Alemtuzumab (Campath®)

**Pronounced:** AL-em-TOOZ-oo-mab

**Classification:** monoclonal antibody

**About Alemtuzumab (Campath®)**

Monoclonal antibodies are created in a lab to attach to the targets found on specific types of cancer cells. The antibody “calls” the immune system to attack the cell it is attached to, resulting in the immune system killing the cell. These antibodies can work in different ways, including stimulating the immune system to kill the cell, blocking cell growth or other functions necessary for cell growth.

Alemtuzumab is an antibody directed against a protein called CD52, found on the surface of some cells. Alemtuzumab is drawn to white blood cells that have the CD52 protein on them. These include normal and malignant (cancerous) B and T lymphocytes, natural killer cells, monocytes, and macrophages. The drug binds to the surface and causes cell death. Some of the side effects of alemtuzumab are caused by the treatment's effect on normal cells.

This medication may also be used to treat multiple sclerosis but that will not be addressed in this drug sheet.

**How to Take Alemtuzumab**

Alemtuzumab is given by intravenous (into a vein, IV) infusion. Generally, it is given three times a week. The first few doses are typically given in a dose-escalation format, until the recommended dose is reached. This means that on the first day of treatment you are given a very low dose. If you don't have any reactions, you will be given a slightly higher dose the following treatment day, and so on. Most patients are able to reach the recommended dose in 3 to 7 treatments. Treatment tends to last for about 12 weeks total.

You will receive acetaminophen (Tylenol) and diphenhydramine (Bendaryl) prior to the infusion to prevent a reaction. There are two infections that you are more prone to today while taking this medication, pneumocysitis pneumonia (PCP) and herpes infection. Because of this, you will be given prophylactic medications to prevent these infections.

**Possible Side Effects**

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

**Infusion-Related Side Effects**

The infusion can cause a reaction that may lead to chills, fever, low blood pressure, nausea and vomiting. You will receive Tylenol and diphenhydramine prior to the infusion to help prevent these reactions. Some patients will also receive a steroid before the infusion to prevent a reaction. You will be closely monitored during the infusion. It is important to let your nurse know if you are experiencing any new side effects during the infusion.

**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 / 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. 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.

**Infections**

Because this medication can lower your blood counts and immune system function, you may be at higher risk for infections including pneumocystis pneumonia (PCP), herpes (HSV) and cytomegalovirus (CMV). You will be prescribed medications to prevent some infections, but not all infections can be prevented. If you develop a fever greater than 100.4°F / 38°C, report this to your healthcare team immediately.

**Headache**

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

**Rash**

Some patients may develop a rash, scaly skin, or red itchy bumps. Use an alcohol free moisturizer on your skin and lips; avoid moisturizers with perfumes or scents. Your oncology care team can recommend a topical medication if itching is bothersome. If your skin does crack or bleed, be sure to keep the area clean to avoid infection. Be sure to notify your oncology care team of any rash that develops, as this can be a reaction. They can give you more tips on caring for your skin.

**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.
**Live Vaccines**

You, or anyone you live with, should avoid having live or live-attenuated vaccines while receiving this medication. These include herpes zoster (Zostavax) for shingles prevention, oral polio, measles, nasal flu vaccine (FluMist®), rotavirus and yellow fever vaccines.

**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 and for at least 3 months after 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 during treatment and for at least 3 months after the last dose.

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