

ASPECTS OF TREATMENT OF NON-MUSCLE INVASIVE BLADDER CANCER

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i Hjärtats Aula, Blå Stråket 5, Sahlgrenska Universitetssjukhuset, torsdagen den 8 juni, klockan 09.00

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Avhandlingen baseras på följande delarbeten:

- I. Ströck V, Dotevall L, Sandberg T, Gustafsson CK and Holmäng S. **Late bacille Calmette-Guérin infection with a large focal urinary bladder ulceration as a complication of bladder cancer treatment.** BJU Int. 2011; 107(10): 1592-1597.
- II. Holmäng S and Ströck V. **Should follow-up cystoscopy in bacillus Calmette-Guérin-treated patients continue after five tumour-free years?** Eur Urol. 2012; 61(3): 503-507.
- III. Ströck V and Holmäng S. **A Prospective Study of the Size, Number and Histopathology of New and Recurrent Bladder Tumors.** Urology Practice. 2015; 2(5): 260-264.
- IV. Ströck V and Holmäng S. **Is bladder tumour fulguration under local anaesthesia more painful than cystoscopy only?** 2017; In manuscript.

Abstract

Aspects of treatment of non-muscle invasive bladder cancer

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Bladder cancer is the third most common malignancy in men in Sweden and a total of 2560 patients were diagnosed with new disease in 2015. Over 95% of the tumours are of urothelial origin. Approximately 75% of the patients present with a non-muscle invasive bladder cancer (NMIBC). The first treatment is a transurethral resection of the bladder (TURB) and no further treatment is necessary for those with a non-invasive and low-grade tumour. A second resection is recommended for patients with high-grade tumours in order to verify that no muscle invasion is present. These patients require additional intravesical treatment with either chemotherapy or bacillus Calmette-Guérin (BCG) vaccine. Side-effects are common and often transient but late side-effects are rarely seen. The prognosis of NMIBC is generally good, but for high-grade tumours there is a higher progression rate. The recurrence rate is very high for NMIBC resulting in multiple TURBs with high costs. The aims of this thesis were to report a late BCG-complication not previously described and to investigate the incidence of late recurrences in BCG-treated patients. Furthermore to register the number, size and histopathology of new and recurrent tumours and to register self-reported pain perception during transurethral procedures. In the **first** paper we describe a large lesion in the bladder with a persisting mycobacterial infection in 13 patients. The majority received tuberculostatic treatment and the lesions and infections disappeared. The **second** paper is a report on a large cohort of BCG-treated patients who had a tumour-free period of at least five years at some point after BCG-treatment. We found 10.8% late recurrences, suggesting that these patients require lifelong follow-up. The **third** study was a prospective registration of the size, number and histopathology of all new and recurrent bladder tumours during 15 months. The results showed that 22% in both groups were benign or inflammatory lesions and the absolute majority of recurrences were smaller than 10 mm, which has not previously been demonstrated. The **fourth** paper consists of a prospective registration of 1572 patients with self-reported pain, experienced during cystoscopy and transurethral procedures under local anaesthesia. The pain levels at cystoscopy were generally low and in accordance with previous reports. At transurethral tumour extirpations the pain levels were higher than at cystoscopy only but still within an acceptable range. The two latter studies support the increased use of biopsies and fulguration under local anaesthesia as most recurrences are small and easily managed in the office setting.

Keywords: Bladder cancer, BCG, transurethral resection, local anaesthesia.