cell lung cancer (NSCLC).
* Treatment of patients with locally advanced or metastatic epithelial ovarian carcinoma, in combination with carboplatin, in patients with relapsed disease following a recurrence-free interval of at least 6 months after platinum-based, first-line therapy.
* Treatment of patients with unrespectable, locally recurrent or metastatic breast cancer who have relapsed following adjuvant/neoadjuvant chemotherapy.

Gemcitabine is sometimes given with other cancer medicines, or when other cancer treatments did not work or have stopped working.

Gemcitabine may also be used for purposes not listed in this medication guide.

**Contraindications:**

* In patients with a known hypersensitivity or allergy to Gemcitabine or any of the other ingredients of GEMCIMAX®.
* Pregnancy or breastfeeding.
* In those patients who the number of white blood cells or blood platelets is too low.

**Mechanism of action**

Gemcitabine is a potent and specific deoxycytidine analog. After uptake into malignant cells, gemcitabine is phosphorylated by deoxycytidine kinase to form gemcitabine monophosphate, which is then converted to the active compounds, gemcitabine diphosphate (dFdCDP) and gemcitabine triphosphate (dFdCTP). These active metabolites are nucleosides that mediate antitumor effects. dFdCTP competes with deoxycytidine triphosphate (dCTP) for incorporation into DNA, thereby competitively inhibiting DNA chain elongation. The non-terminal position of dFdCTP in the DNA chain prevents detection of dFdCTP in the chain and repair by proof-reading 3′5′-exonuclease: this process is referred to as "masked DNA chain termination." Incorporation of dFdCTP into the DNA chain ultimately leads to chain termination, DNA fragmentation, and apoptotic cell death of malignant cells.

Gemcitabine has self-potentiating pharmacological actions that can increase the probability of successful incorporation of gemcitabine triphosphate into the DNA chain: dFdCDP inhibits ribonucleotide reductase, an enzyme responsible for catalyzing the reactions that generate dCTP for DNA synthesis. Since dFdCDP reduces the levels of dCTP, there is less competition for gemcitabine triphosphate for incorporation into DNA.

**Warning and precautions**

* This medicine is prescribed for your current condition. So do not use it in similar cases or recommend it to others.
* Take this medicine according to the treatment plan prescribed by the doctor and with the strict observance of the hours and intervals mentioned.
* Discontinue the use of medication only with a doctor and avoid abstinence.
* Gemcitabine should not be given to patients who are allergic to Gemcitabine or any of the other ingredients of this product.
* Gemcitabine can increase your risk of bleeding or infection. Call your doctor if you have unusual bruising or bleeding, or new signs of infection (fever, chills, tiredness, bruising or bleeding, pale skin).
* Gemcitabine can also affect your liver, kidneys, or lungs. Tell your doctor if you have stomach pain, dark urine, yellow skin or eyes, little or no urinating, swelling, rapid weight gain, severe shortness of breath, wheezing, or cough with foamy mucus.
* Tell your doctor if you have ever had:
* Kidney disease
* Liver disease (especially cirrhosis)
* Alcoholism
* Radiation treatment.
* Get emergency medical help if you have signs of an allergic reaction: hives; difficult breathing; swelling of your face, lips, tongue, or throat.
* Both men and women using Gemcitabine should use effective birth control to prevent pregnancy. Gemcitabine can harm an unborn baby if the mother or father is using this medicine.
* If you are a woman, do not use Gemcitabine if you are pregnant. You may need to have a negative pregnancy test before starting this treatment. Use effective birth control to prevent pregnancy while you are using this medicine and for at least 6 months after your last dose.
* If you are a man, use effective birth control if your sex partner is able to get pregnant. Keep using birth control for at least 3 months after your last dose.
* Tell your doctor right away if a pregnancy occurs while either the mother or the father is using Gemcitabine.
* This medicine may affect fertility (ability to have children) in men. However, it is important to use birth control to prevent pregnancy because gemcitabine can harm an unborn baby.
* You should not breastfeed while you are using gemcitabine, and for at least 1 week after your last dose.
* Gemcitabine can increase your risk of bleeding or infection. You will need frequent medical tests.
* You may be at risk of infection, so wash your hands often and try to avoid contact with people who have colds, flu or infections.
* GEMCIMAX® may have unsafe effects on the bone marrow. The bone marrow may not be able to make cells found in the blood as well as it used to for a few weeks. That is why it is necessary to do regular blood tests to continue your treatment. If your white blood cell count is too low, your doctor may stop the treatment so long as there is enough white blood cell count.
* Do not receive any kind of vaccination without your doctor’s approval while taking GEMCIMAX® and after the end of the treatment (at least for three months after completion of treatment).
* Avoid contact with anyone who has recently received a live vaccine. If it is not possible, wear a mask and cover your nose and mouth.
* Talk with your doctor before using products that have aspirin, blood thinners, garlic, ginseng, ginkgo, ibuprofen, pain killers, or vitamin E and similar products. These medications may increase the risk of bleeding with GEMCIMAX® concomitant use.
* Avoid smoking and tobacco.
* Talk with your doctor if you often use grapefruit or its juice in your diet.
* You may bleed more easily. Be careful and avoid injury. Be careful using sharp objects such as razors or nail clippers and also during the brushing or dental flossing or toothpicks. Use a soft toothbrush and an electric razor.
* Avoid exercise in which there is a risk of injury or bruising.
* Consult with your doctor before you receive any dental care.
* This medicine contains alcohol. It is recommended not to drive or use machines immediately after a course of treatment. As in all cases, you should not drive a car or use machines if you feel dizzy or light-headed.

**How is Gemcitabine used?**

Gemcitabine is given as an infusion into a vein. A healthcare provider will give you this injection.

Tell your caregivers if you feel any burning, pain, or swelling around the IV needle when gemcitabine is injected.

If any of this medicine accidentally gets on your skin, wash the area thoroughly with soap and warm water.

Gemcitabine can increase your risk of bleeding or infection. You will need frequent medical tests.

**What should I avoid while using Gemcitabine?**

* Avoid being near people who are sick or have infections.
* Avoid activities that may increase your risk of bleeding or injury.
* Do not receive a "live" vaccine while using Gemcitabine, and avoid coming into contact with anyone who has recently received a live vaccine. There is a chance that the virus could be passed on to you. Live vaccines include measles, mumps, and rubella (MMR), polio, rotavirus, typhoid, yellow fever, and varicella (chickenpox), zoster (shingles), and nasal flu (influenza) vaccine.
* Avoid smoking and tobacco.
* Do not receive any kind of vaccination without your doctor’s approval while taking GEMCIMAX® and after the end of the treatment (at least for three months after completion of treatment).
* Avoid contact with anyone who has recently received a live vaccine. If it is not possible, wear a mask and cover your nose and mouth.
* During infusion do not touch your eyes or the inside of your nose and mouth. Washed your hands with soap after infusion session.

**Gemcitabine side effects**

Taking any medication may cause side effects. In some cases, patients do not experience any side effects or the side effects of the drug disappear after a short time of taking the drug. Talk to your doctor if you experience any side effects while taking this medicine.

Get emergency medical help if you have signs of an allergic reaction: hives; difficult breathing; swelling of your face, lips, tongue, or throat.

Also call your doctor or healthcare provider at once if you have:

* Headache, confusion, change in mental status, vision loss, seizure (convulsions)
* blisters or ulcers in your mouth, trouble eating or swallowing
* Severe skin redness, swelling, oozing, or peeling during or after radiation treatment
* Liver problems, loss of appetite, stomach pain (upper right side), itching, dark urine, clay-colored stools, jaundice (yellowing of the skin or eyes)
* Low blood cell counts, fever, chills, tiredness, skin sores, cold hands and feet, feeling light-headed
* Fluid build-up in or around the lungs--pain when you breathe, feeling short of breath while lying down, wheezing, gasping for breath, cough with foamy mucus, cold, clammy skin, anxiety, rapid heartbeats
* Signs of damaged red blood cells, unusual bruising or bleeding, pale skin, bloody diarrhea, red or pink urine, swelling, rapid weight gain, and little or no urination.

Your cancer treatments may be delayed or permanently discontinued if you have certain side effects.

Common side effects may include:

* Fever
* Nausea and vomiting
* Low blood cell counts
* Abnormal blood or urine tests
* Shortness of breath
* Swelling in your hands or feet
* Rash
* Red or pink urine.

**Drug Interactions**

Consult your doctor or pharmacist about all the medications you are taking. GEMCIMAX® may interact with other medications. Interaction means that different medicines may influence each other.

Keep a list with you of all the medicines you use (including any prescription or nonprescription medicine, herbal preparation and vitamins) and show this list your doctor**.**

* Live vaccines are not recommended while using Gemcitabine, due to the risk of systemic, possibly fatal, disease, particularly in immunosuppressed patients.
* Concomitant use of radiotherapy, Toxicity associated with this multimodality therapy is dependent on different factors, including dose of Gemcitabine, frequency of Gemcitabine administration, dose of radiation, radiotherapy planning technique, the target tissue, and target volume.
* Concomitant use of Gemcitabine and immunosuppressants may increase the patient's risk of infection.

**Gemcitabine use while Pregnancy and Breastfeeding**

Pregnancy: Category D

Using Gemcitabine during pregnancy is strongly discouraged and patients should take precautions to avoid pregnancy.

Female and male patients of fertile age, should use contraceptives for at least 6 months after treatment with Gemcitabine. If pregnancy occurs inform your doctor immediately.

Patients must not breast-feed while they are treated with GEMCIMAX®.

Do not restart breast-feeding, unless doctor has allowed.

**Storage conditions**

* Store the medicine at temperatures below 30° C and stored away from light and moisture.
* Keep the medicine in the box until it is consumed.
* Keep the medicine out of the reach of children.
* From a microbiological point of view, the solution for infusion should be used immediately. If not used immediately, would normally not be longer than 24 hours at 2° C to 8°C unless dilution has taken place in controlled and validated aseptic condition.