CMF: Cyclophosphamide, Methotrexate and Fluorouracil

What is CMF?
This is the short name for the drugs used for this chemotherapy treatment. The three drugs you will receive during this treatment are Cyclophosphamide (Cytoxan™ or “C”), Methotrexate (or “M”) and Fluorouracil (5-FU or “F”).

What is Cyclophosphamide (sye-kloe-FOS-fa-mide) and how does it work?
Cyclophosphamide is a chemotherapy drug known as an “alkylating agent.” This drug is made in a laboratory. Cyclophosphamide works to stop fast growing cancer cells from dividing and making new cells.

What is Methotrexate (meth-oh-TREX-ate) and how does it work?
Methotrexate is a chemotherapy drug known as an “anti-metabolite”. This drug is made in a laboratory. It tricks the cancer cell into thinking it is a building block for making new cells. Once inside the cancer cell, it causes damage so that the cell cannot grow or make more cancer cells.

What is Fluorouracil (flure-oh-URE-a-sil) and how does it work?
Fluorouracil is also known as an “anti-metabolite”. This drug is made in a laboratory. It tricks the cancer cell into thinking it is a building block for making new cells. Once inside the cancer cell, it causes damage so that the cell cannot grow or make more cancer cells.
Why am I getting three chemotherapy drugs for my cancer?
These drugs work to stop fast growing cancer cells from dividing and making new cells, but they attack the cancer cells differently. Giving the three drugs together makes the treatment more effective.

What should I tell my doctor before getting chemotherapy?
Talk to your doctor about the following:

• If you have ever had chemotherapy and the names of the chemotherapy drugs you were given.
• If you have ever had liver or kidney problems.
• If you are pregnant or think you may be pregnant. Your doctor will talk with you about birth control while getting chemotherapy.
• If you are breastfeeding.
• If you have been told that you need to start a new medicine.
• The medicines/pills you are taking, including:
  ▶ Medicines prescribed by any of your doctors
  ▶ Herbs
  ▶ Vitamins
  ▶ Over-the-counter medicines

How does my doctor decide my chemotherapy dose?
To determine your treatment dose, your doctor will review the following: your height, your weight, your medicines, how well your liver and kidneys are working and any other health problems you have. You will remain on this treatment as long as it is controlling your disease.

You will receive Methotrexate and Fluorouracil through an IV one day a week for two weeks in a row. You will then take two weeks off. You will take Cyclophosphamide pill(s) every day for the first 14 days and then take two weeks off. This is known as one “cycle”. This cycle will be repeated every 28 days. You will see the doctor or nurse practitioner prior to each cycle of your “CMF” chemotherapy.
Should I eat or drink before my treatment?
It is best to eat a small meal before getting your chemotherapy. Drinking plenty of non-caffeinated fluids may also be helpful. However, if you have been told to limit fluids, check with your doctor about how much you can drink.

How will my treatment be given?
You will be given medicine one hour before your treatment to prevent nausea or vomiting.

Methotrexate and Fluorouracil are given directly into your blood stream through a tube (IV) placed in your arm or chest. Your nurse will stay with you while these drugs are given. This treatment will take about 20 to 30 minutes. **Tell your nurse right away if you feel any pain, stinging or burning while getting this chemotherapy drug.**

Cyclophosphamide is a pill(s) that you will take by mouth once a day with food. **There are special safe handling instructions for this medicine.** Talk to your doctor, pharmacist or nurse about the precautions you need to follow when taking this medicine at home.

Your entire visit, including your doctor’s appointment and your treatment will take about 2 to 3 hours.

What are the side effects of this treatment?
Every person responds differently to treatment. Some of the more common side effects of this chemotherapy are:

- Diarrhea
- Loss of appetite
- Nail changes
- Skin changes such as dryness, cracking, or darkening at the IV site or where previous radiation was given
- Diarrhea
- Nausea and/or vomiting
- Fatigue
- Hair loss or thinning (this normally begins 3 to 4 weeks after starting chemotherapy)

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• Mouth pain or open sores in the mouth
• Low white blood cell count (may increase your risk for infection)
• Low hemoglobin (may cause you to have less energy and tire more easily)
• Low platelet count (may cause you to bleed more easily or longer than normal and have more bruising)
• Increased sensitivity to sunlight

When should I call my doctor?
You should call your doctor right away if you have any of the following signs or symptoms:

• Fever of 100.4 degrees Fahrenheit (38 degrees Celsius) or higher

> A fever can be life-threatening if not treated. Your doctor may ask you to go to the hospital.

• Chills, sore throat, cough or a wound that does not get better
• Open sores in your mouth
• Nausea that prevents you from eating or drinking
• Vomiting even after you have taken your anti-nausea medicine
• Bleeding or bruising, including bloody or black stools or blood in your urine
• Diarrhea (4 or more loose stools in 24 hours)
• Shortness of breath or difficulty breathing
• Swelling in feet or ankles
• Fast weight gain
• Changes in urine, dark urine, or no urine output for more than 12 hours

Is there anything else I should know about this treatment?

• Chemotherapy may make it harder for your body to fight infections. Wash your hands often and avoid people who are sick.
• This treatment requires special precautions to prevent the chemotherapy drugs from coming into contact (through blood, urine, bowel movements, vomit and vaginal or seminal fluids) with others. Your chemotherapy nurse will give you guidelines to follow for 48 hours after receiving chemotherapy.
- Chemotherapy can change how your body reacts to vaccines. Talk to your doctor before getting any vaccines.

- Patients who get treatment with these drugs have a slightly higher risk of getting a rare form of blood cancer, called “leukemia”. Your doctor can tell you more about this risk.

- You should drink 8 to 10 eight-ounce glasses of non-caffeinated fluid each day throughout your treatment. This is important to keep you hydrated while you are receiving chemotherapy.

- This treatment may cause women to stop having menstrual cycles. Depending on your age, your menstrual cycles may or may not return.

- It may be difficult to get pregnant even after the chemotherapy is finished.

- This treatment may affect your ability to have children. Talk to your doctor before getting chemotherapy if you are planning to have children in the future.

For more information about cancer, chemotherapy, side effects or how to care for yourself during treatment, refer to your Chemotherapy and You book, or ask your doctor, nurse or pharmacist.

You may also find it helpful to watch The James Patient Education videos at http://cancer.osu.edu/patientedvideos to help you learn tips for managing treatment side effects.