Taking Androgen Deprivation Therapy (ADT) for Prostate Cancer

What is Androgen Deprivation Therapy (ADT)?

Most prostate cancers need testosterone to grow. Testosterone is a male sex hormone (called an androgen) that is made by the testes and adrenal glands. One treatment for prostate cancer is to slow or stop the body from making testosterone (deprivation) or block it from working. By depriving your body of androgens, prostate tumors can shrink or grow more slowly. These medications are called androgen deprivation therapy, or ADT. ADT can sometimes be called androgen suppression therapy.

What are the medications used for androgen deprivation therapy?

- **Anti-androgens**, such as bicalutamide, nilutamide, flutamide, enzalutamide, apalutamide, and darolutamide work by blocking testosterone receptors on prostate cancer cells.
- **LHRH (luteinizing hormone releasing hormone) agonists** such as goserelin, triptorelin, leuprolide mesylate, and leuprolide work by stopping the pituitary gland from making luteinizing hormone. Luteinizing hormone helps make testosterone. By stopping luteinizing hormone from being made, testosterone levels are lowered.
- A few other medications, such as relugolix and degarelix, **LHRH antagonists**, abiraterone acetate (CYP17 inhibitor), and Ketoconazole (an antifungal found to also block androgens), are also used as anti-androgen therapies in advanced prostate cancers, high-risk prostate cancer, and castrate-resistant prostate cancer.

Talk with your healthcare provider about the type of medication being prescribed for you.

What are the side effects?

Medications used for androgen deprivation therapy can cause side effects. These can be:

- Changes in your sex drive and ability to have an erection.
- Hot flashes.
- Fatigue (feeling tired).
- Muscle loss.
- Osteoporosis (thinning of the bones).
- Weight gain (especially in the belly).
- Higher risk of diabetes, high cholesterol, and some heart problems like stroke and heart attack.

How can I manage these side effects?

It is important to manage any side effects you are having so that you can continue treatment. Listed below are tips on how to manage the side effects of androgen deprivation medications.

**Sexual Dysfunction & Body Image Problems**

ADT causes a loss of libido (sexual desire) in most men. This tends to happen within the first few months of therapy, followed by erectile dysfunction (decreased ability to obtain or maintain an erection; also called ED or impotence). Libido often comes back a few months after androgen deprivation therapy has been finished. Depending on other cancer treatments and other medical problems, erectile function also can come back for many men.

Talk with your partner and your healthcare providers. Learn about ED. Ask for help from your urologist, who is trained in the treatment of ED. Finally, think about seeing a sex therapist, which can be helpful for couples facing these side effects.
ADT can also cause a short-term (temporary) increase in breast tissue (called gynecomastia), a decrease in the size of the penis and/or testicles, and a thinning of body hair.

Osteoporosis

Osteoporosis is when you have thinning of the bones (decreased bone density) that can lead to fractures (broken bones). There are things you can do to lower your risk of a fracture and to strengthen your bones.

- Get 1000-1200mg a day of calcium.
  - It is best to get calcium in a balanced diet, including 4-8 servings of calcium-rich foods a day. Examples of calcium-rich foods are low-fat milk, yogurt, cheese, green leafy vegetables, nuts, seeds, beans, legumes, and calcium-fortified foods and juices.
  - A dietitian can provide more guidance in choosing calcium-rich foods. A good resource is www.myplate.gov
  - If you cannot take in the recommended amount of calcium in foods, take calcium citrate petite supplements (250mg of calcium per tablet). Your body does not absorb calcium supplements well, so spread the dose out by taking 1 tablet multiple times a day. If you take Synthroid (thyroid hormone), separate it from calcium doses by at least 4 hours.
- Take 1000 IU of vitamin D-3 daily.
  - Your healthcare provider may check blood levels of vitamin D with the 25-OH Vitamin D blood test.
  - Do not take more than 2000 IU of vitamin D3 a day unless directed by your healthcare provider.
- Bone strengthening exercises.
  - Before you start an exercise program, check with your healthcare provider first. If you have cancer that has spread to your bones, a healthcare provider should help you see if weightlifting is safe for you.
  - Start with what you can safely do and work up to the following recommendations:
    - Try for 30-40 minutes of weight-bearing exercise 3 times a week. Weight-bearing exercises are those where your feet or legs bear your body’s weight while the bones and muscles work against gravity. Examples are: walking, jogging, Tai Chi, yoga, and dancing.
    - Strength training (if you are able) should be done 2-3 times per week with a day of rest in between each session. Complete 8-12 repetitions of the exercises below, and repeat them two times (2 sets). Choose a weight where the tenth repetition is hard for you to do and you can’t complete an 11th time. Now remove 1-5 pounds from that “maximum weight,” and use that as your training weight. When you can easily do 12 repetitions, try to increase the weight by 3-5lbs.
      - Exercises are: leg extensions, calf raises, leg curls, chest press, latissimus pulldown, overhead press, row machine, and curl ups.
      - Your provider can refer you to a physical therapist or a physical medicine and rehabilitation physician for more guidance regarding bone-strengthening exercises.
  - Limit or stop drinking caffeine.
  - Quit smoking. Learn more about how to get started on OncoLink.
  - Your provider may order a DEXA scan, which measures the thickness (density) of your bones.

Heart Health, Muscle Loss & Weight Gain

- Keep a healthy weight through diet and exercise. You can use online calculators to find your body mass index (BMI), a measure of body fat. Aim for a BMI of 18.5-24.9. A BMI above 25 is considered overweight and a BMI above 30 is obese.
- Tips for a heart-healthy diet:
  - Have a diet high in fruits and vegetables. Eat unrefined whole grains, fat-free or low-fat dairy, and lean meats, and fish.
  - Try not to eat processed foods, foods high in trans-fats, cholesterol, and sodium, red meats, sugary drinks, soda, and alcohol.
  - Your healthcare provider or a dietitian can give you more information about a heart-healthy diet.
- Try weight-bearing and muscle-strengthening exercises as described above. Discuss with your healthcare provider
before starting an exercise program. Start with what is comfortable for you and work up to the recommended amounts.

- Do a regular aerobic exercise 3 times a week for 30 minutes.
  - Always start with a 5-minute warm-up.
  - The goal of aerobic exercise is to increase your heart rate and break a sweat. To find out how high your heart rate should get, first figure out your maximum heart rate (220-your age). In general, getting your heart rate to 50-65% of the maximum will cause you to sweat. If your rate is below 50% of the maximum, you should work harder. If it is above 65% of the maximum, you may want to slow down. If you are just starting to exercise, you should start at a low intensity such as 40-50% of your maximum heart rate. Learn more about aerobic exercise on OncoLink.
  - Examples of good aerobic exercises are: walking, using a treadmill, biking, elliptical trainer, and swimming.
  - Your provider can refer you to a physical therapist or a physical medicine and rehabilitation physician for more guidance.

- See your primary care provider at least once a year to keep track of your blood pressure, blood sugar (glucose and Hemoglobin A1C), and cholesterol.

- Go to the nearest emergency room if you experience chest pain, shortness of breath or lightheadedness.

**Hot Flashes**

- Try not to drink any caffeine, hot beverages/food, alcohol (especially red wine), and spicy foods. Lower your stress as best you can.
- Keep your bedroom cool.
- Dress in layers and wear cotton or lightweight, breathable fabrics.
- If you are taking Lexapro, Effexor, Zoloft, or Paxil, call your healthcare provider if you are having a hard time sleeping, have dry mouth, nervousness, or tremors in your hands. Call right away if you have feelings of depression or thoughts of suicide.
- If you are taking Megace, call your healthcare provider if you feel you are retaining fluid (puffy hands, feet, ankles, or gaining weight).

ADT is an important part of your treatment. It is important to manage your side effects so that you can continue your treatment.