Clofarabine (Clolar ®)

**Pronounced:** klo-FARE-a-been

**Classification:** Antimetabolite (purine analog)

### About Clofarabine (Clolar ®)

Clofarabine is a purine nucleoside analog, which inhibits the enzymatic activities of DNA and RNA. Clofarabine inhibits DNA synthesis, which inhibits the growth of new leukemia cells, interferes with the duplication of DNA, which stops leukemia cells from dividing, and disrupts the mitochondrial membrane, which leads to cell death.

### How to Take Clofarabine

Clofarabine is given intravenously (IV, into a vein). The dose is based on your size. The dose and how often you receive this chemotherapy will be determined by your care team.

Patients should avoid any medications that can damage the kidneys or liver while taking clofarabine. Make sure to tell your provider about any medications, vitamins or supplements you may be taking.

### Possible Side Effects of Clofarabine

There are a number of things you can do to manage the side effects of clofarabine. Talk to your care team about these recommendations. They can help you decide what will work best for you. These are some of the most common or important side effects:

#### Infection and Low White Blood Cell Count (Leukopenia or Neutropenia)

This medication can cause life threatening infections, with or without a decrease in white blood cell counts.

White blood cells (WBC) are important for fighting infection. While receiving treatment, your WBC count can drop, putting you at a higher risk of getting an infection. You should let your doctor or nurse know right away if you have a fever (temperature greater than 100.4°F or 38°C), sore throat or cold, shortness of breath, cough, burning with urination, or a sore that doesn't heal.

**Tips to preventing infection:**

- **Washing hands**, both yours and your visitors, is the best way to prevent the spread of infection.
- Avoid large crowds and people who are sick (i.e.: those who have a cold, fever or cough or live with someone with these symptoms).
- When working in your yard, wear protective clothing including long pants and gloves.
- Do not handle pet waste.
- Keep all cuts or scratches clean.
- Shower or bath daily and perform frequent **mouth care**.
- Do not cut cuticles or ingrown nails. You may wear nail polish, but not fake nails.
- Ask your oncology care team before scheduling dental appointments or procedures.
- Ask your oncology care team before you, or someone you live with, has any vaccinations.

#### Low Red Blood Cell Count (Anemia)

Your red blood cells are responsible for carrying oxygen to the tissues in your body. When the red cell count is low, you may
feel tired or weak. You should let your oncology care team know if you experience any shortness of breath, difficulty breathing or pain in your chest. If the count gets too low, you may receive a blood transfusion.

**Low Platelet Count (Thrombocytopenia)**

Platelets help your blood clot, so when the count is low you are at a higher risk of bleeding and in rare cases with this medication it can lead to hemorrhage. Let your oncology care team know if you have any excess bruising or bleeding, including nose bleeds, bleeding gums or blood in your urine or stool. If the platelet count becomes too low, you may receive a transfusion of platelets.

- Do not use a razor (an electric razor is fine).
- Avoid contact sports and activities that can result in injury or bleeding.
- Do not take aspirin (salicylic acid), non-steroidal, anti-inflammatory medications (NSAIDs) such as Motrin/Advil (ibuprofen), Aleve (naproxen), Celebrex (celecoxib) etc. as these can all increase the risk of bleeding. Please consult with your healthcare team regarding use of these agents and all over the counter medications/supplements while on therapy.
- Do not floss or use toothpicks and use a soft-bristle toothbrush to brush your teeth.

**Nausea and/or Vomiting**

Talk to your oncology care team so they can prescribe medications to help you manage nausea and vomiting. In addition, dietary changes may help. Avoid things that may worsen the symptoms, such as heavy or greasy/fatty, spicy or acidic foods (lemons, tomatoes, oranges). Try saltines, or ginger ale to lessen symptoms.

Call your oncology care team if you are unable to keep fluids down for more than 12 hours or if you feel lightheaded or dizzy at any time.

**Diarrhea**

Diarrhea can be a sign of a serious complication called enterocolitis and can lead to serious dehydration. Symptoms of enterocolitis include diarrhea, nausea, vomiting, abdominal pain, fever, and chills. Be sure to report any diarrhea to your oncology team.

**Liver Toxicity/Venous Occlusive Disease**

This medication can cause liver toxicity and in rare cases can cause venous occlusive disease. Venous occlusive disease is a blockage of the small veins in the liver. Your healthcare provider may monitor for liver toxicity using blood tests called liver function tests. Notify your healthcare provider if you notice yellowing of the skin or eyes, your urine appears dark or brown, accumulation of fluid in your belly, or pain in your abdomen, as these can be signs of liver toxicity or venous occlusive disease.

**Kidney Problems**

This medication can affect your kidney function. Your kidney function will be monitored throughout treatment. If you experience swelling of your face or body, or a decrease in the amount of urine you are producing, notify your healthcare team immediately.

**Skin Reactions**

Some patients will develop a rash, very dry or itchy skin, which can be managed with skin moisturizers and other topical treatments. However, a rare but serious skin reaction called Stevens Johnson Syndrome can occur, which affects the skin and mucous membranes (lining of mouth and nose). It typically starts as a rash or painful blisters and can progress to serious damage to the skin and in some cases, death. It is important that you report any rash to your healthcare providers immediately.

**Pain/Aches and Headache**

Your healthcare provider can recommend medications and other strategies to help relieve pain.

**Fatigue**

Fatigue is very common during cancer treatment and is an overwhelming feeling of exhaustion that is not usually relieved by rest. While on cancer treatment, and for a period after, you may need to adjust your schedule to manage fatigue. Plan times to rest during the day and conserve energy for more important activities. Exercise can help combat fatigue; a simple daily walk with a friend can help. Talk to your healthcare team for helpful tips on dealing with this side effect.
This medication can also cause tachycardia, or a higher than normal heart rate. Notify your care provider if you feel like your heart is racing, you become short of breath, dizzy, or faint.

**Decrease in Appetite**

Nutrition is an important part of your care. Cancer treatment can affect your appetite and, in some cases, the side effects of treatment can make eating difficult. Ask your oncology care team about nutritional counseling services at your treatment center to help with food choices.

- Try to eat five or six small meals or snacks throughout the day, instead of 3 larger meals.
- If you are not eating enough, nutritional supplements may help.
- You may experience a metallic taste or find that food has no taste at all. You may dislike foods or beverages that you liked before receiving cancer treatment. These symptoms can last for several months or longer after treatment ends.
- Avoid any food that you think smells or tastes bad. If red meat is a problem, eat chicken, turkey, eggs, dairy products, and fish without a strong smell. Sometimes cold food has less of an odor.
- Add extra flavor to meat or fish by marinating it in sweet juices, sweet and sour sauce, or dressings. Use seasonings like basil, oregano, or rosemary to add flavor. Bacon, ham, and onion can add flavor to vegetables.

**Less common, but important side effects can include:**

- **Systemic Inflammatory Response Syndrome (SIRS) and Capillary Leak Syndrome:** In rare cases, clofarabine can cause a cytokine release syndrome, which can cause tachypnea (fast breathing), tachycardia (fast heart rate), low blood pressure, and pulmonary edema (fluid in the lungs, which can make you feel short of breath). This can lead to capillary leak syndrome, a condition in which blood and components of blood leak out of vessels and into body cavities and muscles. Signs and symptoms of capillary leak syndrome include: a sudden drop in blood pressure, weakness, fatigue, sudden swelling of the arms, legs or other parts of the body, nausea, and lightheadedness. If you are having any of these symptoms notify your infusion nurse or provider immediately.

- **Tumor Lysis Syndrome:** If there are a large amount of tumor cells in your body prior to treatment, you are at risk for tumor lysis syndrome. This happens when the tumor cells die too quickly and their waste overwhelms the body. You may be given a medication (allopurinol) and IV fluids to help prevent this. If you experience nausea, vomiting, diarrhea or become lethargic (drowsy, sluggish), notify your oncology team right away. TLS can affect your kidney function. Your provider will monitor your kidney function with blood work. Notify your provider if you have little or no urine output.

- **Heart Problems:** This medication can cause a lower than normal blood pressure. Your blood pressure will be monitored frequently. Notify your care provider if you become lightheaded, dizzy, or your skin becomes clammy. Low blood pressure can lead to fainting so be careful in your daily activities such as showering, driving, or operating any type of machinery. This medication can also cause a faster than normal heartbeat, also called tachycardia. If you feel your heart racing or experience palpitations, contact your care provider.

- **Hemorrhage (Bleeding):** Serious bleeding has also occurred in patients treated with this medication. If you take aspirin, non-steroidal anti-inflammatory medications (i.e. Motrin, ibuprofen, naproxen) or other medication that interferes with blood clotting, let your healthcare provider know. Signs of bleeding can include: nose bleeds, blood in the stool or dark, tarry stools, coughing up or vomiting blood or vomit that looks like coffee grounds. While some bleeding, such as a nosebleed, may not seem like much of a concern, you should notify your healthcare team right away if you develop bleeding of any sort.

**Reproductive Concerns**

Exposure of an unborn child to this medication could cause birth defects, so you should not become pregnant or father a child while on this medication. Effective birth control is necessary during treatment. Even if your menstrual cycle stops or you believe you are not producing sperm, you could still be fertile and conceive. You should not breastfeed while receiving this medication.

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