WRNMMC Us TOO, Inc.
A PROSTATE CANCER SUPPORT GROUP
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NEWSLETTER

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♦ DOD SPONSORED RESEARCH ♦

The Congressionally Directed Medical Research Programs (CDMRP) originated in the early 1990s from a unique partnership among the public, Congress, and the Department of Defense to develop funding opportunities for specific diseases such as breast cancer, prostate cancer, and ovarian cancer. Over time the CDMRP has funded medical research in many diseases, conditions, and injuries such as psychological health, traumatic brain injury, spinal cord injury, Gulf War illness, autism, neurofibromatosis, lung cancer and multiple sclerosis.

The Fiscal Year 2013 Department of Defense Appropriations Act provides research funding for sixteen programs managed by the CDMRP. Its Prostate Cancer Research Program received $80 million for its research efforts during FY 2013, an amount that has been consistently provided over the years. It is the second largest research allocation among the several research programs, exceeded only by the $120 million allocated to breast cancer research.

While recent advancements in therapies for metastatic prostate cancer are providing increased hope, there remains no definitive cure for locally advanced or metastatic disease. The Prostate Cancer Research Program prioritizes research that will develop effective therapies for advanced prostate cancer or distinguish between indolent and aggressive disease. The focus areas for funded research include biomarker development, genetics, imaging, mechanisms of resistance, survivorship, palliative care, therapy, and tumor and microenvironment biology.

Get Involved! The unique voice and experiences of prostate cancer patients, survivors, family members and advocates play a pivotal role in the CDMRP. The innovative vision of research at the CDMRP integrates the experiences of Consumers in the funding review process. They add perspective, passion, and a sense of urgency that ensures the human dimension is incorporated in the program policy, investment strategy, and research focus. You can be a Consumer Reviewer who participates fully in the research selection process to help direct the $80 million funding. **Interested?** Go to the CDMRP web site at cdmrp.army.mil to learn more about the role of the Consumer Reviewer. Then signify your interest in the Prostate Cancer Research Program by sending your name and contact information to **cdmrpconsumers@amedd.army.mil**, or call 301-619-7071.

♦ *INSIDE THIS ISSUE* ♦

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♦ FROM THE EDITOR'S DESK ♦

We have updated the Counselors Listing that is always shown on the penultimate page of each newsletter. We are very grateful to these volunteer counselors who encourage you to contact them and benefit from their experiences in dealing with prostate cancer.

Our May meeting, formerly scheduled for May 2, 2013, has been rescheduled for Thursday, May 30, 2013 at 7:00 pm. See below and the back page for more details. Mark your calendars now!

♦ FEBRUARY, 2013, SPEAKER'S REMARKS ♦

Our February program featured Dr. Rex A. Kiteley, head of WRNMMC's Radiation Oncology Department, whose topic was "The Role of Radiation Therapy in the Treatment of Prostate Cancer." A summary of his presentation begins on page 12.

♦ MEETING SCHEDULE FOR MAY 30, 2013 ♦

Believe it or not, patients often cite incontinence, not erectile dysfunction, as the side effect "most bothersome" in affecting their quality of life after primary therapy for prostate cancer. Our speaker for Thursday, May 30, 2013, works daily in helping men meet the challenges of incontinence after surgery. She is Catherine Gray, RN, a urology incontinence nurse within the Urology Clinic here at WRNMMC. The title of her presentation "Urinary Incontinence Following Prostatectomy."

Join us at 7 PM, Thursday, May 30, 2013. Your family members and friends are always welcome.

SEE THE BACK PAGE OF THIS NEWSLETTER FOR IMPORTANT INFORMATION ABOUT THIS MEETING.

Benign Prostate Tissue at RP Surgical Margins Not a Recurrence Risk. Patients undergoing robotic-assisted laparoscopic radical prostatectomy (RALRP) are more likely that those undergoing open radical prostatectomy (ORP) to have benign glandular tissue at the surgical margin, but this tissue is not independently associated with an increased risk of biochemical recurrence, a study found.

Compared with patients who had ORP, those who underwent RALRP had a threefold greater likelihood of having benign glandular tissue at the surgical margin (BGM) after adjusting for sociodemographic and clinical characteristics, Peter R. Carroll, MD, and colleagues at the University of California San Francisco reported online ahead of print in *Urology*.

The retrospective study included 934 patients, of whom 431 were treated with ORP and 503 underwent RALRP. The median follow-up periods were 49 months and 28 months, respectively. Biochemical recurrence (BCR) rates were similar between patients with and without BGM regardless of surgical treatment. The researchers defined BCR as two postoperative increases of serum PSA of 0.2 ng/mL or greater at least eight weeks after surgery or administration of nonadjuvant second treatment six months or more after primary treatment. Within six months of surgery, 89% of patients had undetectable postoperative PSA. In 11% of cases, patients had a detectable PSA that did not yet reach the threshold for PSA failure.

Study findings also revealed that white patients had a significant 2.3 times increased likelihood of BMG than other patients, and each 1 cc increment in prostate volume was associated with a 2% increased likelihood of BMG.

Dr. Carroll's group noted that clinicians rely heavily on the validity of postoperative PSA values when monitoring for biochemical recurrence. The predictive value of postoperative PSA for BCR comes into question when considering the presence of benign glandular tissue at the surgical margin of the prostate, according to the researchers.

“This tissue also secretes PSA and is not associated with prostate cancer,” they wrote. “The presence of this benign PSA-secreting tissue could possibly elevate postoperative PSA, with levels meeting the criterion for BCR in the absence of cancer recurrence.” (Source: Renal & Urology News, May 26, 2013)

Pros, Cons of Medical Marijuana for Metastatic Cancer Explored. Some physicians favor while others advocate against the use of medical marijuana, according to a case vignette published online Feb. 20 in the *New England Journal of Medicine*.

J. Michael Bostwick, M.D., from the Mayo Clinic in Rochester, Minn., reports that growing, mainly anecdotal literature supports the efficacy of marijuana, particularly for cases that are refractory to conventional treatments. In the United States, there are currently no vaporized inhalants as an alternative to medicinal marijuana, and oral cannabinoids are poorly suited to relieving patients' distress due to their slow onset and unreliable bioavailability. Although the patient may find the psychoactive effects of marijuana unacceptable, it may be beneficial and should be recommended if conservative treatment options have failed.

Gary M. Reisfield, M.D., from the University of Florida College of Medicine in Gainesville, and Robert L. DuPont, M.D., from the Institute for Behavior and Health in Rockville, Md., note that there is little evidence suggesting that smoked marijuana will improve nociceptive pain or other

symptoms. Other effects of smoking marijuana should be considered, including cognitive side effects, the impact of smoking on pulmonary disease, and the potential impact on tumor progression. Prescription cannabinoids, which feature oral administration, chemical purity, precise dosage, and sustained action, may have similar efficacy without the potential negative side effects. "There is little scientific basis for recommending that [a patient] smoke marijuana for symptom control," Reisfield and DuPont write. (Source: HealthDayNews via Oncology Nurse Advisor, February 21, 2013)

Mediterranean Diet. There's a large body of research linking a Mediterranean diet—one heavy on fruits, vegetables, fish and beans—to heart health. But this study, published Monday in the New England Journal of Medicine, is significant both for its size—it followed 7,447 people in Spain over almost 5 years—and its scientific rigor. Few previous studies have succeeded in proving a direct link between a diet and a reduction in life-threatening events like strokes, instead assessing the diet's impact only on weight loss or certain cardiovascular risk factors, like blood pressure or cholesterol.

The study is "hugely important," says Steven Nissen, chairman of the department of cardiovascular medicine at the Cleveland Clinic, who was not involved in the study. Dr. Nissen notes that the preventive effect of the diet is similar to the effect of taking statins, the cholesterol-lowering drugs, which research has shown to reduce the risk of major cardiovascular events by about 25% to 30%. "What we can say to patients is this very palatable Mediterranean diet looks to be healthiest. I'm going to change my own diet; add some more olive oil, some more nuts."

The participants, who were between 55 and 80 years old, didn't have cardiovascular disease when they enrolled in the study, but were at high-risk for developing it because they had diabetes, were smokers, had high blood pressure, abnormal cholesterol, had strong family history of heart problems or were obese. Many were on medications to treat their risk factors: Almost half were taking drugs for high blood pressure and more than 40% took statins.

The participants were divided into three groups. Two groups were advised to follow a Mediterranean diet, which also encourages wine with meals and limits red meat, soft drinks and commercial baked goods. One of the Mediterranean diet groups was told to consume at least four tablespoons of olive oil per day. The other was told to eat 30 grams of nuts (walnuts, almonds and hazelnuts) every day. (The participants were given the olive oil and nuts.) The control group was told to follow a low-fat diet consisting of fruits, vegetables, low-fat dairy products, bread, pasta and fish. All participants could eat as much as they wanted and didn't receive any exercise advice. Many of the researchers have financial ties to the food and pharmaceutical industries.

A diet common in coastal areas of Southern Europe, particularly one with lots of olive oil and nuts, cuts the risk of stroke and other major cardiovascular problems by 30% among high-risk people.

Participants in the Mediterranean diet groups had quarterly training sessions with dietitians and were given surveys to assess their adherence to the diet. Every year, they also had blood and urine tests to measure certain biomarkers to confirm their consumption of the extra olive oil and nuts. The researchers said that extra-virgin olive oil was used in the study because it contains more polyphenols, which have been shown to improve cholesterol levels, than refined olive oil.

Low-fat diet advocates say that while the control group participants were advised to follow a low-fat diet, they didn't necessarily do so. Indeed, the researchers said that "changes in total fat were very small" during the course of the study among the participants in the control group.

Still, because the benefit demonstrated by the Mediterranean diet was so striking, the study was stopped early. Clinical trials are sometimes halted early to allow all participants to switch to a clearly beneficial treatment.

At the end of the study, 3.8% of the Mediterranean-diet-plus-olive-oil and 3.4% of the Mediterranean-diet-plus-nuts groups suffered a heart attack, stroke or death from

cardiovascular disease. By comparison, 4.4% of members in the control group suffered this outcome. The differences in the risk of stroke were statistically significant. The differences in the risk of heart attack weren't, possibly because of the low incidence of heart attacks among people in the study, researchers said.

"In Spain, we are losing the Mediterranean diet," said Ramón Estruch, a professor at the University of Barcelona and a lead author of the study. He pointed to a need to tell people, "Remember what you learned at home from your grandmother and grandfather. It is really healthy." (Source: Wall Street Journal, February 26, 2013)

PSA Doubling Time. PSA doubling time (PSADT) is not a reliable predictor of disease progression in men with low-risk prostate cancer who are on active surveillance (AS), according to a study presented at a meeting of the European Association of Urology.

In a study of 258 PCa patients on AS, Frederick B. Thomsen, MD, and colleagues at the University of Copenhagen in Denmark found that the 95% confidence limits for PSADT overlapped considered between three risk groups. For patients classified as high-risk (PSADT less than three years), the upper limit of the 95% CI reached into the intermediate- and low-risk range in 73% and 43% of the cases, respectively.

However, 73% of the patients classified as intermediate risk (PSADT of at least three and up to five years) had their lower limit reaching into the high-risk definition. For the 157 patients classified as low risk, the lower limit of the 95% CI reached the intermediate- and high-risk level of PSADT for 41% and 14%, respectively.

After a median of 1.2 year, 68 (26%) of 258 subjects underwent radical prostatectomy after meeting progression criteria. Histopathologic outcome was poor in 22%, intermediate in 47%, good in 31%. The researchers found no association between PSADT during AS and outcome. (Source: Renal & Urology News, March 18, 2013, via Curr Opin Urol. 2013 Mar 23(2):129-34)

Managing Erectile Dysfunction. Radical prostatectomy, regardless of the technology used intraoperatively, induces erectile dysfunction for most men who undergo the procedure. For many men, this proves to be transient. Penile rehabilitation strategies have been developed with the goal of increasing the probability and speed of return of sexual function. The purpose of this article is to review the fundamentals of erectile dysfunction relevant to the postprostatectomy patient as well as the components that are often included in penile rehabilitation strategies.

Recent Findings: Preservation of smooth muscle tissue is the key to preserving erectile function. This can be accomplished by providing the penis with regular exposure to oxygenated blood through Intracavernosal injection therapy or vacuum erection device therapy. Dietary supplementation aimed to increase the nitric oxide production can also be beneficial. As well, chronic administration of PDE5 inhibitors may also help maintain the smooth muscle/collagen ratio in the corporal tissue.

Summary: These findings have led to the development of a management model that includes daily vacuum erection device therapy, dietary supplementation and PDE5 inhibitors. The success of any rehabilitation strategy is dependent on the patient compliance which needs to be facilitated by care-giver encouragement and the setting of realistic expectations. **(**Source: USC Institute of Urology, Keck School of Medicine, University of Southern California, Los Angeles, California 90089)

Prostate Cancer Risk Lower in Diabetics. Diabetes mellitus may decrease the risk of developing prostate cancer (PCa) among men with coronary heart disease, according to a new study. The prospective study, led by Yaacov Richard Lawrence, MD, of the Sheba Medical Center, Ramat Gan, Israel, included 11,541 men with coronary heart disease screened to participate in a secondary cardiac prevention trial. Investigators classified subjects into one of four groups: 6,119 with neither diabetes mellitus nor metabolic syndrome (MS); 3,376 with MS but not diabetes; 560 with diabetes but not MS; and 1,486 with both conditions.

During a median follow-up was 12.7 years (range 0-15.7 years), 459 new cases of PCa developed. In age-adjusted analyses, diabetes was associated with a 46% reduced risk of PCa compared with the absence of diabetes, researchers reported online ahead of print in *Prostate Cancer and Prostatic Disease*. In multivariate analysis, diabetes continued to be associated with a decreased risk of PCa, especially in the absence of MS. Among men who did not have MS, diabetes was associated with a significant 57% decreased risk. In the presence of MS, diabetes was associated with a nonsignficant 36% decreased risk. The study group observed that the protective effect of diabetes started after five years of follow-up.

This new study confirms the findings of a number of previous investigations, which have demonstrated an inverse relationship between diabetes and PCa development.

The researchers pointed out that, compared with previous studies, their study included men screened at a relatively older age (meant 59 years) and followed up for a relatively longer period. As the protective effect of diabetes was observed only after more than five years of follow up, they explained, it is possible that studying a younger cohort for a shorter period will not allow full recognition of the protective effect of diabetes.

The researchers also emphasized the critical importance of sugar metabolism to the cancer cell, providing a clinical corollary to laboratory data. They said that the modulation of glucose pathways is an area of very active research in cancer therapeutics. Exposing prostate cancer cells to ‘a diabetic intracellular-environment' may be a new way to fight cancer. (Source: Renal & Urology News, February 27, 2013)

New Use for Zytiga. The approved use of the drug Zytiga has been expanded to include treatment of men with late-stage, hormone therapy-resistant prostate cancer before they undergo chemotherapy, the U.S. Food and Drug Administration announced recently. Zytiga was initially approved in 2011 for treatment of prostate cancer patients whose disease had progressed after treatment with the chemotherapy drug docetaxel. The drug decreases production of the male sex hormone testosterone. In prostate cancer, testosterone stimulates prostate tumors to grow. Drugs or surgery are used to reduce testosterone production or to block the hormone's effects. However, some men have what's called "castration-resistant" or hormone therapy-resistant prostate cancer, which means that prostate cancer cells continue to grow even with low levels of testosterone.

The expanded approval is based on a study of 1,088 men with late-stage, hormone therapy-resistant prostate cancer who took either Zytiga (abiraterone acetate) or an inactive placebo in combination with another drug called prednisone. Median overall survival was just over 35 months for patients who took Zytiga and about 30 months for those who took the placebo, the FDA noted.

The most common side effects among patients taking Zytiga included fatigue, joint discomfort, swelling caused by fluid retention, hot flashes, diarrhea, vomiting, cough, high blood pressure, shortness of breath, urinary tract infection and bruising.

This expanded approval of Zytiga was made under the FDA's priority review program, which offers an accelerated six-month review for drugs that may offer major advances in treatment or provide a treatment when no adequate therapy exists. (Source: HealthDay News, December 10, 2012)

Screening Issues. Prostate specific antigen (PSA) testing has been controversial in recent years because of uncertainty about whether it actually saves lives and concern about side effects from potentially unnecessary and invasive follow-up tests and treatments. The U.S. Preventive Services Task Force (USPSTF), a government-backed panel, recommended against PSA tests for normal-risk men in 2012, saying there is no evidence that screening has more benefits than harms.

Screening is still acceptable, according to the USPSTF, if the man being tested understands the possible outcomes - good and bad - and makes the personal decision to get tested. But recent research indicates that this reasonable process may not always happen.

One in four family doctors doesn't ask male patients before screening them for prostate cancer, according to a new survey by Volk, et al. The University of Texas MD Anderson Cancer Center, Houston. The researchers surveyed 246 family doctors in 2007 and 2008 about whether and how they screened their male patients for prostate cancer.

Of those doctors, 24 percent said they ordered PSA tests without first discussing screening with patients. Another 48 percent talked about the possible benefits and harms with their patients and let men decide for themselves whether to get screened. Most of the remaining doctors also discussed screening's pluses and minuses but specifically recommended it, according to the researchers. It's concerning that some men may not know all the implications of being screened, but get PSA tests anyway, researchers said, adding that prostate cancer screening was the beginning of a "slippery slope." because some men will be diagnosed with slow-growing cancer and will need to decide whether to get treatment - and risk side effects such as impotence and incontinence - or wait to see if the cancer grows and poses any danger.

About one in six men will be diagnosed with prostate cancer during his lifetime, according to the American Cancer Society. However far fewer - about one in 36 - will die of the disease, in part because prostate cancer is often slow-growing and affects mostly older men. Therefore, men "need to be given quality information" about the benefits and risks of PSA tests, including what could happen after a positive test, the researchers said. (Source: Annals of Family Medicine, online January 14, 2013, via Reuters Health, January 15, 2013)

Flavenoids and Prostate Cancer. New research suggests that prostate cancer patients who, before their diagnosis, routinely consumed hefty helpings of the flavonoid compounds found in plant-based foods and drinks may be at lower risk for the most aggressive form of the disease. But the research has significant limitations, the study authors noted, so it's too soon to say that a plant-based diet protects against prostate cancer. Flavonoids are found in vegetables and fruits, as well as in tea, wine, juices and cocoa. Researchers have long theorized that these particular antioxidants may help reduce cancer risk by fighting inflammation, oxidation, cell death and tumor cell growth.

The new study did not assess the ability of flavonoids to prevent the onset of cancer as a whole. But the investigation, involving about 1,900 patients newly diagnosed with prostate cancer, found that those whose diets included the highest amount of flavonoids were 25 percent less likely to have been diagnosed with the fastest-moving and harshest form of the disease compared to those who had been taking in the fewest flavonoids.

The researchers compared men with low-aggressive disease to high aggressive disease. They opined that consuming more fruits and vegetables will improve the odds of not getting prostate cancer altogether, but their study design did not permit conclusive findings.

The new study also found that smokers and men younger than 65 appeared to receive the most protective benefit from fruit and vegetable consumption. The authors identified green and black tea, as well as orange and grapefruit juices, as the prime sources of flavonoids consumed by study participants. Strawberries, onions, cooked greens, kale and broccoli also were popular flavonoid-rich foods.

An observer stated that the study design makes it hard to read much into the findings. The findings of a flavonoid benefit would be more reliable if they had stemmed from a highly controlled study of risk levels among patients who were proactively placed on a specific dietary plan, and then tracked for the future onset of cancer. (Source: HealthDay News, October 17, 2012)

Eye Injury and Robotic Surgery. According to a new study, the number of eye injuries associated with robotic-assisted radical prostatectomy increased nearly tenfold in the United States between 2000 and 2009, although the risk was still small. During that time, the incidence rate of eye injuries rose

from 0.07 percent to 0.42 percent, according to the review of more than 136,000 such procedures. Most of the injuries involved corneal abrasion, or scratching of the eye surface.

How does this happen? While undergoing robotic-assisted radical prostatectomy, patients are positioned head-down and are at risk for facial swelling, arm injuries, as well as corneal or other eye injuries. Possible causes of eye injuries during robotic-assisted radical prostatectomy include the long duration of surgery, patient positioning or something associated with the robot itself, said Sampat, et al., at the University of Chicago.

Robotic-assisted radical prostatectomy was used in less than 10 percent of prostate cancer surgeries in 2000, and increased to between 50 percent and 80 percent of all such operations in 2008. The researchers said that it is important for patients who are considering a robotic operation to discuss these concerns with their health care providers to consider the risks and benefits of all options. (Source: American Society of Anesthesiologists, news release, October 16, 2012, via HealthDay News, October 16, 2012)

Metabolic Syndrome and Prostate Cancer.

Men with metabolic syndrome -- a group of symptoms linked to heart disease and diabetes risk -- may also face a higher risk of dying from prostate cancer if diagnosed with the disease, according to a large new study. Metabolic syndrome includes high blood pressure, high blood sugar and high blood fat levels, as well as greater than normal body-mass index (BMI), a measurement of body fat based on height and weight.

The study authors noted that by following health recommendations on diet and exercise to prevent heart disease and diabetes, men can also lower their risk of death from this form of cancer.

Stattin, et al., Umea University, Sweden, examined data on more than 290,000 men enrolled in a long-term study on metabolic syndrome and cancer. Over the course of 12 years, nearly 6,700 of the men were diagnosed with prostate cancer. Of these men, about 1,000 died from the disease. Men with the highest body-mass index had a 36 percent higher risk of dying from prostate cancer. Those with high blood pressure had a 62 percent greater risk of death from the disease. And men with the highest combined score on all metabolic factors were more likely to die from prostate cancer, the study showed.

The researchers point out that metabolic syndrome does not increase men's risk for prostate cancer. Those diagnosed with the disease, however, are more likely to die from it if they also have metabolic syndrome. The researchers said their observations suggest that cardiovascular risk factors such as overweight and hypertension are involved in stimulating the progression of prostate cancer. Although the study found an association between metabolic syndrome and risk of death from prostate cancer, it did not prove a cause-and-effect relationship. (Source: *Cancer*, news release, October 22, 2012 via HealthDay News, October 22, 2012)

IMRT and Localized Prostate Cancer.

Intensity-modulated radiation therapy (IMRT) for localized prostate cancer yields fewer side effects than other radiation treatments. Men with localized prostate cancer who received intensity-modulated radiation therapy (IMRT) experienced fewer side effects than similar patients treated with two other forms of radiation therapy, according to a new study. Prostate cancer is the most common malignancy in men, accounting for more than 240,000 new diagnoses and 30,000 deaths each year. Advances in treatment technology have led to the development of newer, but more costly, treatments. For example, between 2000 and 2008, the use of IMRT rose from 0.15 percent to 95.9 percent in relation to the older technique of conformal radiation therapy (conformal RT).

The researchers compared 6,666 men who received IMRT with 6,310 who received conformal RT. The men treated using IMRT were 9 percent less likely to be diagnosed with gastrointestinal problems than those treated with conformal RT, 22 percent less likely to experience hip fracture, and 19 percent less likely to receive additional cancer therapy. However, the men treated with IMRT were 12 percent more likely to be diagnosed

with erectile dysfunction. When the researchers compared 684 men treated with IMRT and 684 treated with proton therapy, patients treated with IMRT were 34 percent less likely to be diagnosed with gastrointestinal problems, but were as likely to experience other side effects or undergo additional therapies as those treated with proton therapy.

The findings were based on analysis of the National Cancer Institute's Surveillance, Epidemiology, and End Results data from 16 regional cancer registries, linked to Medicare administrative and health care claims (the SEER–Medicare database) for 2000 through 2007. (Source: Sheets, et al., in the April 18, 2012, *Journal of the American Medical Association* 307(15), pp. 1611-1620)

Targeted Biopsies. A new, highly targeted form of biopsy could be an advance in prostate cancer care, according to researchers at UCLA, who report that prostate tumors can be diagnosed using "image-guided targeted biopsy" -- the direct sampling of tumors in tissue using both MRI and real-time ultrasound.

The UCLA team say this targeted form of biopsy is much more accurate than conventional "blind" biopsies that do not enable doctors to actually see the tumors. They suggested the new procedure may improve early detection of prostate cancer and result in fewer biopsies overall. The researchers say that early prostate cancer is difficult to image because of the limited contrast between normal and malignant tissues within the prostate. Conventional biopsies are basically performed blindly, because the doctor can't see what he aiming for. Now, with this new method there is the potential to see the prostate cancer and aim for it in a much more refined and rational manner.

Almost all of the one million prostate biopsies performed in the United States every year are performed after a man tests positive for elevated blood levels of prostate-specific antigen (PSA), which can indicate prostate cancer. One expert not connected to the new study said current biopsy methods have their pros and cons. He notes that currently, the diagnosis of prostate cancer occurs through a transrectal ultrasound guided prostate biopsy. It has the advantage that it can be performed with local anesthesia in a urologist's office in less than 10 minutes. The problem with this method is that approximately 75 percent of men have negative biopsies. Multiple biopsies may be taken to try to "find' the cancer, so the procedure is usually repeated at some point when the PSA test continues to rise. Insignificant cancers are detected as often as significant ones, and there is always the fear that a cancer was missed. Finally, there are risks of infection, pain and bleeding.

The UCLA team actively monitored 171 men with slow-growing prostate cancers or men who had received negative biopsies but maintained persistently high PSA levels, suggesting that a tumor might be present. The participants first had an MRI to visualize their prostates. That image was sent to a device, called Artemis, that fuses the MRI pictures with real-time, three-dimensional ultrasound. This fusion process allows a urologist to see lesions during the biopsy. Fifty-three percent of the men involved in the study had prostate cancer. The researchers also found that 38 percent of the cancers found using targeted biopsy were aggressive tumors that were more likely to spread and require treatment. The targeted prostate biopsy has the potential to improve the diagnosis of prostate cancer and may aid in the selection of patients for active surveillance and focal therapy, the study authors say. As for cost, the overall added cost of the MRI may be offset by the reduced number of biopsy procedures. (Source: University of California, Los Angeles, news release, December. 10, 2012. via HealthDay News)

The Long and Short of It! A small percentage of men in a prostate cancer study complained that their penises seemed shorter following treatment. Some said that it interfered with intimate relationships and caused them to regret the type of treatment they chose. The study by Nyugen, et al., Dana-Farber/Brigham and Women's Cancer Center, said that the complaints were more common in men treated with radical prostatectomy or male hormone-blocking drugs combined with radiation therapy. No men reported a perceived shortening of their penis following radiation therapy alone.

The study's findings are based on surveys completed by physicians of 948 men treated for prostate cancer and who had suffered a recurrence of the disease.

Twenty-five men (2.63 percent of the group) complained of smaller penises after treatment – 3.73 percent for surgery, 2.67 percent for radiotherapy plus androgen deprivation therapy (ADT), and 0% for radiotherapy alone. Radiotherapy included both radiation administered by an external x-ray machine, and brachytherapy – the implantation of radioactive seeds directly into the prostate.

The study is reportedly the first to link men's perceptions of a reduction in penis size to lowered life satisfaction, problems in emotional relationships, and misgivings about the specific form of prostate cancer treatment they chose. The surveys of the men did not report on their sexual functioning. The researchers note that the potential side effect of a smaller penis is well-known among urologists, but it is almost never discussed with patients, so it can be very upsetting to some men when it occurs.

The researchers said that no direct measurements of penis size were taken either before or after treatment. Nor did the patients' physicians specifically ask about this side effect; the issue was brought up by patients in conversations with their doctors. For this and other reasons, the authors of the study suggest that the problem is likely more common than reported in the survey. The report's authors said physicians should discuss in advance the possibility with their patients so that they can make more-informed treatment choices.

The likelihood and magnitude of penis shortening as a consequence of treatment have not been well studied, said the researchers. However, one researcher said that previous studies have concluded that there is shortened penis length issue following prostatectomy. This is most common with non-nerve sparing surgery, as this may result in fibrosis and atrophy of erectile tissue due to damage to nerve and vascular structures. The present study did not find much difference on that score. (Source: Press release, Dana-Farber Cancer Institute, dated January 3, 2013, via EurekAlert)

Minimally Invasive Prostatectomy.

Minimally invasive prostatectomy in young men has fewer complications than standard prostatectomy, according to a recent study. Men between ages 18 and 64 who underwent surgery for localized prostate cancer between 2003 and 2007 were more likely to undergo minimally invasive radical prostatectomy (MIRP) than traditional retropubic radical prostatectomy (RRP), also known as "open surgery." MIRP involves laparoscopic surgery, either with or without robot assistance, requiring only small incisions. The study also found that MIRP had fewer complications, which appeared to have offset its higher hospitalization costs.

The researchers examined data on 10,699 nonelderly men who underwent either MIRP or RRP between 2003 and 2007. They found a sharp increase in the proportion of patients treated with MIRP, increasing from 5.7 percent in 2003 to 50.3 percent in 2007. They tried to identify factors associated with each type of procedure, and compared outcomes (complication rates, length of hospital stay, hospitalization costs, and total costs within 3 and 6 months of surgery). They found that men who underwent MIRP had a significantly lower rate of complications (23.0 vs. 30.4 percent). However, men who underwent MIRP also had higher mean hospitalization costs—despite shorter mean hospital stays. Men with 1 or 2 coexisting illnesses were 12 percent and 73 percent less likely, respectively, to undergo MIRP than men with no coexisting conditions. The researchers recommend additional research to explore whether the increased use of MIRP reflects overtreatment of prostate cancer in younger men. (Source: "Comparative effectiveness, cost, and utilization of radical prostatectomy among young men within managed care insurance plans," by Ya-Chen Tina Shih, Ph.D., John F. Ward, M.D., Curtis A. Pettaway, M.D., and others in the March 2012 Value in Health 15(2), pp. 367-375)

Military Service and Urinary Incontinence.

Military service was linked with moderate to severe urinary incontinence in U.S. men, even after consideration of other known risk factors, in new research presented in Atlanta at the 107th Annual Scientific Meeting of the American Urological Association. The reason why

military exposure would be linked to urinary incontinence is not known, according to the researchers. The researchers said there were no known specific details, such as the branch of service, deployment status, exposure during service, but they felt that more research is needed to link specific types of combat or branch of service to urinary symptoms.

The researchers reviewed survey data on 5,297 men age 20 and older who were stratified into three age groups: less than 55, between 55 and 69, and 70 years and older. Military exposure was assessed with the question: "Did you ever serve in the Armed Forces of the United States?"

Compared to men with no military exposure, those who had served in the military had higher rates of any urinary incontinence (18.8% vs 10.4%;) and moderate to severe urinary incontinence (8.4% vs 2.8%). Men in the youngest age group were three times more likely to have moderate to severe urinary incontinence if they had served in the military, compared with their peers who had no military service. However, there were no significant differences in the odds of urinary incontinence for the middle age group and the oldest group.

The researchers hope to generate awareness that urinary incontinence and other urinary symptoms are common among men, especially relatively younger men who have served in the US armed forces. Treatments are available for urinary symptoms, and they want to do more research on the type of military exposure that may be contributing to this finding. (Source: Reuters Health Information, May 29, 2012)

Watchful Waiting and Quality of Life. Compared with immediate radical prostatectomy, watchful waiting, also known as active surveillance, is likely to reduce disease-specific survival only very modestly among men diagnosed with low-risk prostate cancer while potentially leading to significant benefits in terms of quality of life (QOL). Etzioni, et al., Fred Hutchinson Cancer Research Center, Seattle, developed a simulation model to estimate prostate cancer mortality among men who undergo active surveillance compared with those who undergo immediate radical prostatectomy. Active surveillance is a viable option for men diagnosed with low-risk prostate cancer, but this approach has little data to recommend it due to the length of time required to measure its effect on prostate cancer mortality.

Based on a hypothetical cohort of men aged 40 to 90 years with low-risk prostate cancer, a Gleason score no higher than 6, and a prostate-specific antigen (PSA) level of no more than 10 ng/mL, the model projected that 2.8% of men on active surveillance would die of their disease in 20 years, compared with 1.6% of men undergoing immediate radical prostatectomy. The average projected increase in life expectancy associated with immediate radical prostatectomy was 1.8 months. The model projected that on average, men on active surveillance would remain free of treatment for an additional 6.4 years relative to men who underwent immediate treatment.

The researchers concluded that very few men with low-risk disease die from prostate cancer regardless of treatment, and the difference between treatments appears to be very modest. They acknowledge that while the 6-year treatment-free interval means men who choose active surveillance will not have to endure treatment side effects during that time, such as impotence or incontinence, it is not clear whether that benefit is overshadowed by anxiety or the need for repeat biopsies. (Source: *Clin Cancer Res*. 2012;18[19]:5471-5478). October 22, 2012)

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"The Role of Radiation Therapy in the Treatment of Prostate Cancer"

by
CDR Rex A. Kiteley, M.D.
Walter Reed National Military Medical Center

(Summary of a presentation to the WRNMMC Prostate Cancer Support Group, February 7, 2013)

This evening we will talk about the role of radiation oncology in the treatment of prostate cancer. This is meant to be an overview so we will be covering a lot of ground. I know that most of you have had a primary therapy for prostate cancer, so you understand more about the disease than the typical audience of lay persons.

STAGING

In order to treat prostate cancer we have to do staging and risk stratification, as is the case for most malignancies, but for prostate cancer we use a slightly different system. When you were diagnosed you likely were told you had either low risk, intermediate risk, or high risk disease. The risk assessment is based on the feel of the prostate gland upon examination (T-score), the PSA value, and the Gleason score (the pathological grading system). The risk level is expressed in this manner:

- Low Risk -- <= T2b, Gleason <= 6, and PSA <= 10 ng/ml
- Intermediate Risk – T2c or Gleason 7 or PSA 10-20 ng/ml
- High Risk – T3/T4, Gleason 8-10, or PSA > 20

A Gleason score of 8-10 automatically makes you high risk and a PSA above 20 does so as well, unless there are other factors at work, such as medications being taken. This staging schema is not universally employed, but it is the most common one used to stratify risk. Here is the Gleason score as depicted on these four slides under microscope. It is made up of the primary pattern and the secondary pattern added together so that Gleason scores range between 4 and 10. The pathologist assesses the patterns by the degree to which they are differentiated from healthier cells.

TREATMENT OPTIONS FOR LOW RISK DISEASE

Of course, low risk patients have the most treatment options. They include active surveillance; surgery (open prostatectomy or robotic); radiation therapy (external beam, brachytherapy, proton therapy, and hypofractionation, the latter more popularly known as Cyberknife). Tonight our discussion is about radiation therapy.

IMRT. In general, intensity-modulated radiation therapy (IMRT) 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 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 on regions within the tumor while minimizing the dose to the 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 target's 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. IMRT uses multiple small radiation beams of varying intensities to precisely radiate a tumor. The radiation intensity of each beam is controlled, and the beam shape changes throughout each treatment. In short, the goal of IMRT is to mold the radiation dose to avoid or

reduce exposure of healthy tissue and limit the side effects.

(Dr. Kiteley then displayed a series of slides that demonstrated the simulation, planning, and delivery process of IMRT, as well as the equipment employed in the process)

The process involves fiducial marker placement employed at most radiation therapy centers, but not all. Some radiation centers use cone beam or ultrasound, but most centers use daily imaging now. Then the patient undergoes simulation leading to the detailed IMRT planning aspect. The delivery of the external beam therapy takes about eight weeks depending on the practices of the various radiation therapy centers.

The latest technical advance is Image-Guided Radiation Therapy (IGRT). IGRT uses frequent imaging during a course of radiation therapy to improve the precision and accuracy of the delivery of the radiation therapy. In IGRT, the linear accelerators (machines that deliver radiation) are equipped with imaging technology that take frequent pictures of the tumor immediately before or even during the time that radiation is delivered. Specialized computer software compares these immediate images of the tumor to the images taken during the simulation that established the treatment plan. Necessary adjustments can then be made to the patient's position on the table and/or the radiation beams to more precisely target radiation at the cancer and avoid the healthy surrounding tissue. IGRT is especially useful to treat tumors in areas of the body that are prone to movement, such as the lungs, liver, and the prostate gland, as well as tumors located close to critical organs and tissues.

Brachytherapy. Brachytherapy is the precise placement of a radiation source directly into the site of the cancerous tumor. Brachytherapy is not for everyone. There are certain criteria that patients must meet. In general, we want low risk patients, although we do treat some intermediate risk patients who have low volume disease. It can also be used as a "boost" after IMRT even for higher risk disease. Low volume disease includes men who had 12-core biopsies with less than 3 or 4 cores positive. The size of the prostate gland should be less than 40-60 cc as determined by a volume study Gland size is important because as the prostate gland enlarges, it is more difficult to reach with the needles through the perineum because the pubic arch may interfere with placement. There is almost never a problem in glands that are less than 40 cubic centimeters and most of the time, we can implant the seeds into glands that are 40 to 60 cc after the volume study.

An AUA (American Urological Association) score is another factor in determining eligibility for brachytherapy It is a "urinary bother score," a validated questionnaire that asks the patient about such topics as hesitancy, frequency, etc.). A score of less than fifteen indicates that the patient has acceptable pre-procedure urinary symptoms. For scores greater than fifteen, there is a higher risk of having problems from the brachytherapy for a few weeks to months afterwards, and some patients with high AUA scores are at risk of needing a catheter for a time after the procedure.

And finally, the patient must not have undergone a TURP (removal of tissue around urethra for patients with benign prostatic hyperplasia. Brachytherapy's near term problem is inflammation and the long term problem is the scarring after inflammation.

(Dr. Kiteley showed several slides illustrating images during a volume study of a prostate.)

Isotopes. There are two kinds of seeds that are routinely used - palladium seeds and iodine seeds. Radiologists may have different preferences. Palladium seeds have greater activity, so less are required. The dose is delivered more quickly as the isotope half life is 17 days. Many centers prefer it for "boost" treatments to IMRT because they get the dose a little quicker for intermediate and high risk patients. Iodine seeds have a lower activity, so more are required, but there is more flexibility in the placement. The half life is about 60 days. Many centers prefer iodine seeds for patients receiving brachytherapy alone.

This slide depicts a patient on his back, and you can observe the ultrasound probe in the rectum, the perineal template to guide seed placement, and the 18 gauge needle emplacing the seeds.

We will use about 25 to 30 needles per procedure based on the size of the patient's prostate gland. Each needle contains three to five seeds. These next slides show the post-implant dosimetry. Care is taken to account for each planned seed, with particular concern that no seeds have inadvertently entered the urethra or the bladder.

Proton Therapy. In normal radiation therapy with external beam therapy, we use x-rays that are packets of energy. Proton therapy actually uses a particle, a hydrogen ion, to bombard the cancer cells or the entire prostate as well. The chief advantage of proton therapy is the ability to more precisely localize the radiation dosage when compared with other types of external beam radiotherapy.

Proton therapy has many enthusiastic adherents in research circles. H+ ions are used and the dosimetry appears better on the planning computer. Theoretically, this could reduce the dose to normal structures and reduce side effects as well. This has not been conclusively demonstrated, nor has it been shown to be better in terms of PSA control or cure. It is being used in some prostate cancer centers as a mainstream therapy, but many in academia hold that it is still experimental and should be incorporated in clinical trial procedures with the patients being followed on a protocol.

The equipment for proton therapy is very expensive and the therapy is available at a limited number of prostate centers. WRNMMC collaborates with the University of Pennsylvania Medical Center so that our patients who want this therapy can be treated on protocol, planned here and then actually get the treatment delivered in Philadelphia.

(Dr. Kiteley then presented a series of slides to illustrate how proton rays are delivered and the dosimetry patterns that result.)

Hypofractionation. The last modality I want to discuss with regard to treating low risk disease is hypofractionation, more popularly known as Cyberknife. The term cyberknife does not suggest surgery, instead, it is a radiation delivery device. It is offered here at WRNMMC on protocol in cooperation with the Duke University Medical Center. Many of you are aware of the commercials on TV and radio touting the virtues of cyberknife. It is attractive to patients because it is non-invasive and requires only 5 treatments. I think it is very exciting development, but it remains experimental and not proven to be as good as IMRT or brachytherapy.

We don't have sufficient PSA control data or the side effect data to evaluate its effectiveness compared to other therapies. There is about 5 years of data now, but for prostate cancer, we would like to see 10, 15, or 20 years of data.

This slide shows what a cyberknife looks like. It is a kind of robotic arm that moves around the patient, treating the prostate from all these different angles. Walter Reed patients in conjunction with Duke University Medical Center are offered 7.5 Gray x 5 fractions using Truebeam and ExacTrac technology. We want to be able to offer to this therapy to patients, but do it in a controlled, experimental way on a properly approved protocol.

OTHER RISK CATEGORIES

Let's look at radiation therapy for the intermediate and high risk disease categories. In these categories the patient's options are more limited compared to those available to low risk patients.

Intermediate Risk Disease. Patients in this risk category may be treatable with either surgery or radiation as single therapies in the same manner as patients with low risk disease. On the other hand, it is frequently more efficacious to combine radiation therapies; for example, external beam radiation for five weeks followed by a brachytherapy boost.

Another alternative combines short term hormonal therapy with radiation for patients who are on the higher end of the intermediate risk spectrum. In this latter case, I will often recommend a short course of hormonal therapy (about six months) 2 months prior, during, and 2 months after radiation. Some physicians believe that all intermediate risk patients should be offered the short course of hormonal prior to radiation, but others, like myself, believe that the combined hormonal/radiation alternative is best reserved for patients with high risk disease.

High Risk Disease. Surgery is not considered to be an option for high risk disease, although recently there has been some movement to consider it. Under certain circumstance, e.g., a patient with low volume disease, fewer cores involved, and a Gleason 8, 9. or 10, it may be reasonable. But most radiation oncologists would argue that surgery is not a good option in high-risk disease patients. Suffice it to say that surgery for high risk disease is controversial at best. For most patients with high risk disease, it is recommended that they receive long-term hormonal therapy (2 to 3 years), perhaps less, depending on other factors, accompanied by radiation therapy.

SALVAGE RADIATION THERAPY AFTER SURGERY. Salvage radiation refers to radiation therapy to combat rising PSA after surgery was the primary therapy. Adjuvant therapy refers to the employment of radiation after surgery even when the PSA is still undetectable, but when the pathologist observes disturbing, high risk pathologic features. The high risk pathologic features may be extracapsular extension, positive margins, or seminal vesicle invasion. The idea is to attack any residual cancer to forestall any rise in the PSA.

SIDE EFFECTS

Let's talk about the potential side effects from radiation therapy. First, there are side effects that we term as "acute," that is, they occur during and immediately after radiation therapy. Acute side effects almost always resolve themselves in weeks to months. They include fatigue; diarrhea or bowel urgency; urinary side effects such as burning, frequency, difficulty starting and stopping, going at night more often; and rarely – bleeding, severe cramping, or urinary retention.

These acute side effects apply to both external beam and brachytherapy, but tend to be more severe for the first week or so after brachytherapy. Fatigue affects many patients, and it can range from the profound to simply taking a nap; many patients do not experience it all. Diarrhea is more common from external beam radiation therapy than from brachytherapy because patients getting external beam tend to get slightly more dosage in the vicinity of the rectum towards the prostate.

I didn't list incontinence as an acute side effect; I have observed it, but it is not very common in either the short term or long term. Then rarely, some patients will actually have bleeding from their bowels or the bladder during treatment. This is more likely during brachytherapy due to needle placement and the follow-up cystoscopy.

Then there are those side effects we term "long term risks" which can develop months to years after radiation therapy and are frequently permanent. Long term risks range in severity from lifestyle bother-type symptoms to rare, severe effects that may require surgical intervention. Of course, we are concerned about the acute side effects, but we can usually get patients through them. What really concerns us are the long term risks and how they may affect patients.

There may be permanent changes in urinary function in terms of urgency, frequency, night time urination, and difficulty starting or stopping stream. There also may be permanent changes in bowel function in terms of frequency and urgency. Erectile dysfunction is a possibility, although it is less likely after brachytherapy. In rare cases, there may be bleeding from bowels or bladder, and more life-altering changes in urinary or bowel function. In extremely rare cases, there may be ulceration or a fistula requiring surgical correction. These late, more serious side effects are not common. About three percent of radiation patients will notice more permanent changes in bowel and urinary function.

Erectile dysfunction is probably the greatest side-effect risk for all the primary prostate cancer therapies, be it surgery or radiation. In general, it is about 50-50 chance that the patient will experience a change in performance. The post-therapy ability to sustain an erection suitable for penetration depends in large measure on the patient's pre-therapy performance capability. There is some data that brachytherapy may have better rates in preserving erectile function compared to the other primary therapies, though not dramatically so.

Regarding long term, post-therapy outcomes, some patients have an infrequent bout of blood in the urine or stool, but it often takes care of itself. In rare cases, I have had to refer patients to gastroenterologists who will try to stop the bleeding without causing scarring. Then there are the extremely rare problems, already mentioned, where there is severe bleeding, ulceration, or fistula formation (holes in the bladder or rectum) that would require corrective surgery. This very rare condition occurs perhaps in one of every 10,000 cases.

CONCLUSION

There is good news in that most men who are diagnosed with prostate cancer are being diagnosed earlier, and they are more likely to be cured from the disease, or if they are not, they can have an acceptable quality of life. This concludes my general remarks about the role of radiation oncology in the treatment of prostate cancer. I realize it was technical to some degree, so I will be pleased to take any questions you may have.

Question: How does hormone therapy affect testosterone?

Answer: It blocks the production of testosterone and it does so in various ways. The most common one is something called a LHRH agonist that basically tells your brain to stop producing testosterone. Your testosterone will go down to an undetectable level if you are on Lupron or Zolodex. We want this effect because we know that testosterone acts as a fertilizer for prostate cancer cells.

Question: Will that cause a loss in sex drive?

Answer: Yes, hormonal therapy will result in decreased libido. Your muscle mass may decline, you may notice hot flashes and weight gain, and other side effects. The biggest side effect that men notice is loss of libido. It is not a matter erectile function, per se. The patient simply doesn't care!

Question: How significant is the testosterone produced in the adrenal glands?

Answer: About 95 percent of testosterone is produced in the testes, the remainder in the adrenal glands.

Question: At the time of my radical prostatectomy my PSA was 7. After surgery, it dropped to undetectable, but nine months later, it rose to 8. I got radiation for a month that took my PSA down to zero. Two years later it rose again and is now 1.4. My doctor and I soon will have a consultation with NCI. If the post-surgery radiation brought my PSA to zero, why can't I just have radiation again?

Answer: I don't know what dose you received, but typically you would have gotten it for 6 to 8 weeks. Perhaps you received a larger treatment, in which case you may have maximized the safe dosage to the other structures, such as the rectum and bladder. Once a full regimen of radiation therapy is done, it is not safe to do more. But if you had less than a maximum dose, then, yes, you could have more, but that may or may not be the best course of action in your case.

Question: What is the typical success rate for IMRT for a Gleason 9 ?

Answer: Gleason 9 is a high risk situation. So it is difficult to assess success solely by IMRT because hormonal therapy may be used as part of combination therapy. Are you alive at five years with a PSA that is still not rising? How about at ten years with a PSA with a stable PSA? The literature about success rate at these markers varies from 50% to 75% depending on the other related factors.

Question: For a patient who has already had surgery and then has radiation of the prostate at a later time, how effective is the radiation likely to be?

Answer: Salvage radiation means you are trying to effect a cure after the failed primary therapy. Those patients whose PSAs begin to rise after the surgery are referred to a radiation oncologist who will proceed to radiate the prostatic bed in the hope that any residual cancer is limited to that location. This should return the PSA to a stable, undetectable level in about 50% of the cases depending on other related factors, such as the existence of positive margins at

surgery. If there was a positive margin at surgery, then the salvage radiation may be more effective because it is more likely that is where the residual cancer cells are located. Again, when the PSA rises after surgery, there are two possibilities. First, there are cancer cells left only in the prostatic bed area, in which case the radiation should be successful. But the other possibility is that the cancer is outside the prostatic bed area, perhaps to the lymph nodes or the bone, accounting for the PSA rise. In this case, radiation of the prostatic bed is not going to cure the prostate cancer because the cells have already escaped. Finally, in making the decision for salvage radiation, we consider such factors as positive margins, as I earlier mentioned, and then the Gleason score of the patient. Gleason scores of 6 or less are more likely to be salvageable with radiation to the prostate bed than 8, 9 or 10 because these higher Gleasons indicate that this more aggressive cancer and are more likely to have gone beyond the prostatic bed to other locations.

Question: Is brachytherapy ever a viable option post surgery?

Answer: Brachytherapy as a salvage therapy after surgery would be experimental. It is not the standard of care in this situation. A case might be made for it if there was a rising PSA and imaging showed that the prostate had not been completely removed, but this a rare case. The standard salvage therapy approach would be external beam radiation to the prostatic bed for about 7 to 8 weeks.

Question: Does PSA usually become lower after a radiation treatment?

Answer: Yes, that is how we define success - the PSA goes down to as low a level as possible and hopefully never rises again Of course, it is just a question of whether we achieve a permanent decline. If we don't get a permanent decline, the next step is typically hormonal therapy. At the first PSA test following radiation Most of the time the first PSA at three months post-therapy, we see a decline, it may not be at a level where it is going to end up. In rare cases, there may be little or no even after a year, but that is more the exception than the rule. In general, patients will notice a decline at the 3-month PSA although it may not be as low as we as we hoped for. It is not exceptional that there may be a delayed decline, perhaps as long as a year in some cases. The explanation is that prostate cancer cells don't die and stop making PSA until they divide. For example, in a patient with a very low-risk, slow growing cancer, the cancer cell it still functions until it goes to divide. The does not have the wherewithal for a complete set of chromosomes so it dies. Brachytherapy patients may experience the so-called "PSA bounce." a phenomenon wherein the PSA declines as expected after therapy, but afterwards there is a sudden rise followed by a return to the lower level.

Question: What is meant by cumulative radiation?

Answer: During external beam radiation therapy, the patient will receive a daily dose of either 1.8 gray or 2 gray which is a unit or measure of absorbed dose. So cumulative dose means as he goes through the course of treatment, these doses add up. At the outset, the patient may not notice the cumulative effect, but by the third, fourth, or fifth week, the side effects, such as fatigue, may be felt. So the dose is cumulative as more and more dose is delivered. We purposely give small daily doses spread out over a period of time so that the normal cells can rebound from one day to the next and the cancer cells do not.

Question: How rapidly is the technology changing? Would you be giving this same presentation 3 to 5 years from now?

Answer: I think the principles of diagnosis will be similar, but technology among the principal therapies will change markedly. Developments like cyberknife, tomotherapy, TrueBeam with Exac Trac are examples. What has really happened these last 3-5 years has been technology resulting in better sculpted and targeted dosages. I can't predict the future, but we can be assured that new technology will continue to enhance imaging and the delivery of the radiation.

Question: Can you specify in months what short and long term hormonal therapy means?

Answer: Short term hormonal therapy usually means 4-6 months. Long term is typically 2-3 years.

Question: What is the typical success rate for IMRT with a Gleason 9 ?

Answer: Gleason 9 is a high risk situation. So it is difficult to measure success by IMRT alone because hormonal therapy may be used as part of combination therapy. Are you alive at five years with a PSA that is still not rising? How about at ten years with a PSA with a stable PSA? The literature about success rate at these markers varies from 50% to 75% depending on the other related factors.

Question: In radiation imaging, is the goal to locate the prostate or to locate the cancer?

Answer: There are tools that can detect the cancer location. Some patients will have a nodule where the cancer is primarily located and it can be seen on MRI. However, many patients whose nodules are observable on MRI have unobservable microscopic disease elsewhere in the gland that we find by random biopsies. So our goal is always to treat the entire gland, not just a part of it. The prostate is the cancer target, so to speak. As we deliver the dose each day, we adjust the radiation plan to match that day's imaging, basically targeting the prostate right where it is just prior to the treatment being delivered.

Question: I had a radical prostatectomy and I don't recall any imaging to locate the prostate.

Answer: That is because you selected surgery for your primary therapy. They knew they wanted to remove the entire prostate gland, so imaging was not required. The surgeon is skilled in anatomy. In the traditional RP, the surgeon cuts through the layers of tissue, locates the prostate, cuts off the blood supply, and removes the gland. They really don't know where the cancer is within your prostate, and they don't need to know. The entire gland is coming out! If there is gross disease coming out of the gland, the surgeon may see it, but the disease would have be well advanced for that.

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SEE THE COUNSELORS LISTING BELOW

WE ARE GRATEFUL TO RENATE BUBEL, KAREN COLLINS, BETTY KRAMER, ELLEN ROSENBERG, AND NANCY WALLRATH WHO HAVE JOINED THEIR SPOUSES IN VOLUNTEERING TO SHARE THEIR EXPERIENCES IN DEALING WITH PROSTATE CANCER. PERHAPS YOUR SPOUSE OR COMPANION COULD BENEFIT FROM AN EXCHANGE OF VIEWS WITH THEM. CONTACT INFORMATION IS PROVIDED BELOW UNDER THE CATEGORY "SPOUSAL SUPPORT."

♦ WRAMC US TOO COUNSELORS ♦ (As of May 1, 2013)

(THESE PERSONS ARE WILLING TO SHARE THEIR EXPERIENCES WITH YOU. FEEL FREE TO CALL THEM.)

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Ray Glass	Rockville, MD	(301) 460-4208	
Monroe Hatch	Clifton, VA	(703) 323-1038	
Tom Hansen	Bellevue, WA	(425) 883-4808	1998 (Robotic Surgery)
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Dennis Kern	San Francisco, CA	(415) 876-0524	
Sergio Nino	Dale City, VA	(703) 590-7452	
Ed Postell	Collegeville, PA	(610) 420-6765	(Robotic Surgery)
George Savitske	Hellertown, PA	(703) 304-3081	2000 (Open RP)
Artie Shelton, MD	Olney, MD	(301) 523-4312	
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Don Williford	Laurel, MD	(301) 317-6212	2000 (Open RP)

PROSTATE CANCER AND SEXUAL FUNCTION

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RADIATION

Leroy Beimel	Glen Burnie, MD	(410) 761-4476	1987 (External Beam Radiation)
Bob Bubel	Grand Junction, CO	(970) 263-4974	2010 (Proton Beam Radiation)
Harvey Kramer	Silver Spring, MD	(301) 585-8080	1998 ((Brachytherapy)
Bill Melton	Rockville, MD	(301) 460-4677	2001 ((External Beam Radiation)
Joseph Rosenberg	Kensington, MD	(301) 495-9821	2009 (Brachytherapy)
Barry Walrath	McLean, VA	(571) 969-8269	2001 (Brachytherapy)

INCONTINENCE

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OTHER THERAPIES/MULTIPLE THERAPIES

Howard Bubel	Fairfax, VA	(703) 280-5765	1995,1996 (Hormonal, Cryosurgery, Sexual Function)
Arthur E. Clough	Kerryville, TX	(830) 896-8826	1993 (Surgery and Radiation)
Pete Collins	Mechanicsburg, PA	(717) 766-6464	2007, 2009 (Surgery, Radiation, Hormonal)
Charles Preble	Annandale, VA	(703) 560-8852	(Cryosurgery, Hormonal, Intermittent Hormonal)
Jon Schmeiser	Aiea, HI	(571)243-8198	(Chemotherapy)
Ray Walsh	Annandale, VA	(703) 425-1474	1999, 2001 ((Surgery and Hormonal)

♦ MEETING ANNOUNCEMENT ♦

THURSDAY, MAY 30, 2013
7 PM

RIVER CONFERENCE ROOM
AMERICA BUILDING (3D FLOOR)
WALTER REED NATIONAL MILITARY MEDICAL CENTER

♦ SPEAKER ♦

CATHERINE GRAY, RN

DEPARTMENT OF UROLOGY

WALTER REED NATIONAL MILITARY MEDICAL CENTER, BETHESDA

♦ TOPIC ♦

"THE ROLE OF RADIATION THERAPY IN THE TREATMENT OF PROSTATE CANCER"

We meet at the River Conference Room (3d floor) at the Walter Reed National Military Medical Center located at 8901 Wisconsin Avenue, Bethesda, MD 20889. This is the same location as our monthly meetings.

Gate/Parking: If you enter the base through South Gate (Gate 2) off Rockville Pike/Wisconsin Ave, take the first right (Palmer Road South). On your left you will see the Emergency Room. Continue to follow signs to the America Building and the America parking garage.

Security: A military ID is required to get on base. Persons without a military-related ID card who are attending the meeting are required to register in advance in order to gain entry. To register, contact the CPDR front desk at 301-319-2900 **no later than noon on Wednesday, October to arrange for entry**. Have a photo ID card ready when arriving at the gate.