

GUIDELINES FOR SEED IMPLANTATION OF PROSTATE CANCER

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A group known as the American Brachytherapy Society has put together guidelines for those considering treating patients with seed implantation into the prostate.

Since prostate cancer is a very common disease in America affecting more than 200,000 men annually, treatment options are crucial to be discussed and treatment critical to be superb when implemented. I believe this is based upon data and better quality of life issues.

While brachytherapy or seed implantation for prostate cancer is a relatively new area there is tremendous interest. Some predict that within seven years half the men with prostate cancer in the United States will be treated by such therapy. This suggests the marked popularity of non-surgical or minimally-invasive treatment for cancer.

There are a variety of criteria for those considering seed implantation. Guidelines exclude patients with a life expectancy of less than 5 years, poorly healed or large defects in the prostate produced by prior surgical manipulation, operative risks that are great or cancer that has spread.

Patients who are less than ideal candidates are those with large median lobes (a central portion of the gland), those having prior pelvic radiation, multiple pelvic surgeries or severe diabetes with healing problems.

Reasons for sub-optimal radiation dose coverage may include patients who have had transurethral resection of the prostate, large size prostate greater than 60 grams at the time of implantation, large median lobes or involved seminal vesicles. It is not infrequent that we administer hormonal therapy to shrink the enlarged, cancerous prostate. Mostly all will have regression of greater than 60 gram prostates. For the very motivated man with a refractory prostate, pre-seed radiation is given to further shrink the gland.

Also, patients considered for seed implantation only were those with low stage, low Gleason and low PSA. Patients considered for seeds plus radiation were those with higher stage, higher Gleason or PSA's. Other patients considered for seed boost to radiation included those with perineural invasion, multiple positive biopsies, bilateral biopsies or evidence of capsular penetration. We believe that our data shows the enhanced benefits of seeds/body radiosurgery in most all treatment groups who have localized or locally advanced prostate cancer.

Those felt appropriate for seed implantation and hormonal treatment include those with prostates greater than 60 grams prior to implantation. The hormone's purpose is to reduce the prostate's size prior to seed implantation for optimal placement.

Patients who have gone through transurethral resection of the prostate, the so-called "roto-rooter" procedure have a higher risk of urinary complication after radiation seed placement. They are more likely to become incontinent of urine and therefore are appropriately advised or deterred from going through seed implantation.

It was noted that patients with smaller TURP defects can be treated as long as peripheral seeding only is carried out. Our general policy is to give full dose seeding using fluoroscopic and ultrasound guidance avoiding the urethral area for all patients to minimize urinary symptoms. There can be urinary leakage in TURP patients, but the risks still seem more favorable than with radical prostatectomy.

Patients who have greater than 60 gram prostates are downstaged with hormone therapy. This means that hormones are administered to shrink the prostate. This allows a better seed

implantation.

Authors noted that lymph node or seminal vesicle involvement should preclude local therapy but extra-capsular penetration does not. Of course seed delivery when properly performed gives effective doses of radiation beyond the prostate itself. A recent paper has showed that men with lymph node involvement do better with radiation plus hormones than hormonal therapy alone.

In an evaluation of our data we found that high-risk patients in fact benefit the greatest from our combined seeds/body radiosurgery program. This would suggest that higher dose therapy is more likely to result in disease free survival even for the patients at highest risk. With our body radiosurgery program the entire prostate and seminal vesicles can be entirely treated and routinely are.

This study written by Nag et al, and published in the prestigious International Journal of Radiation Oncology Biology and Physics notes that perineural or invasion of tumor trekking along nerves is associated with involvement of the prostate capsule in 50% to 90% of cases.

The American Brachytherapy Society does recommend that pre-planning of the prostate is performed prior to placement of seeds. In our facility this is uniformly done. It allows us to have the correct number of seeds on hand, know where to place the seeds to a greater degree and carry out the procedure in the best possible way.

The Brachytherapy Society sidesteps the use of fluoroscopy for seed placement. We believe that fluoroscopy is especially crucial since this allows visualization of seed placement. While the Society states "fluoroscopy can be helpful especially if there is poor image quality on transrectal ultrasound," we use fluoroscopy on every case to confirm the placement of the seed using a second mechanism of visualization and to be able to replace or add seeds where appropriate.

While many physicians do not like the radiation exposure we believe it is most crucial and has led to our superior results.

Cystoscopies are suggested after the procedure. In our procedure they are uniformly performed. This allows complete visualization of the bladder after seed placement.

The Society recommends avoidance of prolonged close contact with those under age 18 or pregnant women for one half life. Half-life is the time it takes for the radioactive materials to lose 50% of its activity. For palladium this means 17 days, for iodine it would be 60 days. This is another reason, in addition to better safety issues that allows us to favor palladium despite its higher cost. Our hospital has encouraged the best outcome for those with cancer. There is data currently showing that palladium use results in safer implants and less rectal irritation.

Additionally, the Society guidelines allows the patient sleeping in the same bed as his partner and the resumption of sexual intercourse. Someone suggested wearing a condom during intercourse for the first several times to minimize lost seeds. After placing 150,000 seeds into prostates personally, I know about only six lost seeds - none of any consequence.

While these guidelines are important especially for centers opening up seed programs, we have implemented policies that seem to assure high rates of success.

While it is recommended that those receiving palladium receive 8000 to 9000 rad we have given full dose (9000 rad). Some other centers have significantly reduced the dose - some using only half the dose. The patients must be told the radiation dose because the lower dose means lesser results and less results mean the low likelihood of cure.

Also, we believe that a dedicated suite is best prepared to make the patient comfortable and the physicians safe while using sophisticated technology including fluoroscopy as well as ultrasound.

Radiation physicists and/or dosimetrists are present for every procedure. The radiation oncologist works shoulder to shoulder with the urologist for the best possible results.

Currently our group, for example, has placed more than 150,000 seeds and comparison data is available. If predictions hold true that half the men with prostate cancer will choose seed implantation within the next seven years, it means that many will be exposed to this technology and hopefully benefit to the maximum degree. This means to be free of cancer, maintaining urinary and sexual function, as well as avoiding a radical procedure.

We obviously believe our treatment approach offers great appeal to those with prostate cancer. Our data suggests equal or better results than radical prostatectomy in almost all categories. We encourage you to learn as much as you can. We also will ask that you send in copies of films, reports, pathology for review by our panel of experts.

We have established a hot line at 212-CHOICES and e-mail address: gil.lederman@rsny.org. There are also monthly seminars on brain, body and prostate cancer treatment. We invite your participation. We encourage you to learn as much as you can about treatment options.