



# FACT SHEET

## Bladder cancer facts and figures

Bladder cancer (BC) is the 2<sup>nd</sup> most frequent malignancy of the urinary tract after prostate cancer.<sup>1</sup> The most common type of bladder cancer, responsible for 90 to 95 % of all bladder tumors, is urothelial or transitional cell carcinoma, a cancer that begins in urothelial cells that normally make up the inner lining of the bladder.<sup>2</sup>

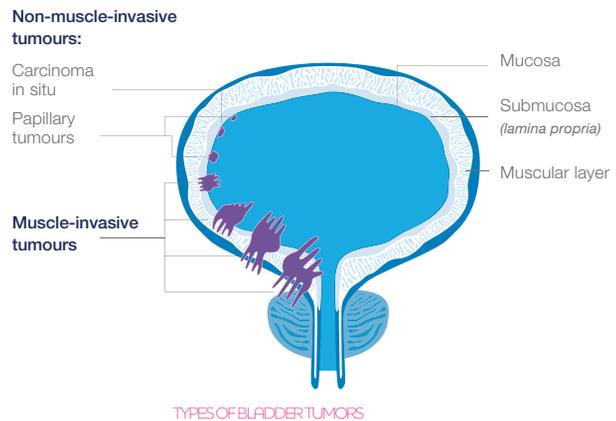
For treatment and prognosis purposes, bladder cancers are classified as:

▶ **Non-muscle-invasive bladder cancer (NMIBC):**

Cancer is confined to the bladder mucosa (urothelium, lamina propria) and has not infiltrated the muscular wall. 70 % of BC cases are NMIBC at diagnosis. NMIBC includes the subtypes Ta (70 %), T1 (20 %), CIS (10 %).<sup>3</sup>

▶ **Muscle-invasive bladder cancer (MIBC):**

Cancer has invaded the muscular wall of the bladder and/or spread to nearby organs and/or lymph nodes. 30 % of BC cases are MIBC at diagnosis (T2 to T4).



### Epidemiology

Bladder cancer is the

- ▶ 4<sup>th</sup> most frequent cancer in men and 9<sup>th</sup> most frequent cancer in women in developed countries<sup>4</sup>
- ▶ 5<sup>th</sup> most common cancer in men and 12<sup>th</sup> most common cancer in women worldwide.<sup>4</sup>

**The incidence** (ASR: age standardized rate) of bladder cancer is estimated as follows:

- ▶ 16.7/100,000 (men), 3.2/100,000 (women) in Europe<sup>4</sup>
- ▶ 20.0/100,000 (men), 3.7/100,000 (women) in Northern America<sup>4</sup>

In most European countries, incidence rates vary between 14 and 21/100,000 in men.

**The prevalence** of bladder cancer is the highest for all urological malignancies.<sup>5</sup>

- ▶ 5-year prevalence in Europe: 116.5/100,000 (men), 29.0/100,000 (women)<sup>6</sup>

Differences in prevalence between countries are caused by differences in registration or reporting of non-invasive versus invasive tumors. This makes comparison between countries difficult.<sup>7</sup>

**The mortality** of NMIBC is mainly determined by progression rates of high-risk non-muscle-invasive BC.<sup>8,9</sup>

Worldwide approximately 145,000 patients die from BC annually.<sup>7</sup>

In 2008, BC was the 8<sup>th</sup> most common cause of cancer-specific mortality in Europe. The 5-year survival rate for non-invasive cancer is 96 % but decreases to 70 % once the cancer has spread, and decreases further, to 5.5 % in metastatic disease.<sup>10</sup>



## Risk factors

### ▶ Main risk factors

- The main risk factor is smoking.<sup>5</sup>
- Professional exposure to carcinogenic substances such as aromatic amines and polycyclic aromatic hydrocarbons (e.g. in dyes, solvents, paints, combustion products, rubber, and textiles)<sup>11</sup>
- Age: The risk of developing bladder cancer increases with age. The median age at diagnosis is around 70 years.<sup>12,13</sup>

### ▶ Other risk factors

- Chronic urinary tract infection<sup>14</sup>
- Schistosomiasis<sup>5</sup>
- Medications, radiation to pelvic area<sup>5</sup>

## Symptoms

- ▶ The main symptom for NMIBC is painless haematuria.<sup>8</sup>
- ▶ In patients with CIS, hematuria may be accompanied by irritative voiding symptoms such as urinary frequency, urgency, dysuria.
- ▶ Physical examination does not reveal NMIBC.
- ▶ Other symptoms such as flank pain (ureteral obstruction), lower extremity oedema, palpable pelvic mass, weight loss and abdominal or bone pain may occur in MIBC or metastatic disease.<sup>13</sup>

## Diagnosis

If BC is suspected, non-invasive examination methods will be performed initially<sup>9</sup>:

- ▶ Urinary cytology (voided or bladder wash): high specificity in high-grade tumors, moderate sensitivity<sup>15</sup>
- ▶ Urine biomarkers are being evaluated extensively but to date there is no consensus regarding their use for the diagnosis of BC<sup>13</sup>
- ▶ Voided urine cytology or urinary markers are advocated to predict high-grade tumor before TURB<sup>8</sup>
- ▶ Imaging examinations:
  - Conventional intravenous or computed tomography urography (x-ray examination with contrast agent)
  - Ultrasonography (can show tissue changes, tumors, hydronephrosis)

The diagnosis of bladder cancer is made by

- ▶ cystoscopic examination of the bladder including biopsy (an invasive examination method)
- ▶ histological evaluation of the resected tissue.

## Treatment

Transurethral resection of bladder tumors (TURB) is the standard surgical procedure for NMIBC. This procedure removes all visible tumors. It has been confirmed that the use of Hexvix<sup>®</sup> blue light-guided fluorescence as an adjunct to white light cystoscopy and TURB is more sensitive than conventional procedures for detection of malignant tumors, particularly for CIS.

A complete TURB including accurately analyzed biopsies allows correct determination of clinically important risk factors for recurrence and progression – this is the initial and crucial step in the management of NMIBC.<sup>9</sup>

Additional post-operative treatment of NMIBC includes instillation of chemotherapy or immunotherapy using BCG, combined with frequent monitoring. Radical cystectomy may be proposed.<sup>9</sup>

Treatment for patients with muscle-invasive bladder cancer includes radical cystectomy.

## References

- 1 Pezaro C et al., Urothelial Cancers: using biology to improve outcomes; Expert Review of Anticancer Therapy 2012; 12(1):87-98.
- 2 Messing EM, Urothelial tumors of the urinary tract; Campbells Urology 2002; 8:2732-2784.
- 3 Hendriksen K and Witjes JA, Treatment of Intermediate-Risk Non-Muscle-Invasive Bladder Cancer (NMIBC); European Urology, Supplements 2007; 6:800-808.
- 4 Ferlay J et al., GLOBOCAN 2008 v2.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 10, available from: <http://globocan.iarc.fr>, accessed on 09/01/2013.
- 5 Burger M et al., Epidemiology and Risk Factors of Urothelial Bladder Cancer; European Urology Supplements 2013; 63(2):234-241.
- 6 Bray F et al., Global estimates of cancer prevalence for 27 sites in the adult population in 2008; International Journal of Cancer 2013; 132(5):1133-1145.
- 7 Ploeg M et al., The present and future burden of urinary bladder cancer in the world; World Journal of Urology 2009; 27(3):289-293.
- 8 ICUD 2012.
- 9 EAU Guideline 2012.
- 10 <http://seer.cancer.gov/statfacts/html/urinb.html>, accessed 09/01/2013.
- 11 Brown T et al., Occupational Cancer in Britain; British Journal of Cancer 2012; 107(S1): S76-S84.
- 12 Barocas DA et al., Surveillance and Treatment of Non-Muscle-Invasive Bladder Cancer in the USA; Advances in Urology 2012; 2012:421709.
- 13 IUCD 2004.
- 14 Kantor AF et al., Urinary tract infection and risk of bladder cancer; American Journal of Epidemiology 1984; 119(4):510-515.
- 15 Mowatt G et al., Systematic review of the clinical effectiveness and cost-effectiveness of photodynamic diagnosis and urine biomarkers (FISH, ImmunoCyt, NMP22) and cytology for the detection and follow-up of bladder cancer; Health Technology Assessment 2010; 14(4):1-331.