Carfilzomib (Kyprolis®)

**Pronounced:** car-fil-zoe-mib

**Classification:** Proteasome Inhibitor

**About Carfilzomib (Kyprolis®)**

Carfilzomib works by inhibiting the 26S proteasome. A proteasome is an enzyme that is responsible for breaking down proteins in all cells (healthy or cancerous). By blocking the action of proteasome, protein builds up in the cells and causes them to die, therefore preventing tumor growth.

**How to Take Carfilzomib**

Carfilzomib is given by IV (intravenous) infusion. The dose you receive is based on your body size. How often you receive the medication will be determined by your provider. You may be given a steroid (dexamethasone) prior to the infusion to prevent a reaction. Drink plenty of fluids while on this therapy (unless directed otherwise).

**Possible Side Effects**

There are a number of things you can do to manage the side effects of Carfilzomib. 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:

**Low Platelet Count (Thrombocytopenia)**

Platelets help your blood clot, so when the **count is low** you are at a higher risk of bleeding. 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.

**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 White Blood Cell Count (Leukopenia or Neutropenia)**

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.

**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.

**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.

**Lung Problems**

In some cases carfilzomib can cause acute respiratory distress syndrome (ARDS), respiratory failure, interstitial lung disease or an inflammation of the lungs (called pneumonitis). Notify your healthcare provider right away if you develop any new or worsening symptoms, including shortness of breath, trouble breathing, cough or fever.

**Diarrhea**

Your oncology care team can recommend medications to relieve **diarrhea**. Also, try eating **low-fiber**, bland foods, such as white rice and boiled or baked chicken. Avoid raw fruits, vegetables, whole grain breads, cereals and seeds. Soluble fiber is found in some foods and absorbs fluid, which can help relieve diarrhea. Foods high in soluble fiber include: applesauce, bananas (ripe), canned fruit, orange sections, boiled potatoes, white rice, products made with white flour, oatmeal, cream of rice, cream of wheat, and farina. Drink 8-10 glasses on non-alcoholic, un-caffeinated fluid a day to prevent dehydration.

**Kidney Problems**

This medication can cause a worsening in renal function, especially in patients with a history of reduced 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.

**Peripheral Edema**

Peripheral edema is swelling of the extremities caused by retention of fluid. It can cause swelling of the hands, arms, legs, ankles and feet. The swelling can become uncomfortable. Notify your provider if you are experiencing any new or worsening swelling.

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

- **Infusion Reactions:** The infusion can cause a reaction that may lead to chills, fever, low blood pressure, facial flushing, swelling of the feet or legs, shortness of breath, nausea and vomiting, feeling faint, and chest pain. You will receive dexamethasone prior to the infusion to help prevent these reactions. Reactions can happen after the transfusion is complete. Notify your provider if you are having symptoms of an infusion reaction.
- **Virus Reactivation:** Herpes virus reactivation has been reported with this medication; your healthcare team may prescribe you a medication to take to prevent those outbreaks from occurring.
• **Electrolyte Changes:** Carfilzomib can cause changes in the levels of certain electrolytes, including potassium. Your healthcare team will monitor your electrolyte levels throughout treatment.

• **Heart Problems:** Although not common, carfilzomib can cause or worsen pre-existing heart problems including congestive heart failure, restrictive cardiomyopathy, decreased heart function and heart attack. Notify your healthcare provider if you have sudden weight gain or swelling in the ankles or legs. If you develop chest pain or pressure, pain in the left arm, back, or jaw, sweating, shortness of breath, clammy skin, nausea, dizziness or lightheadedness, call 911 or go to the nearest emergency room.

• **Pulmonary Hypertension:** This medication rarely causes pulmonary hypertension or high blood pressure in the arteries that supply blood to the lungs. Symptoms include: shortness of breath, dizziness, fainting, chest pressure, swelling of feet, ankles or legs, racing heart. If you experience any of these symptoms, contact your healthcare team or go to the emergency room immediately.

• **Blood Clots:** This medication can increase the risk of blood clots (DVT or PE). Symptoms can include: swelling, redness or pain in an extremity, or shortness of breath. If you experience symptoms of these problems, you should contact your healthcare provider immediately or go to an emergency room.

• **Posterior Reversible Encephalopathy Syndrome:** In rare cases this medication has caused a neurological disorder called posterior encephalopathy syndrome (PRES), also called reversible posterior leukoencephalopathy (RPLS). Symptoms of PRES/RPLS include headache, seizure, lethargy, confusion, blindness and other visual and neurological disturbances. Report any of these symptoms to your healthcare team immediately.

• **High Blood Pressure:** This medication can cause high blood pressure (hypertension). Patients should have their blood pressure checked regularly during therapy. Any hypertension should be treated appropriately. If hypertension cannot be controlled, the medication may be stopped. Report any headaches, vision changes or dizziness to your oncology care team.

• **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.

• **Liver Toxicity:** This medication can cause liver toxicity, which your oncology care team may monitor for 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, or you have pain in your abdomen, as these can be signs of liver toxicity.

**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, for 6 months after treatment for women and for 3 months after treatment for men. Even if your menstrual cycle stops or you believe you are not producing sperm, you could still be fertile and conceive. You should consult not breastfeed while taking this medication or for 2 weeks after your last dose.