Tamoxifen (Nolvadex®)

**Pronounced:** ta-MOX-i-fen

**Classification:** Anti-estrogen

**About Tamoxifen (Nolvadex®)**

Tamoxifen works by blocking estrogen receptors in breast tissue. While estrogen may not actually cause breast cancer, it is necessary for the cancer to grow in estrogen receptor-positive breast cancers. With estrogen blocked, the cancer cells that feed off estrogen may not be able to survive.

**How to Take Tamoxifen**

Tamoxifen is available in tablet form to be taken orally (by mouth). It should be taken around the same time every day. This medication should be swallowed whole with a full glass of non-alcoholic liquid. Do not crush, chew or break the tablets. A liquid version (Soltamox®) of this medication is also available. Talk with your provider if you have trouble swallowing pills. If you miss a dose take it as soon as you remember. If it is close to your next scheduled dose do not double your dose, rather skip the missed dose and continue your regular schedule.

It is important to make sure you are taking the correct amount of medication every time. Before every dose, check that what you are taking matches what you have been prescribed.

The blood levels of this medication can be affected by certain medications and supplements. These include: warfarin, paroxetine, fluoxetine, amiodarone among others. Make sure your providers are aware of all medications (over-the-counter and prescription) and supplements you are taking.

**Storage and Handling**

Store this medication at room temperature in the original container. If you prefer to use a pillbox, discuss this with your oncology pharmacist. Ask your oncology team where to return any unused medication for disposal. Do not flush down the toilet or throw in the trash.

**Where do I get this medication?**

Tamoxifen is available through retail and mail order pharmacies. Your oncology team will give you a prescription, which you can fill at your local pharmacy.

**Insurance Information**

This medication may be covered under your prescription drug plan. Patient assistance may be available to qualifying individuals without prescription drug coverage. Co-pay cards, which reduce the patient co-pay responsibility for eligible commercially (non-government sponsored) insured patients, may be available. Your care team can help you find these resources if they are available.

**Possible Side Effects of Tamoxifen**

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

**Endometrial Cancer**
There is a very small risk of developing endometrial (uterine) cancer while taking this medication. Healthcare professionals believe that the benefits of this medication outweigh this risk. Women should report any menstrual irregularities, vaginal bleeding, pelvic pressure/pain, or any vaginal discharge, as these may be symptoms of endometrial cancer. An endometrial biopsy should be done if any concerning symptoms occur.

**Blood Clots and Stroke**
This medication increases the risk of developing a blood clot, which most frequently occurs in the calves, and can travel from there to the lungs. Blood clots can also cause a stroke. Women at higher risk for developing blood clots include those with a family history of blood clots, heavy smokers, those who have an inactive lifestyle, older women, and those with other predisposing medical problems. Women with any one of these risk factors may want to consider another therapy that does not have this side effect.

Being immobile increases the risk of a blood clot. You should stop taking this medication 3 days prior to and during any prolonged immobilization (hospitalization or bed rest). When traveling, be sure to get up and move around frequently to reduce the risk of a clot.

Signs of a blood clot in the leg may include any of the following: leg pain, warmth, swelling of one leg more than the other. Signs of a blood clot in the lung could include: fever, shortness of breath that comes on very quickly, racing heart, chest pain (that tends to be worse when you take a deep breath). Signs of a stroke include: numbness or weakness on one side of the body, trouble talking, confusion, or mental status changes. If you have any of these signs or symptoms of blood clots, you will need to be seen immediately so that you can be treated. Blood thinners can be given. Call your healthcare provider.

**Hot Flashes**
There are a few things you can do to help with hot flashes. Several medications have been shown to help with symptoms, including clonidine (a blood pressure medication), low doses of certain antidepressants (such as venlafaxine and fluoxetine), and gabapentin. Talk to your healthcare team about these prescription products to determine if they are right for you.

Non-medical recommendations include:

- Keep well-hydrated with eight glasses of water daily.
- Drink ice water or apply an ice pack at the onset of a hot flash.
- Wear cotton or lightweight, breathable fabrics and dress in layers so you can adjust as needed.
- Exercise on a regular basis.
- Try practicing meditation or relaxation exercises to manage stress, which can be a trigger.
- Avoid triggers such as warm rooms, spicy foods, caffeinated beverages, and alcohol.

**Vaginal Discharge and Bleeding**
This medication can cause increased vaginal discharge. White/clear discharge is normal. Report any bloody or foul-smelling discharge to your healthcare provider immediately.

**Menstrual Changes**
Your periods may become irregular or stop all together. In some women, normal periods resume after completing tamoxifen therapy. However, women who are already post-menopausal at the time they start tamoxifen should report any vaginal bleeding to their oncologist, primary physician or gynecologist. You will need to be checked to determine why you are bleeding. Tamoxifen can stimulate the lining of the uterus to grow, which can result in uterine polyps, and rarely, in uterine cancer.

**Nausea and/or Vomiting**
Talk to your healthcare provider 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 antacids, (e.g. milk of magnesia, calcium tablets such as Tums), saltines, or ginger ale to
lessness symptoms.

Call your doctor or nurse if you are unable to keep fluids down for more than 12 hours or if you feel lightheaded or dizzy at any time.

**Cataracts**

Women on tamoxifen have an increased risk of developing cataracts. You should have a yearly eye exam by an ophthalmologist. Report any vision changes, cloudy or blurry vision, difficulty with night vision, sensitivity to light, fading or yellowing of colors, as these can be symptoms of cataracts.

**Vaginal Dryness**

Vaginal dryness, itching, and related painful intercourse are one of the more common side effects of cancer therapy in women. Vaginal lubricants and moisturizers (longer-lasting form of moisturizers) can help with these concerns. Talk to your healthcare team for more suggestions in managing this side effect.

**Weakening of the Bones (Osteoporosis)**

Premenopausal women who take hormone therapy for extended periods of time are at risk for bone thinning (osteoporosis). In post-menopausal women, tamoxifen preserves bone strength. You may be advised to take calcium and vitamin D supplements to help prevent bone loss. Weight-bearing exercise and a healthy diet rich in calcium and vitamin D can also help protect your bone health. You may have a bone density scan (DEXA scan) to assess your bone health. If your healthcare provider determines that you are at high risk of developing osteoporosis, they may recommend additional treatment with a type of medication called a bisphosphonate to help strengthen the bones.

**Liver Toxicity**

This medication can cause liver toxicity, which your healthcare provider 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 pain in your abdomen, as these can be signs of liver toxicity.

**Radiation Recall**

While rare, tamoxifen can lead to radiation recall. It may present as a skin reaction that looks like a sunburn (redness, swelling, soreness, peeling skin) in areas where radiation was previously given. Notify your oncology care team if you notice this side effect. Treatment can include topical steroid ointments and a delay in your next chemotherapy dose.

**Bone Metastases**

Patients with cancer that has spread to the bone may experience pain or discomfort at the tumor site after starting this medication, but this should decrease over time and should be managed with pain medication.

**Less common but important side effects:**

- **Muscle and joint aches:** Acetaminophen may help with these side effects. Talk to your care provider if they become bothersome.
- **Weight gain:** Weight gain can occur and can be managed with dietary modifications and exercise.
- **Loss or Thinning of Scalp and Body Hair (Alopecia):** Your hair may become thin, brittle, or may fall out. This typically begins two to three weeks after treatment starts. This hair loss can be all body hair, including pubic, underarm, legs/arms, eyelashes, and nose hairs. The use of scarves, wigs, hats, and hairpieces may help. Hair generally starts to regrow soon after treatment is completed. Remember your hair helps keep you warm in cold weather, so a hat is particularly important in cold weather or to protect you from the sun.
- **Mood changes or depression:** Please talk to your healthcare provider if you feel that you experience depressed moods, loss of interest in activities, or changes in sleep and eating habits.
- **Hypercalcemia:** Patients with bone metastases may develop hypercalcemia (high levels of calcium in the blood) and may require hospitalization to correct this. Symptoms of hypercalcemia include increased thirst and urination, nausea, constipation, muscle weakness, confusion, or changes in mental status. Report any symptoms to your care provider.
**Sexual & Reproductive Concerns**

This medication may affect your reproductive system, resulting in the menstrual cycle or sperm production becoming irregular or stopping permanently. Women may experience menopausal effects including hot flashes and vaginal dryness. In addition, the desire for sex may decrease during treatment. You may want to consider sperm banking or egg harvesting if you may wish to have a child in the future. Discuss these options with your oncology team.

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 non-hormonal birth control (such as condoms) is necessary during treatment and for at least 2 months after treatment, even if your menstrual cycle stops or you believe you are not producing sperm. You should not breastfeed while receiving this medication.

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