

## URINARY BLADDER CANCER

### BACKGROUND

#### **Facts about urinary bladder cancer**

- Urinary bladder cancer is the 4th most frequent cancer diagnosed in men and the 9th most frequent cancer diagnosed in women.
- When first diagnosed with urinary bladder cancer, most people's cancers are confined to the bladder (74%) rather than it being an advanced stage of urinary bladder cancer.
- The incidence of urinary bladder cancer rises steeply after age 50 in both men and women.
- Surgery is the main treatment for urinary bladder cancer.
- Some researchers maintain that smoking causes almost half of the deaths from urinary bladder cancer in men and more than a third of deaths among women.

#### **What is urinary bladder cancer?**

- Urinary bladder cancer occurs primarily in the inner lining of the urinary bladder. The bladder collects the waste (urine) that is filtered from the blood by the kidneys. The bladder is made up of an outer muscle layer and an inner lining made up of transitional cells, squamous cells, and glandular cells.
- The transitional cells are flexible and change shape without damaging the cell structure. The most common form of bladder cancer is urothelial (transitional cell) carcinoma. It accounts for more than 90% of these cancers. Transitional cell carcinoma can also develop in the lining of the kidney, ureters, and the urethra where transitional cells are also located.
- The squamous cells are thin, flat cell that are in the lining of the bladder and are similar to the squamous cells that help make up skin. 2% of urinary bladder cancers that are squamous cell carcinomas. These are usually found in the later stages of the disease.
- The glandular (or secretory) cells are also in the lining to produce and secrete fluids like mucus and are similar to cells found in the intestinal walls. 1%-2% of urinary bladder cancers are adenocarcinomas. These are also usually found in the later stages of the disease.

#### **What are the signs and symptoms of urinary bladder cancer?**

Symptoms for urinary bladder cancer may include:

- Blood in urine (the urine will be slightly rusty to a deep red).
- Pain during urination.
- Increase in the number of times that urination occurs each day.
- Feeling the need to urinate without any results.
- Lower back pain.

Talk to your health care professional about any questions you may have.

#### **What are the risk factors for urinary bladder cancer?**

Risk factors for urinary bladder cancer include:

Information provided in these web pages was last updated on November 2, 2009

- Age. In Massachusetts, incidence rates increase markedly in the 65 to 74 year age group, and are highest in the 75 years and older age groups.
- Cigarette smoking.
- Excessive use of certain pain medications such as those containing phenacetin.
- Treatment with alkylating agent chemotherapy drugs such as Cytosan (cyclophosphamide).
- Having had radiation therapy to the bladder.

Possible risk factors:

- Urologic conditions such as urinary tract infections and urinary stasis.
- Dietary factors—a diet low in fruits and vegetables.

## **PREVENTION AND SCREENING**

### **How can I reduce my risk of developing urinary bladder cancer?**

This list represents health and life style decisions that can lower your risk of urinary bladder cancer.

- If you are a non-smoker, don't start. If you smoke cigarettes, cigars, and pipes, try to quit. Tobacco smoking affects the bladder when the chemicals, that are absorbed into the blood and filtered out by the kidneys, sit on the bladder walls in the urine.
- Be aware of the possible job-related exposures to agents called aromatic amines that cause cancer: educate yourself about the materials that you use in your daily routines at the work place or job site. The industries where these chemicals are commonly used include the manufactures of rubber, leather, printing materials, textiles, and paint products.
- Drink plenty of fluids.
- A diet high in fruits and vegetables is recommended to protect you against bladder cancer.
- This is the first cancer that had telling evidence that a parasitic infection could cause it. Schistosoma haematobium is a parasite that uses the urinary tract to spread its eggs. The eggs can get embedded into the bladder wall causing an immune reaction and symptoms that have been labeled as Schistosomiasis. One complication from Schistosomiasis is squamous cell carcinoma of the bladder. The disease is found mostly in the Middle East, India, Africa, Central America, and South America but people traveling in these regions need to be aware of this disease's existence.

### **Screening for urinary bladder cancer**

Diagnosis at the earliest possible stage makes treatment much more effective. At this time, no screening tests are routinely recommended for early detection of urinary bladder cancer.

The best way to find urinary bladder cancer early is to report any symptoms to your health care professional right away.

## DIAGNOSIS AND TREATMENT

This site provides general information that may apply to your specific situation. You may visit the National Cancer Institute's web site [www.cancer.gov](http://www.cancer.gov) for the most current cancer information and clinical trials. Once there, you will be able to select from a full range of cancer topics. If you want to speak with a cancer information expert confidentially, you may call 1-800-4CANCER (1-800-422-6237) between 9:00 AM - 4:30 PM.

**It is always best to discuss your personal risk for cancer as well as your screening, diagnosis and treatment needs with your health care provider before you commit to a course of action.**

### **How is urinary bladder cancer diagnosed?**

The first step in any medical evaluation is to gather information about symptoms, risk factors, and other medical conditions. Your health care professional will do a complete physical examination and look for any signs of urinary bladder cancer.

There are several laboratory tests done on the urine first:

- A urine cytology test is done to determine whether or not there are any precancerous or cancerous cells in the urine by looking at a sample under a microscope.
- A urine culture is done to rule out an infection which can mimic the symptoms of urinary bladder cancer. The urine sample will be placed onto a plate of growth medium and placed into an appropriate temperature to see if there is a bacterial infection. The results will usually be reported in 48 to 96 hours.

A biopsy is then done using a cystoscope:

- A slender tube with a lens and a light is inserted into the bladder through the urethra. It allows the doctor to view the inside of the bladder and see if there are any suspicious growths that could be removed for microscopic examination. One method uses fluorescence and the appropriate light source to determine if there are any cancer cells.

Also, bladder cancer may be diagnosed through various imaging tests, including:

- Intravenous pyelogram (IVP) – A dye is injected into the bloodstream to outline the kidneys, the ureters, and bladder more clearly on the x-rays. This is important to see because the blood in the urine may be coming from other parts of the urinary tract, not just the bladder.
- Retrograde pyelography – This procedure also uses a dye that makes the lining of the bladder, the ureters, and kidneys easier to see on the x-rays. The dye is injected into a ureter using a catheter that is placed through the urethra using a cystoscope.
- Computerized Tomography (CT) scan – A series of detailed pictures of areas inside the body taken from different angles which are also called computerized axial tomography (CAT) scan. CT scans help the doctor in detecting cancer or the recurrence of cancer.
- Magnetic Resonance Imaging (MRI) scan – Producing images using radio waves and strong magnets instead of x-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of tissue and by certain diseases.

Information provided in these web pages was last updated on November 2, 2009

- Ultrasound – Using sound waves to visualize and evaluate any abnormalities using the images that are produced by the echoes that come from the sound waves bouncing back.
- Positron emission tomography (PET) – Radioactive tagged glucose (sugar) is injected into the patient's vein. Because cancers use sugar much faster than normal tissues, the cancerous tissue will take up the radioactive material and become more visible on the test.

### **How is urinary bladder cancer treated?**

Each type of urinary bladder cancer responds to radiation and chemotherapy differently. Therefore, it is important to know the type of urinary bladder cancer when evaluating treatment options.

#### **Surgery:**

- Transurethral surgery – The operation is done through a cystoscope that is placed into the urethra while the patient is under anesthesia. The operation takes out the bladder cancer.
- Cystectomy – When the bladder cancer has spread, the diseased area needs to be removed by cutting through the bladder wall. This surgery needs to be performed through the abdomen. This operation can remove a part of or the whole bladder wall. A radical cystectomy is done when the entire bladder and prostate or reproductive system is removed.
- There are several reconstruction surgeries that can be done to create a new system of liquid waste removal inside or outside the body. This can be discussed with your health care provider.

#### **Immunotherapy:**

- Immunotherapy – A treatment that causes the body's own natural defenses (immune system) to attack the bladder cancer. Intravesical therapy is a delivery system where the treatment is placed directly into the bladder through a catheter rather than being given by mouth or injected into a vein. This is the most common way that the immunotherapy is given to the patient for bladder cancer.
- Interferon therapy – A type of substances that is naturally produced by several types of cells. Interferon-alpha is the kind most often used when treating bladder cancer.
- Bacillus Calmette-Guerin – BCG is the bacterium that is used in a tuberculosis vaccination. The presence of the BCG will activate the immune system to attack the foreign agent in the bladder as well as the cancer cells that are present.

#### **Chemotherapy:**

- Chemotherapy – an anticancer medication that destroys cancer cells. It can be delivered either through the bladder (intravesical) or in the vein (systemic).
- Neoadjuvant chemotherapy – doing the treatment before surgery in order to shrink down the tumor.
- Intravesical chemotherapy – it tends to get used for earlier stages of bladder cancer due to the localized administration of the chemotherapy.
- Systemic chemotherapy – this tends to be used when there are possible cancer cells in other areas of the body. The chemotherapy drugs can be several different combinations of drugs.

#### **Radiation therapy:**

Information provided in these web pages was last updated on November 2, 2009

- External beam radiation therapy focuses radiation from outside of the body on the cancer.
- Local or interstitial radiation therapy uses a small pellet of radioactive material placed directly into the cancer.
- Radiation can also be used before surgery in order to shrink the size of the tumor.
- Radiation can be used in conjunction with chemotherapy to make sure that the cancer has been gotten without doing more surgery.

## STATISTICS

### **How many people are diagnosed with urinary bladder cancer? How many people die from it?**

- The American Cancer Society estimates in 2009 there will be 70,980 new cases of urinary bladder cancer in the United States (52,810 in men and 18,170 in women). The estimated new cases of urinary bladder cancer for 2009 in Massachusetts are 2,010.
- The American Cancer Society also estimated in 2009 there will be 14,330 deaths from urinary bladder cancer in the United States (10,180 in men and 4,150 in women). There is no 2009 estimation for deaths from urinary bladder cancer in Massachusetts.
- The national five-year relative survival rates for 1999-2005 show that 83.0% of males survive 5 years after diagnosis and 78.2 % of females survive 5 years after diagnosis of urinary bladder cancer.
- In Massachusetts between 2002 and 2006, the age-adjusted incidence rate of urinary bladder cancer in men was 46.5 cases per 100,000 males and in women was 13.0 cases per 100,000 females. Men are 3.6 times more likely to develop urinary bladder cancer than women.
- The age-adjusted mortality rate of urinary bladder cancer was higher in Massachusetts men (8.6 deaths per 100,000 males) than in Massachusetts women (2.6 deaths per 100,000 females) between 2002 and 2006. Massachusetts men are 3.3 times more likely to die from urinary bladder cancer than women.
- The age-adjusted incidence rate of urinary bladder cancer for males is 22.7% higher in Massachusetts than nationally and for females is 35.4% higher in Massachusetts than nationally (based on data from the North American Association of Central Cancer Registries, 2002-2006).
- The age-adjusted mortality rate of urinary bladder cancer for males is 14.7% higher in Massachusetts than nationally and for females is 18.2% higher in Massachusetts than nationally (based on data from the North American Association of Central Cancer Registries, 2002-2006).

Information provided in these web pages was last updated on November 2, 2009

For additional statistics on urinary bladder cancer in Massachusetts, see Massachusetts Community Health Information Profile (MassCHIP) Instant Topics – Cancer: Urinary Bladder

[\[http://masschip.state.ma.us/InstantTopics/affiliate.htm\]](http://masschip.state.ma.us/InstantTopics/affiliate.htm). Please click on an affiliation then find urinary bladder cancer for the instant topics.

## DPH PROGRAMS AND INFORMATION

### DPH urinary bladder cancer programs

The Massachusetts Department of Public Health's Comprehensive Cancer Prevention and Control Program focuses on reducing cancer risk, incidence, morbidity, and mortality by promoting a healthy lifestyle, early diagnosis, treatment, rehabilitation, and access to care. The Department's programs address the impact of genetics, tobacco, and environmental and occupational hazards on cancer. The Department is working to decrease both new cases of cancer and deaths through strategies designed either to reduce risk factors related to cancer or to encourage early detection of cancers.

No programs at the Massachusetts Department of Public Health focus exclusively on urinary bladder cancer.

### Publications and Materials

#### Reports

The following reports can be accessed from the Massachusetts Cancer Registry website at

<http://www.mass.gov/dph/bhsre/mcr/canreg.htm>

- *Cancer Incidence and Mortality in Massachusetts-Statewide Report 2000-2004 (which includes a special section on urinary bladder cancer)*
- *Cancer Incidence in Massachusetts-City/Town Supplement 2000-2004*

#### Pamphlets, Brochures and Videos

No materials are available exclusively on urinary bladder cancer.

#### References

Adami, Hans-Olov, Hunter, David, and Trichopoulos, Dmitrios, eds. *Textbook of Cancer Epidemiology*. New York: Oxford University Press, 2002, pp. 446-466.

Mary Stolf Cancer Foundation - Bladder Cancer

<http://www.marystolfacancerfoundation.com/BladderCancer.html>

U.S National Institutes of Health National Cancer Institute - Dictionary of Cancer Terms

[http://www.nci.nih.gov/templates/db\\_alpha.aspx?expand=R](http://www.nci.nih.gov/templates/db_alpha.aspx?expand=R)

eMedicine.com, Inc. - Schistosomiasis, Bladder

Information provided in these web pages was last updated on November 2, 2009

<http://www.emedicine.com/radio/topic621.htm>

The Real ESSIAC Company - Bladder Cancer Information  
[http://www.real-essiac.com/bladder\\_cancer.html](http://www.real-essiac.com/bladder_cancer.html)

## RELATED LINKS

### Background/General Links

American Cancer Society (ACS)

- Cancer Reference Information: All About Bladder Cancer  
[http://www.cancer.org/docroot/CRI/CRI\\_2x.asp?sitearea=&dt=44](http://www.cancer.org/docroot/CRI/CRI_2x.asp?sitearea=&dt=44)

National Cancer Institute (NCI)

- Bladder Cancer Home Page  
<http://www.cancer.gov/cancertopics/types/bladder>
- What You Need To Know About Bladder Cancer  
<http://www.cancer.gov/cancertopics/wyntk/bladder>

American Urological Association

- Adult Conditions: Cancers (Bladder Cancer)  
<http://www.urologyhealth.org/adult/index.cfm?cat=04&topic=37>

### Prevention and Screening Links

National Cancer Institute (NCI)

- Bladder and Other Urothelial Cancers (PDQ): Screening  
<http://www.cancer.gov/cancertopics/pdq/screening/bladder/patient>
- Tobacco and Cancer  
<http://www.cancer.gov/cancertopics/tobacco>

### Diagnosis and Treatment Links

American Cancer Society (ACS)

- NexProfler Treatment Option Tool for Bladder Cancer  
<https://www.cancer.nexcura.com/Secure/InterfaceSecure.asp?CB=269>

National Cancer Institute (NCI)

- Bladder Cancer (PDQ): Treatment  
<http://www.cancer.gov/cancertopics/pdq/treatment/bladder/patient>
- Clinical Trials  
<http://www.cancer.gov/clinicaltrials>

### Statistics Links

American Cancer Society (ACS)

- Statistics  
[http://www.cancer.org/docroot/STT/stt\\_0.asp](http://www.cancer.org/docroot/STT/stt_0.asp)

Information provided in these web pages was last updated on November 2, 2009

Centers for Disease Control and Prevention (CDC) and National Program of Cancer Registries (NPCR)

- United States Cancer Statistics: 2003 Incidence and Mortality  
<http://www.cdc.gov/cancer/npcr/uscs/index.htm>

National Cancer Institute (NCI)

- Surveillance, Epidemiology and End Results (SEER) Cancer Statistics Review, 1975-2003  
[http://seer.cancer.gov/csr/1975\\_2003/sections.html](http://seer.cancer.gov/csr/1975_2003/sections.html)

North American Association of Central Cancer Registries (NAACCR)

- Cancer Incidence Statistics  
[http://www.naacr.org/index.asp?Col\\_SectionKey=11&Col\\_ContentID=49](http://www.naacr.org/index.asp?Col_SectionKey=11&Col_ContentID=49)