An Introduction to Stereotactic Body Radiation

Lynn Farrar, CyberKnife Patient Access Optimal treatment for any specific individual with prostate cancer is based on a long list of important considerations including his specific risk category (low, intermediate, or high), his age, health, baseline erectile function, his baseline urinary function, prostate size, and last but not least, the raw skill of the proposed treating physician. This short article is a brief report on a body of data collected on almost 2,000 patients treated with Stereotactic Body Radiation Therapy (SBRT) for prostate cancer. This report was recently published in the January 22, 2015 issue of Frontiers of Oncology. The full article can be viewed at http://journal.frontiersin.org/article/10.3389/fonc.2014.00369/abstract

his study enrolled patients in a Registry for Prostate Cancer Research (RPCR), with this particular data set representing patients at 45 CyberKnife centers, including academic centers, hospital-based practices, and free-standing centers. This registry was developed to collect data on the outcomes of prostate SBRT in a variety of real-world clinical settings.

What Is SBRT?

SBRT accurately delivers very high doses of external radiation beams to the whole prostate gland, thereby treating the prostate tumor within, while minimizing extra-prostatic radiation exposure to the adjacent normal tissues.

Because SBRT delivers a much higher dose of radiation during each visit to the facility, the overall treatment time is sharply reduced. Generally a full course of therapy can be completed in four to five sessions over the course of one to two weeks. Other external radiation

treatments for prostate cancer often require approximately 35 to 45 sessions of radiation therapy over six to nine weeks. CyberKnife is one of several SBRT systems available but it is the only system that is entirely robotic.

Rpcr-Reported Treatment Effectiveness

In this particular registry report from the RPCR, the rate of PSA relapse-free survival was 92 percent in the entire cohort of patients at two years. This outcome is similar to other published outcomes for the CyberKnife system, including outcomes on 1,100 patients published in 2013 in the journal *Radiotherapy and Oncology*.

In fact, several other papers have been published with median follow-up of five to seven years. To date, CyberKnife has been the subject of approximately two dozen peer-reviewed clinical papers, more than any other type of SBRT technology.

Side Effects

The survey published in *Frontiers of Oncology* also reported on side effects related to bowel, bladder, and sexual functioning. During the first three months, the most commonly reported side effects involved urinary symptoms of urgency, frequency, and/or dysuria (pain during urination). 10% of patients reported urinary symptoms persisting more than three months after treatment. Urinary quality of life score remained unchanged before and after treatment. The incidence of persistent bowel complaints was low.

The rate of erectile dysfunction was similar to what has been observed with other forms of radiation therapy (IMRT, seed implants, and proton therapy). Approximately 80% of men younger than age 70 maintained erections sufficient for intercourse following SBRT; 55% of men older than age 70 were able to maintain potency. This analysis does not adjust for the normal 2-3% increase an-

nually in erectile dysfunction that occurs from other health conditions as men get older

Cyberknife Compared to Other Types of SBRT

The prostate gland can move unpredictably throughout the course of treatment, making the ability to track, detect, and correct for motion during treatment critically important. In fact, the prostate has been documented to move as much as 5 millimeters in less than 30 seconds because of normal patient bodily functions such as filling of the bladder, gas in the bowel, or even slight patient movement during the procedure.

Unlike any other radiation treatment, the CyberKnife system continually tracks and automatically corrects the radiation beam to adjust for movement of the prostate in real-time throughout the entire treatment session. This capability enhances the doctor's ability to accurately deliver high doses of radiation to the intended target while still preserving the surrounding healthy tissue to minimize potential side effects.

Paying for SBRT

SBRT for low and intermediate-risk prostate cancer is covered by Medicare in all 50 states and the District of Columbia. In addition, most private insurance payers

and health exchange insurers cover SBRT treatment for prostate cancer. It is always best to check your insurance policy, and if applicable, be sure to review your employee contract to determine if your insurance coverage benefits are limited.

For more information on SBRT, check with a radiation oncologist. For contact information for centers specifically offering the CyberKnife System for prostate cancer, visit http://www.cyberknife.com/

helpline corner: My Story So Far

By Jonathan Levy, PCRI Educational Facilitator

n February 2006, with a PSA of 4.0 ng/mL, my urologist decided that I should have a prostate biopsy. The result? The pathologist found no cancer. Since the biopsy results were benign, the doctor reassured me that I was "just one of those men, whose PSA of 4.0 ng/mL, was normal." Because of this, I wasn't re-tested for the next three years.

In 2009, during a routine physical, and because it was now long overdue, I decided that it was time to take a PSA again. It came back at a whopping 32 ng/mL. Of course, this triggered a repeat biopsy, and this time I was diagnosed with prostate cancer. My Gleason score

was 3+4=7; stage T2b. A CAT and bone scan were ordered to rule out any metastatic disease.

My wife, Doris, and I went to a meeting with the urologist to review the results, and to discuss my treatment options. When we arrived at his office, his demeanor made it clear to both of us that things weren't going to go as planned. The CT scan showed that, "the cancer had already metastasized to your liver," he said. He explained that the only treatment available now was hormone therapy, using a drug called Lupron, and, that it would only be palliative, since a cure was now impossible.



My wife and I left the meeting in total disbelief and shock. We felt helpless, confused, and numb. "How do we break this news to our children?", we asked ourselves; our lives had been shattered. The next several days were an emotional roller coaster, filled with ups and downs, sleepless nights, and confusion. But, what eventually came out of the chaos was a slowly but surely formed conviction that there was something fundamentally wrong with this whole sequence of events; it didn't add up.

I started researching on the internet and found that a liver biopsy could be done, to confirm whether the doctor's