

Glossary of Terms Often Heard in PCIG Discussions

(Specific Drugs are listed at end of Glossary)

ACTIVE SURVEILLANCE – deferment of specific treatment of prostate cancer such as surgery or radiation if the risks of aggressive tumor are small. (See Small Gleason 6) Guidelines vary, but many urologists feel that the PSA should be lower than 10 – 13 ng/dL. Age and general health are other considerations. There is currently no standard protocol for active surveillance, but such activity often involves PSA level every 6 months and a DRE at least yearly. Some urologists prefer a repeat biopsy one year after the initial diagnosis. Since treatment for prostate cancer involves serious quality of life issues, particularly for younger men who are otherwise healthy, Active Surveillance is considered a viable option more often than formerly. (See also GLEASON SCORE)

ADT Androgen Deprivation Therapy also referred to as androgen suppression therapy. Its purpose is to reduce the level of male hormones – androgens – in the body to prevent them from reaching prostate cancer cells. The main androgens are testosterone and dihydrotestosterone (DHT). Androgens are produced primarily in the testicles, and they stimulate prostate cancer cells to grow. Depriving the prostate cancer cells of androgen will cause tumors to shrink and/or dramatically slow their growth and spread. There are two types of ADT, GnRH and CAB which are described below.

AIPC –see HRPC

ANTI-ANDROGENS – prevent testosterone from acting on prostate cancer cells. Casodex is one of the more common anti-androgen used in the treatment of prostate cancer.

BIOPSY - The removal of tissue from the body for purpose of microscopic examination by a pathologist. Prostate biopsies are usually performed under sedation or local anesthesia, through the rectum, using a spring-loaded biopsy needle. Alternatively the biopsy can be performed through the perineum, the area between the scrotum and the rectum.

BPH - Benign prostatic hypertrophy, the natural enlargement of the prostate that occurs in many men as they age. It may cause difficulty in urination and an elevation of the PSA.

BRACHYTHERAPY - the precise placement of short-range radiation-sources (radioisotopes) directly at the site of the cancerous tumor. These are enclosed in a protective capsule (seeds) or a wire that allows the ionizing radiation to escape to treat and kill surrounding tissue. The capsule may be removed later, or as in the

case of most prostate brachytherapy, the seeds are allowed to remain in place. Brachytherapy only affects a very localized area around the radiation sources. Exposure to radiation of healthy tissues further away from the sources is therefore reduced. (See EBRT)

CAB Combined Androgen Blockade – the administration of an anti-androgen along with chemical or surgical castration. Although 90 – 95% of testosterone is produced by the testes, 5 – 10% is produced by the adrenal glands. This is often enough to stimulate growth of prostate cancer cells.

CRPC- see HRPC

CRYOTHERAPY – treatment of a tumor mass by freezing.

DHEA - Dihydroepiandrosterone, a hormone made in the adrenal glands and is a precursor to other androgens and estrogens. DHEA levels generally fall beginning around age 30.

dL Deciliter, one tenth of a liter or 100 ml (milliliters). Blood chemistry levels are usually reported in grams, milligrams 10^{-3} , micrograms (10^{-6}), or even nanograms (10^{-9}) per deciliter, often abbreviated as g/100ml, mg/100ml or ng/100ml; or more properly as g/dL, mg/dL, μ g/dL, or ng/dL.

DRE - Digital Rectal Exam, the procedure where a lubricated gloved finger is inserted into the rectum to feel for nodules on the surface of the prostate and to estimate the size of the prostate. Unfortunately it's your rectum and the doctor's finger.

EBRT – External Beam Radiation Therapy : high-energy x-rays (or occasionally gamma-rays from a radioisotope like cobalt-60) are directed at the tumor from outside the body.

GLEASON SCORE – A system of grading the severity of prostate cancer. Basically, the pathologist grades the commonest tumor type from one to five, then the second commonest from one to five, then adds up the sum. Until the past few years most urologists felt that surgery or irradiation was the proper treatment for Gleason 6 cancer. More recently patients and some urologists think that select patients with Gleason Score of 6 can be treated by Active Surveillance. (see SMALL GLEASON 6), others are best treated with surgery or radiation. Generally, a total Gleason score of 7 or above requires treatment. A score of 4+3 has more serious prognosis than a score of 3+4, although they have the same total. There is some subjectivity in the scoring, and accuracy requires an experienced pathologist examining a well-prepared specimen.

GnRH Agonist – another term for LHRH agonist.

HIFU - High Intensity Focused Ultrasound. A technique where ultrasound waves are used to treat prostate cancer. Ultrasound waves heat and destroy the cancerous tissue. Currently (2012) it is used to treat mainly cancers that are organ confined. It is less effective if the prostate is enlarged over 40 mL. Some patients may require a TURP first. <http://www.moffitt.org/CCJRoot/v14n3/pdf/244.pdf>

HRPC – HORMONE REFRACTORY PROSTATE CANCER is prostate cancer that no longer responds to hormone therapy (LNRH agonists like Lupron and Zoladex) HRPC is also known as AIPC, androgen-independent prostate cancer, and CRPC, castrate-resistant prostate cancer.

IMRT - INTENSITY MODULATED RADIATION THERAPY is an advanced mode of high-precision radiotherapy that uses computer-controlled linear accelerators to deliver precise radiation doses to a malignant tumor or specific areas within the tumor. IMRT allows for the radiation dose to conform more precisely to the three-dimensional (3-D) shape of the tumor by modulating—or controlling—the intensity of the radiation beam in multiple small volumes. IMRT also allows higher radiation doses to be focused to regions within the tumor while minimizing the dose to surrounding normal critical structures. Treatment is carefully planned by using 3-D computed tomography (CT) or magnetic resonance (MRI) images of the patient in conjunction with computerized dose calculations to determine the dose intensity pattern that will best conform to the tumor shape. Typically, combinations of multiple intensity-modulated fields coming from different beam directions produce a custom tailored radiation dose that maximizes tumor dose while also minimizing the dose to adjacent normal tissues.

LHRH - Luteinizing Hormone Releasing Hormone is produced in the pituitary gland at the base of the brain. It stimulates other pituitary hormones to cause the ovaries to produce estrogen and the testicles to produce testosterone.

LHRH agonist – a substance that mimics the action of LHRH resulting in a brief flare of excess testosterone production followed by very low levels of testosterone. The result is a long-term chemical castration. Examples of LHRH agonists are Lupron and Zoladex.

ng - Nanogram, one-billionth (10^{-9}) of a gram. One gram is about $1/30^{\text{th}}$ of an ounce, give or take.

MEDITERRANEAN DIET – basically following a diet that emphasizes plant foods and seafood like shellfish and fatty fish and the drastic reduction of other animal food sources, especially red meat. Olive oil is a mainstay in cooking.

OMEGA 3 FATTY ACIDS – are some of the essential fatty acids cannot be synthesized by the human body but must be obtained through the food we eat. These poly-unsaturated fatty acids are crucial in normal growth and development. They may

reduce the incidence of heart disease. Salmon, sardines, mackerel, lake trout, and albacore tuna are good sources.

OMEGA 6 FATTY ACIDS - are another type, some also are essential, such as linoleic and arachidonic acid. But a high ratio of Omega 6 to Omega 3 fatty acids can lead to inflammation and perhaps certain cancers. The typical American diet has a Omega 6:Omega 3 ratio of 10:1 to 30:1. The ideal ratio has not been established, but is thought to be about 4:1. The Mediterranean Diet is one way of approaching this ratio.

OSTEOPOROSIS – thinning of the bony matrix that accompanies age, inadequate Vitamin D intake, and often from hormonal treatment for prostate cancer.

PROTON BEAM THERAPY – a type of radiation therapy that uses high-energy beams of positively charged particles (protons). Currently (2012), Proton Beam Therapy is available in only a few centers around the United States

PSA – PROSTATIC SPECIFIC ANTIGEN, is a protein found in mostly semen but also in the blood. An elevated PSA blood level may indicate prostate cancer but may also be due to inflammation or BPH.

PSA DOUBLING TIME – the time it takes for the PSA to double. See PSA Doubling Time, What the Numbers Mean at the end of this section. There are several nomograms available on the Internet.

PSAV or PSA VELOCITY – the rate of change in the PSA level over time.

RRP - Radical Robotic Prostatectomy, sometimes called a DaVinci prostatectomy after the company that designed the robotic device. A surgical technique used to remove the prostate. Instruments are inserted through five (or six) ports in the lower abdomen, and then attached to the robot. The surgeon sits at a console and performs the remainder of the operation from there.

SMALL GLEASON 6 – generally, cancer with a Gleason score of 3 + 3 is found in one-third or fewer of the total needle samples, and cancer involves less than 50% of a single needle specimen. Many authorities also say that the PSA should be under 10 ng/dL.

SRE – skeletal related event. This may be a fracture from osteoporosis or nerve compression from a collapsed vertebra. Other common sites are ribs, hip, and wrists.

STAGING PROSTATE CANCER (see separate section at end of this Glossary)

TURP – Transurethral resection of the prostate. A procedure performed for men with difficulty passing urine due to BPH. A rough analogy would be to remove the core from an apple. It is not a procedure performed for cancer, but sometimes cancer is found in the removed tissue.

Please notify Kurt Bofinger (kbofinger@cinci.rr.com) if there are additional terms that should be included in the Glossary, or if you think a term is defined incorrectly.