



Bacillus Calmette and Guérin - BCG

What is BCG?

Bacillus Calmette and Guérin or BCG is a medication that helps to fight cancer cells.

BCG is made from the organisms of a bacteria. When BCG comes into contact with the lining of the bladder, it promotes an acute local inflammatory and sub-acute granulomatous reaction. These two reactions cause macrophage and lymphocyte infiltration in the urothelium and lamina propria of the urinary bladder. While the exact mechanism of action is unknown, the inflammation caused by the BCG creates an increase in certain white blood cells known as natural killer cells (T-lymphocytes). These killer cells act to destroy invading cells such as tumor cells.

BCG is used to treat bladder cancer that is localized (not spread to other parts of the body).

What is the most important information I should know about BCG?

Do not take this medication if you are allergic to any of its ingredients (rare), any type of an infection including a bladder infection, or a weakened immune system (which can be caused by certain drugs or disease such as HIV, AIDS, leukemia, or lymphoma).

In addition, if you have a fever greater than 101.0F or have had flu-like symptoms, your BCG will be held that week.

While normally your provider encourages lots of fluid/water intake, please limit your fluid intake a few hours prior to your treatment. You will have to hold your bladder for two hours post instillation of the BCG. We do not want your bladder to become too full and cause discomfort.

You need to wait at least 14 days after any type of bladder procedure.

Tell your provider/medical staff about any of the following - current or history of:

- Allergy to latex
- Infection - bacterial, fungal, or viral
- Myasthenia Gravis
- Tuberculosis
- Implantable device (artificial heart device - pacemaker, defibrillator, valve)
- Bypass surgery (open-heart)
- Aneurysm
- Artificial joint or other prosthetic
- Steroid usage
- Chemotherapy or Radiation
- Organ transplant



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Antibiotics can make BCG less effective and should be avoided during your treatment. If you are prescribed antibiotics for any reason, please call the office and update the medical staff. Your provider will decide if you can receive BCG that week. If the decision is made to hold the BCG, we will add a treatment to the end of the schedule.

The goal is to have you receive all your prescribed BCG treatments (typically 6). If you cannot receive your treatment one week, we will add a treatment to the end of the schedule. It might take seven or eight weeks to get a full six doses, which is acceptable and does not negatively affect the effectiveness of the medication.

Being treated with BCG can cause you to have unusual results with other medical tests. Tell any provider who treats you that you are receiving BCG.

If you are pregnant, planning on becoming pregnant, or breast feeding, please tell your provider right away.

Use a condom during any sexual intercourse for 48 hours after receiving BCG.

How is BCG given?

You will receive this medication in the office. It will be administered by qualified medical personal.

After arrival to the office, you will provide a clean catch urine sample. A urine analysis will be completed. Once in the exam room, you will be asked a series of questions. Based on your urine results and answers, it will be determined if BCG can safely be given.

The next step is to insert a catheter (a tube for passing urine out of your bladder) through the urethra into the bladder. The amount of urine is recorded. Most patients need to have less than 100mLs/cc of urine in their bladder before BCG can be given. For patients with known urinary retention, the limit can be increased.

Next the BCG is reconstituted with approximately two ounces of normal saline. Shortly after mixing, the BCG is slowly instilled into the bladder via the catheter. After the instillation of the BCG, the catheter will be removed. Once the catheter is removed, the office portion of the BCG treatment is over. You are free to leave.

After BCG is instilled into the bladder, you will need hold the medication for two hours. If you cannot hold it for two hours, hold it as long as you can. If any problems arise, please call the office. Continue activity as tolerated after the instillation of the BCG. Being up and moving allows the BCG to come into contact with all surfaces of your bladder.

After the two-hour hold, you may void (urinate). To prevent the spread of this bacteria, use a toilet rather than a urinal and sit on the toilet while urinating.



For the next six hours after your first void, your urine will still contain some of the BCG. Thus before you flush the toilet, carefully pour two cups of household bleach into the toilet and let it stand for 15 minutes prior to flushing. The bleach will destroy any BCG preventing it from entering the water supply.

After the two-hour hold, please drink lots of fluids/water to help flush out your bladder. We encourage an additional 24-48 oz of water **above** your normal water intake. If you are on a fluid restriction, please drink up to that restriction with your focus on water intake.

What are the possible side effects of BCG?

Get emergency medical help if you have any of these signs of an **allergic reaction**:

- hives; difficulty breathing; swelling of your face, lips, tongue, or throat.

If you experience any of the following, please call the office:

- fever (**greater than 101.0F**) especially if the fever lasts for several hours
- chills, cough, body aches, joint pain, weakness, vomiting, or other flu symptoms;
- nausea, vomiting, stomach pain, jaundice (yellowing of your skin or eyes);
- pain or burning when you urinate – that lasts more than 48 hours;
- difficulty emptying your bladder;
- more frequent or urgent urinating – that lasts for more than 48 hours;
- frank blood in your urine (similar to tomato soup);
- lower back pain – that is a change from baseline;
- pain or swelling in your testicles;
- easy bruising or bleeding;
- eye redness, watering, pain or severe burning/itching; or
- vision changes, including increased sensitivity to light.

Please report the following symptoms during your next office visit:

- mild nausea, stomach pain, or loss of appetite;
- mild bladder or groin pain;
- urine leakage or incontinence;
- diarrhea, constipation – that is different than baseline;
- headache;



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- mild skin rash;
- dizziness, tired feeling; or
- tissue particles in your urine (not blood).

What other drugs will affect BCG?

Before you receive BCG, tell your provider if you are taking any drug that weakens your immune system, such as:

- Antibiotics;
- Cancer medicine or radiation;
- Cyclosporine (Neoral, Sandimmune, Gengraf);
- Sirolimus (Rapamune), Tacrolimus (Prograf);
- Basiliximab (Simulect), Efalizumab (Raptiva), Muromonab-CD3 (Orthoclone);
- Mycophenolate Mofetil (CellCept);
- Azathioprine (Imuran), Leflunomide (Arava), Etanercept (Enbrel);
- Steroids such as Prednisone or Dexamethasone (Decadron, Hexadrol);
- Inhalers such as Fluticasone (Advair); or
- Mometasone (Asmanex, Nasonex)

As with any medication, the above is NOT a complete list. It is extremely important you tell your provider about any medications, vitamin, minerals, and/or herbal products that you are taking whether prescription, non-prescription, and/or over-the-counter. Should you start taking new a medication, please call the office to update your provider.

Lastly, please do not hesitate to call the office if you have any questions or concerns.