Bacillus Calmette-Guerin (BCG, TICE®, TheraCys®)

**Pronounced:** bah-sill-uh kahl-met gey-rahn

**Classification:** Biologic Response Modifier

### About Bacillus Calmette-Guerin (BCG, TICE®, TheraCys®)

Bacillus Calmette-Guerin (BCG) is a weakened strain of Mycobacterium bovis, which can be used to prevent tuberculosis. It works against cancer as a biologic response modifier. Biological response modifiers are substances that have no direct antitumor effect, but are able to trigger the immune system to attack tumors. BCG is thought to work by stimulating an immune response and causing inflammation of the bladder wall that, in turn, destroys cancer cells within the bladder.

### How to Take Bacillus Calmette-Guerin

BCG is given directly into the bladder (called intravesicular) through a catheter. The medicine is left in the bladder for 1-2 hours. The dosage and schedule is determined by your healthcare provider. It is not uncommon to have urinary frequency (need to go often) or painful urination for 48 hours after treatment. If this continues after 48 hours, call your doctor or nurse.

**How the Intravesicular Treatment is Given**

- You should limit your fluid intake starting the night prior to the procedure and have no fluids for 4 hours before. This is so you will be able to hold your urine in during the procedure for the full treatment time. In addition, the area receives more concentrated (and effective) doses of the medicine with less urine output during the procedure.
- If you take a diuretic (water pill), you will be told to not take this for at least 4 hours before the procedure.
- A urinary catheter is inserted into the bladder and any urine is drained.
- The BCG is given through the catheter, into the bladder. The catheter may be removed or clamped and remain in place based on your provider’s recommendation.
- You will need to hold the BCG in your bladder for 1-2 hours. You may need to change positions every 15 minutes to be sure the medicine reaches all areas of the bladder. Do this by rolling on your side, back, other side, and stomach.

**Precautions After Treatment**

- Try not to urinate for 1-2 hours after the procedure.
- You should sit to urinate for 6 hours after the treatment to prevent splashing urine on the skin or exposing others to the medication.
- Do not use public toilets or urinate outside.
- For the first six hours after treatment, after each time you urinate:
  - Add 2 cups of household bleach to the toilet bowl and close the lid.
  - Wait 15-20 minutes and then flush the toilet with the lid down.
- Wash your hands and genital area with soap and water after urinating to remove any traces of the medication from your skin and prevent skin irritation.
- Drink plenty of fluids, starting after the first time you urinate and for 8-12 hours after your treatment to flush your bladder.
- If you have urine incontinence, immediately wash your clothes in the washer. Do not wash with other clothes.
- If using an incontinence pad, pour bleach on the pad, allow to soak in and place it in plastic bag and discard with trash.
- Call your provider if you develop a fever (greater than 101.3° F/38.5°C) or shaking chills.
Medication Interactions

Immunosuppressants and/or bone marrow depressants and/or radiation interfere with the development of the immune response and should not be used in combination with BCG. Antimicrobial therapy for other infections may interfere with the effectiveness of TICE® BCG. Be sure to tell your healthcare provider about all medications and supplements you take.

Possible Side Effects of BCG

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

**Bladder Irritability**

This medication can cause irritation to the bladder, including difficulty or painful urination (dysuria), blood in the urine (hematuria), and increased urgency (strong feeling of need to urinate), or frequency of urination. Patients are advised to increase fluid intake after administration of this medication to "flush" the bladder. You should report any of the urinary symptoms listed above that last more that 48 hours to your healthcare team for further management instructions.

**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.

**Flu-like Symptoms**

Your doctor or nurse can recommend medication and other strategies to relieve aches, pains, and generalized malaise.

**BCG Infection Reaction**

This rare reaction to BCG can occur following exposure to BCG, when given within one week of a biopsy, TUR (trans-urethral resection) surgery, or traumatic bladder catheterization. Symptoms of a BCG reaction include unexplained high fever lasting 24-48 hours or more, chills, confusion, dizziness, or lightheadedness (symptoms of low blood pressure), or shortness of breath. You should notify your doctor immediately if you experience any of these symptoms. BCG reaction can also cause pneumonitis (inflammation of the lungs), hepatitis, prostatitis (infection or inflammation of the prostate), epididymal-orchitis (inflammation of the testicles), respiratory distress, and other symptoms of sepsis (widespread infection).

**Reproductive Concerns**

Men having this treatment can pass on BCG during sex. To protect your partner from coming into contact with BCG, you should not have sex for 48 hours after each treatment. Use a condom if you have sex at other times during the treatment course and for six weeks after treatment has ended.

This medication should not be given to a pregnant woman except when clearly needed. Women should be advised not to become pregnant while on therapy. Breastfeeding while receiving this medication is not recommended.