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ANDROGEN DEPRIVATION
THERAPY (ADT)

Androgen Deprivation Therapy (ADT) is a hormone therapy used to decrease testosterone, which is the male hormone that causes prostate cancer to grow.

HOW LONG WILL I BE ON ADT?

As a short term treatment for prostate cancer, ADT is usually given along with another therapy, such as radiation therapy, to actually treat the prostate cancer. In this case, the injections may be given about every six months for up to two years.

Men who are placed on long-term hormone therapy may remain on this treatment indefinitely if other options are not appropriate due to advanced age or other risk factors that may make surgery unsafe.

Other patients are on ADT when previously treated prostate cancer reoccurs. In addition, some men may be given ADT when their prostate cancer has spread outside of the prostate (metastatic prostate cancer).

HOW OFTEN WILL I RECEIVE AN INJECTION?

Depending on your prescribed course of therapy, injections are given anywhere from every one to every six months. The injection is either given in the abdomen or in the gluteus muscle (the buttocks) by a medical assistant.

How Does ADT Work to Treat Prostate Cancer?

Hormone therapy is used when prostate cancer has spread to other parts of the body or returned after treatment, as well as for more aggressive forms of localized cancer. The goal is to eliminate the testosterone produced by the testicles that causes the cancer to grow.

Cancer cells that are hormone-sensitive need androgens to grow. Testosterone is an androgen. Hormone therapy can eliminate the androgens and slow the cancer cells' growth. Though not curative, hormone therapy can significantly extend life expectancy when the cancer has spread beyond the prostate..

When is Hormone Therapy Recommended?

- As an initial treatment for metastatic disease.
- In select patients who have an elevated PSA or recurrence of prostate cancer following radical prostatectomy, radiation therapy or cryotherapy.
- For men who are not candidates for surgery or radiation, or focal therapy and are not interested in active surveillance.
- To decrease the size of the prostate gland before having a radical prostatectomy, radiation therapy, or focal therapy to make the procedure easier. (Therapy performed prior to treatment is called neoadjuvant therapy.)

HOW IS ADT GIVEN?

Androgen deprivation therapy can be administered in pill form or with an injection. Injectable androgen deprivation medications need to be administered every one to six months. The injection is either given in the abdomen or in the gluteus muscle (the buttocks).

WHAT ARE THE SIDE EFFECTS OF ADT?

The most common side effect of ADT is hot flashes. These usually last a few seconds to minutes before subsiding. You may also feel tired, and may experience a decrease in sex drive or the ability to achieve an erection. Long term use can result in decreased muscle mass, weight gain, and decreased bone density (osteopenia or osteoporosis).

ARE THERE ALTERNATIVES TO ADT?

A surgical procedure called a bilateral orchiectomy (removal of both testicles) can be considered as an alternative to Androgen Deprivation Therapy. Testosterone is produced in the testicles and removing them will eliminate the majority of testosterone levels in the body. However, this surgery and the potential side effects should be discussed with your urologist.

ABOUT THE ADVANCED PROSTATE CANCER CLINIC

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Welcome to the Advanced Prostate Cancer Clinic, a part of the Personalized Prostate Cancer Program at Arizona Urology Specialists. New advancements in therapies for prostate cancer, which may include hormone therapy, are allowing patients to live longer and better quality of lives.

AT ARIZONA UROLOGY SPECIALISTS, OUR GOAL IS TO PROVIDE YOU WITH SUPERIOR AND PERSONAL CARE, AND TO BE HERE FOR YOU EVERY STEP OF YOUR JOURNEY.

Our Advanced Prostate Cancer Clinic for the delivery of hormone therapy is led by our team of highly trained providers who will meet with you as you begin your hormone therapy.

Patients benefit greatly from close interactions with our Advanced Prostate Cancer Clinic. Our team will take as much time as you need to explain the hormone therapy, the benefits and the side effects, as well as help manage and answer all of your questions regarding your overall treatment plan.

We encourage you to read through this information packet to learn more about your treatment as well as advanced prostate cancer and your dedicated team of specialists on hand to deliver the very best care.



One of the side effects of ADT is loss of bone density and increased risk for fracture. A goal of the Advanced Prostate Cancer Clinic is to minimize these side effects and protect bone health.

ARE SUPPLEMENTS BENEFICIAL FOR MAINTAINING BONE HEALTH?

Men who have detectible bone loss should be taking calcium supplements (500-600 mg) twice per day. The calcium should be taken in the morning and in the evening as the body can only absorb a certain amount of calcium at one time. Your provider will also recommend taking a vitamin D supplement to help your body better absorb the calcium (800-2,000 IU daily). You will receive regular blood tests to ensure optimal levels of calcium and vitamin D.

HOW DO I KNOW IF I HAVE BONE LOSS?

A DEXA (dual energy X-ray absorptiometry) scan is a specialized imaging test that is used to measure bone strength and density. This scan is typically performed every one to two years.

The results of your DEXA scan will either show normal bone strength, osteopenia or osteoporosis. Osteopenia means that there is some loss in overall bone strength. Osteoporosis is a severe loss of bone strength, which puts you at a higher risk of breaking a bone (fracture).



ARE THERE OTHER MEDICATIONS THAT WILL HELP MAINTAIN MY BONE HEALTH DURING ADT?

Yes. Your doctor may prescribe medications that can help reduce bone loss and the spread of cancer in the bone, as well as alleviate pain and other complications including:

- **Prolia®** is used to increase bone mass in men with non-metastatic prostate cancer (cancer that has not spread) whose DEXA scan shows osteopenia or osteoporosis. You may also be prescribed Prolia if you are at high risk of osteoporosis. This medication is administered by injection once every six months.
- **Xgeva®** is used for patients with metastatic bone disease (advanced prostate cancer that has spread to the bones) to prevent bone fracture, severe bone pain, and spinal cord compression. Xgeva is administered by injection every four weeks.

WHAT ARE THE SIDE EFFECTS OF THESE MEDICATIONS?

Prolia and Xgeva are generally very well tolerated. One potential side effect is a reduced blood calcium level. For this reason, we monitor labs and recommend calcium supplementation.

These medications can possibly cause an abnormal condition of the jaw called osteonecrosis. Patients receiving these injections should visit a dentist on a regular basis and make them aware you are receiving this medication. If you need to have dental work other than a standard cleaning, your injection will need to be rescheduled. Please alert our team if you require dental work so we may plan accordingly.

PREVENTING BONE LOSS ASSOCIATED WITH ADT

ADT is associated with increased bone turnover, loss of bone mineral density, and increased fracture risk in men with prostate cancer. The lifestyle and health modification recommendations listed below can also help minimize your fracture risk.

RECOMMENDATION	HOW IT HELPS
Calcium supplement (1,200 mg/day)	<p>For calcium supplements, divide into two 600 mg doses/day.</p> <ul style="list-style-type: none">• Calcium carbonate requires food for optimal absorption• Calcium citrate can be taken without food
Vitamin D3 supplement (800 – 1000 IU daily for men aged 50 years or older)	Helps with calcium absorption in the gut and increases bone mineral density.
Maintain an active lifestyle with weight-bearing and muscle-strengthening exercise (30 minutes of moderate physical activity daily)	Helps reduce bone loss. If you have cancer that has spread to the bones speak with your provider before beginning exercise.
Quit smoking	Quitting smoking can reduce your risk for osteoporosis and fractures.
Minimize alcohol intake	Reduces your risk for osteoporosis and fractures.
Nutritional intervention – incorporate a diet rich in fruits and vegetables	A well-balanced diet can maximize calcium and vitamin D intake. This is especially helpful for patients with malabsorption syndrome or poor nutrition.
Fall safety – safeguard your home to protect yourself from injuries and bone breaks	The National Center for Injury Prevention and Control provides a checklist for home fall prevention in older adults. Visit www.cdc.gov/steady/pdf/check_for_safety_brochure-a.pdf

Patients on ADT can experience several side effects including hot flashes, fatigue, a decrease in muscle mass, weight gain, erectile dysfunction (ED), and/or a decrease in bone density. Our team provides you with recommendations for tolerating and treating some of the most common side effects.

In addition to medications, there are several lifestyle changes and alternative therapies available that can also minimize the side effects of ADT and improve your quality of life. A good app to help with diet, exercise, and education is www.incrementalADT.com.

Following are some additional recommendations you can explore and discuss with your healthcare team.

COMPLEMENTARY AND ALTERNATIVE TREATMENTS	ADVANTAGES AND DISADVANTAGES
Acupuncture (1 to 2 times every week or two)	Few or no side effects; traditional needle and other forms of acupuncture can be effective at minimizing ADT side effects; can be expensive.
Black Cohosh Pills (1 to 2 pills a day)	Most research has been with women and has shown the drug to work similarly to a placebo. Moderate to expensive.
Fish Oil Pills (at least 1200 mg/day of EPA & DHA)	A study shows fish oil may reduce the frequency of hot flashes; may reduce triglycerides and help with weight loss in men on LHRH. Patients with a fish allergy can try algae-based omega-3 supplements; inexpensive.
Flaxseed Powder (2 to 3 tablespoons/day on foods or in beverages)	High in fiber and omega-3 fatty acids; heart healthy but lacks studies in men; inexpensive.
Magnesium Supplements (250 to 600 mg/day as magnesium oxide)	Inexpensive, safe; minimal research conducted with women suffering from hot flashes during breast cancer treatments.
Red Clover Pills	Moderate to expensive; Mixed research in men; May have side effects, and results are similar to a placebo.
Sage supplement or tea (100 – 200 mg/day as a supplement or 1 to 2 cups/day as tea)	May help with sweats; needs more clinical evidence.
Sesame Seeds/Powder (2 to 3 tablespoons/day on foods or in beverages)	Inexpensive and safe, but most of the recent research has been done in the laboratory.
Soy Products/Protein (several servings a day or 20 to 40 grams of soy protein/day)	Inexpensive. Natural products (beans, powder, and tofu) are heart-healthy and may be more effective compared to soy pills; as dosage is increased, so are gastrointestinal side effects.

LIFESTYLE CHANGES	ADVANTAGES AND DISADVANTAGES
Avoid hot beverages, spicy foods, and excess alcohol or caffeine.	Many foods and beverages can trigger hot flashes or make them worse. Your diary may help identify offenders for you.
Controlled, deep, slow abdominal breathing (6 to 8 breaths/minute) for at least 15 minutes twice daily (morning, midday, and/or evening) or at the beginning of a hot flash.	Also known as “paced respiration,” it has been shown to decrease blood pressure (temporarily), hot flashes, and the severity of a hot flash. This technique involves moving stomach muscles in and out and should be demonstrated to you by a trained professional.
Keep a daily diary.	Keeping a daily diary for just two to four weeks can give you the best insight into what does and does not impact your hot flashes.
Avoid smoking or breathing second-hand smoke.	Not only is smoking heart unhealthy, but tobacco smoke makes hot flashes worse due to the circulatory and temperature changes it produces in your body.
Incorporate low-impact daily exercise.	Exercise has been shown to reduce stress, improve mood, and it may reduce hot flashes.
Try stress-reducing techniques like meditation, relaxation techniques, deep breathing, and yoga.	Relaxation exercises can help with hot flashes and may also improve other areas of your life such as sleep.
Use cooling methods to help control hot flashes.	If your body’s core temperature increases slightly it can trigger a hot flash. Keep yourself cool by using ice cubes, cool beverages, fans, reducing room temperature, opening a window, and/or chilling pillows/ pillow coverings.
Wear loose-fitting clothing and layer clothing.	Helps to keep your body’s core temperature slightly lower and prevents clothing from feeling constricting when a hot flash occurs. Layers allow you to easily shed clothing to regulate temperature shifts.

As you begin the hormone therapy, your healthcare team will make sure you are comfortable as well as informed about what you can expect over the course of your treatment.

WHAT TO EXPECT AT YOUR VISIT

At your initial visit to the Advanced Prostate Cancer Clinic, you will meet with the provider to review your treatment plan. All aspects of the therapy will be explained, as well as the potential side effects.

HOW DO I PREPARE FOR MY VISIT?

There is no special preparation required to receive your ADT injection. You may want to write down any questions or concerns you have to discuss with the provider prior to the injection. Feel free to also bring a family member or friend along for company and additional support.

WHO DO I CALL WITH QUESTIONS OR CONCERNS RELATED TO MY VISIT AND TREATMENT?

For any questions or concerns, please call 602-222-1870. We are also happy to speak to family members, with your permission, if they have questions about the hormone therapy you are receiving.

WHAT OTHER EDUCATIONAL RESOURCES ARE AVAILABLE TO ME?

We understand you may have many questions regarding advanced prostate cancer care and treatment options. Following is a list of patient-friendly and informative websites that are excellent sources of education about prostate cancer:

- Arizona Urology Specialists Prostate Cancer Care Program - www.arizonaurologyspecialists.com/specialties/advanced-localized-prostate-cancer/
- National Cancer Institute - www.cancer.gov/types/prostate
- ZERO-The End of Prostate Cancer - www.zerocancer.org
- The American Cancer Society - <http://www.cancer.org/prostatecancer>
- Blue Flowers Org: Empowering Women & the Men in their Lives Against Prostate Cancer - www.blueflowers.org