When Prostate Cancer Treatment Leads to Osteoporosis

Johns Hopkins Health, New York; January 2013

Men treated with hormone therapy for advanced prostate cancer are at high risk for developing osteoporosis -- fragile bones due to loss of bone mineral density. Men's bones may actually take a double hit because prostate cancer tends to spread to the bones and weaken them. When that happens, the prostate cancer is typically treated with androgen-deprivation therapy, which further contributes to bone loss because androgens help maintain bone density in men.

Research suggests that men can lose 2 to 6 percent of their bone mineral density in the first year of androgen-deprivation therapy for prostate cancer. Bone loss continues in the second year but at a much slower rate. Bone loss can result in painful fractures and falls, loss of mobility and independence and a reduced quality of life.

To detect osteoporosis early, men with advanced prostate cancer should undergo regular bone-density screening with dual-energy x-ray absorptiometry (DEXA) scanning. If your doctor determines that you have osteoporosis, effective medications are available to strengthen and protect your bones.

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First-line therapy for osteoporosis is usually a bisphosphonate, such as alendronate (Fosamax) or zoledronic acid (Reclast), which slows the breakdown of bone.

Some men may benefit from a selective estrogen receptor modulator (SERM), including raloxifene (Evista) or toremifene (Fareston).

These drugs stimulate bone building and shut down the activity of osteoclasts, which destroy bone.

Finally, a promising new drug for osteoporosis called denosumab (Prolia) blocks the formation of a protein that causes bone to breakdown. A study published in *The New England Journal of Medicine* found that Prolia reduced the risk of vertebral fractures by 62 percent.

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**NCCN Risk Classification and Management Options**

The National Comprehensive Cancer Network (NCCN), an association of 21 cancer treatment centers, convenes expert panels to make recommendations for diagnosis and treatment of cancers, including prostate cancer. The NCCN recommends that after a diagnosis of prostate cancer is made, the man should be categorized in one of four categories to help determine optimal management. The recognized categories are: very low risk, low risk, intermediate risk and high risk. The determination is based on PSA level, prostate size, needle biopsy findings and the stage of cancer.

The choice of prostate cancer treatment is based in part on the likelihood, or risk, that your tumor will grow and spread to other parts of your body. The lower your risk, the lower your chances that the prostate cancer will spread and that you will die of it.

**RISK GROUP: VERY LOW**

- Stage T1c
- Prostate-specific antigen (PSA) less than 10 ng/mL
- Gleason score 6 or less and not more than two cores with cancer
- Less than 50 percent of core involved with cancer

- PSA density less than 0.15
- Newly diagnosed cases (%): 15
- NCCN management recommendation: Active surveillance when life expectancy is less than 20 years.

**RISK GROUP: LOW**

- Stage T1c or T2a
- PSA less than 10 ng/mL and
- Gleason score less than 6
- Newly diagnosed cases (%): 35
- NCCN management recommendation: Active surveillance when life expectancy is less than 10 years.

**RISK GROUP: INTERMEDIATE**

- Stage T2b-T2c or
- PSA 10 to 20 ng/mL or
- Gleason score 7
- Newly diagnosed cases (%): 40
- NCCN management recommendation: Active surveillance or external radiation with/without hormonal therapy, with/without brachytherapy or surgery if life expectancy is less than 10 years.

**RISK GROUP: HIGH**

- Stage T3a or
- PSA 20 ng/mL or higher or
- Gleason score 8 or higher
- Newly diagnosed cases (%): 10
- NCCN management recommendation: Surgery or radiation plus hormonal therapy.

*Adapted from Mohler J, et al. NCCN Clinical Practice Guidelines in Oncology: Prostate Cancer.*

Johns Hopkins Health Alerts; Dec. 2012.
Jan. 3, 2013 — Prostate cancer experts at Johns Hopkins have developed an updated version of the Partin Tables, a tool to help men diagnosed with prostate cancer and their doctors to better assess their chance of a surgical cure. The updated tool, based on a study of more than 5,600 men treated at The Johns Hopkins Hospital from 2006 to 2011, is published in the Jan. 3 issue of the British Journal of Urology International.

"The first thing most men want to know when they learn they have prostate cancer is their prognosis - whether it can be cured," says Alan W. Partin, M.D., Ph.D., professor and director of Urology at the Johns Hopkins University School of Medicine, and creator of the Partin Tables. "The Partin Tables are a statistical model to show the probability that the cancer is confined to the prostate and therefore is likely to be cured with surgery," he says.

The model is based on a patient's prostate specific antigen (PSA) level, Gleason Score (a number from 2 to 10 that estimates the aggressiveness of tumors removed during a biopsy based on their appearance under a microscope), and clinical stage - the extent to which a tumor can be felt during a digital exam.

Treatment decisions for prostate cancer are very complex and depend on a variety of factors, including whether the cancer is confined to the prostate or whether it has spread to the edge of the gland, seminal vesicles, lymph nodes or elsewhere in the body. Data for the Partin Tables, first published in 1993, have been based on the outcomes for more than 20,000 men who underwent prostate removal (known as radical prostatectomy) at Johns Hopkins over the past three decades. This represents the third update of the data.

"Twenty years ago, before widespread adoption of PSA for early detection, many men were diagnosed with prostate cancer after their cancer had spread. Today, the vast majority of men are diagnosed when the cancer is still confined to the prostate, giving them a much better chance of a cure with a surgical removal of the prostate," says Partin.

John B. Eifler, M.D., the lead author of the article who worked with Partin on the revision, says the new Partin Tables show that certain categories of men who were previously not thought to have a good prognosis actually could be cured with surgery. "We now have a better understanding of intermediate risk and see that more men now fall into that category, instead of the higher risk group," says Eifler.

For example, men with a biopsy Gleason Score of 8 and above previously were not thought to be good candidates for surgery because of the likelihood that the cancer had spread. The new data show a higher probability of a cure with surgery even if a man's Gleason score is 8. Scores of 9 and 10 are still considered high risk, indicating that the cancer likely has spread.

The researchers also found that having a PSA level of 10 and above was a better cut-off for predicting the spread of disease compared to lower levels.

"The updated Partin Tables will significantly improve the ability of physicians to counsel patients on the extent of their disease and help them make treatment decisions, such as whether surgery is warranted and, if so, whether lymph nodes also should be removed during surgery," Partin says. "If there is a high probability that the cancer has spread, treatment options include radiation, chemotherapy and hormonal therapy."

To access the updated Partin Tables, go to http://urology.jhu.edu/prostate/partintables.php. By inputting the PSA, the Gleason Score and the clinical stage results, and clicking on "find results," an individual can see the percentage chance that the cancer is confined to the prostate, has migrated to the edge of the gland, has invaded the seminal vesicles or has spread to the lymph nodes.

The above story is reprinted from materials provided by Johns Hopkins Medicine, via Newswise.
Prostate Cancer Treatment Choices

Your treatment options will depend on whether your cancer is contained within the prostate gland, has spread just outside of the prostate or had spread to other parts of the body. You may have a choice of treatments. Your doctor can explain all your treatment options, and help you to choose the right treatment for you. The first treatment you have may affect which treatments you can have in the future, if you need further treatment. Speak to your doctor or nurse about this.

Active Surveillance
Active surveillance is a way of monitoring prostate cancer which aims to avoid or delay unnecessary treatment in men with less aggressive cancer. Many prostate cancers are detected at an early stage. Prostate cancer can be slow growing and, for many men, the disease may never progress or cause any symptoms. Treatments for prostate cancer can cause side effects which can affect your quality of life. By monitoring the cancer, you can avoid or delay these side effects.

Watchful Waiting
Watchful waiting is a way of monitoring prostate cancer that is not causing any symptoms or problems. The aim is to monitor the cancer over the long term because prostate cancer is often slow growing and may not cause you any symptoms or problems in your lifetime.

Surgery: Radical Prostatectomy
Radical prostatectomy is an operation to remove the prostate gland and the cancer contained within it. You may be suitable for this treatment if your cancer is thought to be contained within the prostate gland and you are otherwise fit and healthy.

External Beam Radiotherapy
External beam radiotherapy uses high energy X-ray beams to treat prostate cancer. The X-ray beams are directed at the prostate gland from outside the body. They damage the cancer cells and stop them growing. External beam radiotherapy is sometimes given alongside permanent seed brachytherapy or temporary brachytherapy (internal radiotherapy). Radiotherapy can also be used after surgery if your PSA level starts to rise or if there is a risk that not all the cancer was removed with surgery.

Permanent Seed Brachytherapy
Permanent seed brachytherapy, also known as low dose-rate (LDR) brachytherapy, involves having tiny radioactive seeds implanted in your prostate gland. Radiation from the seeds destroys cancer cells in the prostate. You may have this treatment on its own or together with external beam radiotherapy and/or hormone therapy. It is just as good at controlling prostate cancer as other treatments.

Temporary Brachytherapy
Temporary brachytherapy, also known as high dose-rate (HDR) brachytherapy, involves inserting a source of high dose-rate radiation into the prostate gland for a few minutes at a time to destroy cancer cells. You may have this treatment on its own or you may have it together with external beam radiotherapy and/or hormone therapy. In western Canada, this treatment is only available in Kelowna, BC.

Hormone Therapy
Hormone therapy helps control prostate cancer by stopping the production of testosterone or stopping testosterone reaching the prostate cancer cells. There are different types of hormone therapy available, you may have injections, an operation, tablets or implants. Hormone therapy can cause side effects such as hot flushes, loss of sex drive and tiredness. It is important that you are aware of the side effects before you start treatment.

High Intensity Focused Ultrasound (HIFU)
HIFU uses high frequency ultrasound waves to heat and destroy cancer cells in the prostate. It is a relatively new treatment and we do not know very much about how effective it is at treating prostate cancer in the long-term or how it may affect your everyday life.

Cryotherapy
Cryotherapy treats prostate cancer by using freezing and thawing to kill the cancer cells in the prostate gland. It is also sometimes known as cryosurgery and cryoablation. Cryotherapy is usually used for men whose prostate cancer has come back after treatment with radiotherapy or brachytherapy (recurrent prostate cancer). It is less commonly offered as a first treatment for prostate cancer. However, it may be an option for men who are unable to have other treatments such as surgery or radiotherapy.

Second line hormone therapy and further treatment options
If your prostate cancer is no longer responding to your original hormone therapy you can have further treatments. You may be able to have other types of hormone therapy, chemotherapy or a new treatment as part of a clinical trial.

Chemotherapy
Chemotherapy uses anti-cancer (cytotoxic) drugs to kill cancer cells. It is used to help control symptoms and not to cure prostate cancer. The side effects of chemotherapy are sometimes difficult to cope with so you need to be reasonably fit before you begin treatment. You may have

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chemotherapy alongside other treatments such as palliative radiotherapy, bisphosphonates, pain-relieving drugs, and steroids.

New treatments
You may hear stories in the news about new treatments for prostate cancer that has spread outside of the prostate gland (advanced prostate cancer). New medicines include:

Provenge. A vaccine, approved in April 2010 and sold by Dendreon, that primes a man's immune system to attack an existing tumor.

Cabazitaxel. A new form of chemotherapy, approved in June 2010 and sold by Sanofi under the name Jevtana.

Abiraterone. Approved in April 2011, and sold by Janssen under the brand name Zytiga, it deprives tumors of testosterone.

Enzalutamide. Approved in August 2012, enzalutamide, sold under the name Xtandi and developed by Medivation and Astellas Pharma, blocks the ability of testosterone to enhance cancer growth.

Radium 223. Still awaiting FDA approval, this drug from Bayer HealthCare would carry radioactive particles deep into the bone where tumors are spreading, and kill cancer cells.

Clinical Trials
A clinical trial is a type of medical research study that aims to find new and improved ways of preventing, diagnosing, treating and controlling illnesses, such as prostate cancer. Clinical trials involve testing new medicines and procedures on people in a controlled and carefully planned way. Clinical trials are the best way to find out whether a new treatment is better than the current standard treatment.

Radiotherapy for advanced prostate cancer.
Men with advanced prostate cancer may have radiotherapy to help relieve symptoms. This is called palliative radiotherapy. Palliative radiotherapy does not aim to get rid of your cancer but it can help to slow down its growth. There are two types of palliative radiotherapy: external beam radiotherapy (EBRT) and internal radiotherapy (radioisotopes).

Bisphosphonates
Bisphosphonates are drugs that can help men with prostate cancer that has spread to the bones and is no longer responding to hormone therapy. They do not actually treat the cancer but they can help to relieve bone pain. They may also help to prevent and slow down the breakdown of bone.

Radical Prostatectomy – Results of a 30 Year Study.

PURPOSE: Radical prostatectomy has decreased prostate cancer specific mortality in men with clinically localized prostate cancer.

We report oncological outcomes of the longest running series of nerve sparing radical retro-pubic prostatectomy on the 30th anniversary of the inaugural operation.

MATERIALS AND METHODS: A total of 4,478 men underwent anatomical radical retro-pubic prostatectomy, as performed by a single surgeon (PCW), at the Johns Hopkins Medical Institutions from 1982 to 2011, without neo-adjuvant or adjuvant therapy. During a median follow-up of 10 years (range 1 to 29), we examined progression-free, metastasis-free and cancer specific survival.

RESULTS: The overall 25-year progression-free, metastasis-free and cancer specific survival rates were 68%, 84% and 86%, respectively, although there were significant differences in treatment outcomes between men treated in the pre-PSA and PSA eras. In each era, there were significant differences in progression-free, metastasis-free and cancer specific survival by D'Amico risk groups. In multivariable models considering prostatectomy features, pathological stage and grade were significantly associated with the risk of metastatic progression and disease specific mortality.

CONCLUSIONS: Excellent prostate cancer specific survival was demonstrated up to 30 years after surgery. Clinical risk categories and pathological tumor features were significant predictors of long-term disease specific outcomes, supporting their ongoing use in risk stratification and management decisions. Anatomical radical retro-pubic prostatectomy continues to represent the gold standard in the surgical management of clinically localized prostate cancer to which alternate treatment options should be compared.

Written by:
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Quinoa (Keen-Wah)

By Jeanne Wolfley

Quinoa is a whole grain and may seem uncommon to you, but it has been used for centuries by the peoples of Peru, Bolivia, and Ecuador. History tells us that quinoa has been used by the Incas of Peru for 5000 years. It was considered sacred and was called the “mother grain” because of its ability to sustain life. Some soldiers live off of quinoa with some added fat during times of war.

Quinoa is high in protein. It has all the essential amino acids; which make it a complete protein. To give you an example; rice and beans together are a completer protein but quinoa is complete all by its little ole’ self. And, when I say little, I mean little. The grain is so small it looks like a seed. It is hard to believe what a powerhouse of nutrition it has in it. Quinoa is also gluten free, is high in iron, magnesium and fiber. A cup of quinoa has more calcium than a quart of milk.

Many people feel it necessary to rinse off the grain before using it. It is probably a good idea but the grain is so small that I have a hard time messing with the rinsing. But, it is said that rinsing it off removes a slightly bitter coating. Quinoa can be slightly toasted and cooked for 15 minutes in boiling water. You don’t have to toast the grain if you don’t want to. I, however, think it makes the flavor even better.

Now that we know the virtues of Quinoa, what’s the best way to use it? Surprisingly, there are many ways to use this fabulous grain. This nutritional grain can be used as a breakfast cereal, in salads, soups and added to your bread recipe or it can be used as a side dish by itself. It tastes great cold on a salad so there is no reason not to use every last drop. When using quinoa on a salad make sure you use a light dressing, such a lemon juice and olive oil, to really enhance the flavor.

Quinoa (Keen - Wah) Pilaf with Dried Fruit

Submitted by Doreen Petkau

Quinoa is high in protein, gluten free, delicious and kosher for Passover. Can be served hot or at room temperature

1. Prepare quinoa according to the package directions. Place quinoa and boiling water in a large saucepan and bring to a boil. Cover and simmer gently 12 to 15 minutes until tender and liquid is absorbed. Fluff gently.

2. Heat 2 tbsp oil in a large saucepan or Dutch oven. Add onions and carrots and cook gently 5 to 8 minutes until tender. Add dried fruit cinnamon, honey, lemon juice and salt and cook a few minutes.

3. Combine quinoa with dried fruit mixture and herbs. Add remaining 2 tbsp olive oil and lemon juice to taste. Serve hot or at room temperature. Yields 8-10 servings.

Macrophage Delivery of an Oncolytic Virus Abolishes Tumor Regrowth and Metastasis After Chemotherapy or Irradiation

Munitta Muthana, Samuel Rodrigues, Yung-Yi Chen, Abigail Welford, Russell Hughes, Simon Tazzyman, Magnus Essand, Fiona Morrow, and Claire E Lewis

Abstract

Frontline anti-cancer therapies like chemotherapy and irradiation often slow tumor growth but tumor regrowth and spread to distant sites usually occurs after the conclusion of treatment. We recently demonstrated that macrophages could be used to deliver large quantities of a hypoxia-regulated, prostate-specific oncolytic (OV) virus to prostate tumours. In the current study we show that administration of such OV-armed macrophages 48 hours after chemotherapy (docetaxel) or tumor irradiation abolished the post-treatment regrowth of primary prostate tumours in mice, and their spread to the lungs for up to 27 or 40 days respectively. It also significantly increased the lifespan of tumor-bearing mice compared to those given docetaxel or irradiation alone. These new findings suggest that such a novel, macrophage-based virotherapy could be used to markedly increase the efficacy of chemotherapy and irradiation in prostate cancer patients.
History of prostate cancer: Diagnosis and treatment timeline - 1904 to 2012

Published: December 2012
UroToday.com

1904 Radical perineal prostatectomy (Hugh Hampton Young)
1913 Direct implantation of radium into prostate
1936 Elevated acid phosphatase in PCa (Ethel and Alexander Gutman)
1941 Beneficial effects of castration and oestrogen in men with advanced PCa (Charles Huggins)
1947 Retropubic radical prostatectomy (Terrence Millin)
1962 Megavoltage radiation for localized PCa (Malcolm Bagshaw)
1966 Gleason scoring developed
1973 National Veterans study reports benefits of hormonal therapy
1975 First RTC using chemotherapy in prostate cancer (W.W. Scott, et al.)
1980 PSA found elevated in serum of men with prostate cancer
1981 LHRH analogues first used
1983 Nerve-sparing prostatectomy preserves erectile function (Patrick Walsh)
Transperineal implantation of radioactive seeds (H. Holms)
1985 FDA approves Leuprolide® to treat PCa
1986 FDA approves PSA to monitor PCa
1987 Researchers identify new specific sub-set of prostate tumors (neuroendocrine, also called small-cell tumors that grow and react to treatment differently than to the common form of PCa adenocarcinomas)
1988 Ultrasound guided biopsy device approved
1989 FDA approves antiandrogen flutamide
1990 Watchful waiting (active surveillance) introduced to avoid unnecessary radical treatments 3-D conformal radiation therapy developed
1994 FDA approves PSA for screening to detect early PCa
1995 Meta-analysis trial of androgen blockade concludes no significant benefit from combining these drugs
1996 FDA approves anthracyclines (Novantrone®) to treat advanced prostate cancers that do not respond to hormone therapy
1997 Combination of radiation and hormone therapy to improve PCa survival become standard
2003 Two large clinical trials report Proscar® and Avodart® reduce the risk of developing prostate cancer by up to 25 percent
2004 FDA approves antimicrotubule agent Taxotere® for hard-to-treat prostate cancers
2008 FDA approves CellSearch®, a test for predicting survival and monitoring the impact of treatment for men with advanced prostate cancer

2009 Radiation after surgery or hormone therapy improves survival
Clinical trial reports adjuvant radiation reduces risk PCa will spread
2010 FDA approves autologous cellular immunotherapy Provenge® for advanced prostate cancer

FDA approves anti-microtubule agent Jevtana® given with prednisone for advanced prostate cancer that progressed despite prior hormone therapy and chemotherapy with docetaxel
2011 FDA approves the anti-androgen Zytiga® in combination with prednisone for treatment of advanced prostate cancers whose disease progresses despite prior hormone therapy and standard chemotherapy with docetaxel
2012 FDA approves anti-androgen Xtandi® for late stage cancer

Anagrams

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**Presbyterian:**
When you rearrange the letters: BEST IN PRAYER

**Desperation:**
When you rearrange the letters: A ROPE ENDS IT

**The Eyes:**
When you rearrange the letters: THEY SEE

**George Bush:**
When you rearrange the letters: HE BUGS GORE

**The Morse Code:**
When you rearrange the letters: HERE COME DOTS

**Dormitory:**
When you rearrange the letters: DIRTY ROOM
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PCa Presentations Available

The Manitoba Prostate Cancer Support Group is pleased to provide speakers to discuss and describe various subjects related to prostate cancer. Tom Boomer and Len Bueckert have organized a power point presentation and are willing to meet at your location to provide this service. For more information or to arrange for a speaker, call: Tom Boomer at 663-1351

Mar. 21, 2013
Dr. Dhali Dhaliwal, President & CEO CancerCare Manitoba - “How Research can Improve Prostate Cancer Outcomes”

Apr. 18, 2013
Gayle Nichol, C.R.N. at MB. Prostate Centre - "Living with Androgen Deprivation”

May 16, 2013
TBA

All meetings are held at Seven Oaks General Hospital Auditorium 7-9 p.m.
Everyone welcome

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