

DO PATIENTS WITH URODYNAMICALLY PROVEN OBSTRUCTIVE VOIDING FUNCTION OR INSTABILITIES HAVE A HIGHER RISK TO DEVELOP LONG TERM MICTURITION SYMPTOMS AFTER RADIATION THERAPY OF LOCALISED PROSTATE CANCER?

Hypothesis / aims of study

Urinary tract symptoms can be early and late sequelae following brachytherapy (BT) for localised prostate cancer. Although incontinence is less frequent after BT than after surgery, patients having undergone BT frequently complain about lower urinary tract symptoms (LUTS) and urgency. With different treatment modalities for localised prostate cancer available we strive for individualised decision making. Although in recent years data have been collected regarding complications and HRQOL after different treatment modalities, little is known about long-term prevalence of different micturition symptoms and who is at special risk. Aim of this study is to find out if specific urodynamic parameters, especially pre-existent infravesical obstruction and instabilities during cystometry can predict outcome regarding micturition symptoms.

Study design, materials and methods

69 patients scheduled for BT have had an urodynamic investigation before treatment. 33 of them have received a permanent LDR implant and 36 an external irradiation combined with a temporary interstitial HDR boost. Urodynamics include a filling cystometric phase and a pressure/flow study following ICS standards. Pressure flow studies are evaluated using the Schaefer nomogram; obstruction was classified using the OCO – formula. Patients with an obstruction coefficient $OCO \geq 1$ are classified as obstructed.

Furthermore, patients complete a self-administered 11-page questionnaire including a HRQOL questionnaire, the IPSS and the ICS male questionnaire for urinary symptoms prior to therapy. A follow-up questionnaire is mailed to all patients after 12 months.

We evaluate overall the domains of the EORTC QLQ questionnaire according to the EORTC standards and the overall HRQOL. We look at the IPSS, the single symptoms of the ICS questionnaire as well as bother scores for those affected. A symptom is classified as bothersome, if the patient describes their symptom as quite a problem or even as a serious problem. We also look for LUTS, urgency and incontinence as a combination of several questions.

Results

Pretherapeutically there are no significant differences in demographic and in micturition data between both treatment groups. Only the number of patients with a flow rate less than 10ml/sec is higher in the group treated with HDR. Only 4% of patients complain about micturition symptoms before radiation therapy.

There is no significant difference in micturition problems after one year between both forms of BT. Only about 6% of patients complain about one form of incontinence. Most prevalent symptoms are LUTS and urgency with nearly 50% of patients complaining of some kind of symptoms. About half of those affected describe their symptom as bothersome.

We found no significant difference in symptoms between both forms of BT so that analysis for risk factors is not further stratified.

Using a univariate logistic regression model obstructed patients ($OCO \geq 1$) have a higher chance to develop bothersome LUTS and urge symptoms as well as urge incontinence. Patients with an infravesical obstruction have a 2.3 fold higher risk to develop LUTS and urgency ($p=0.11$). However patients with urodynamically proven obstruction have a nearly 9 fold higher risk to suffer from bothersome LUTS $p=0.08$ and bothersome urgency $p=0.08$ as well as urge incontinence ($p=0.09$) in comparison to those being non obstructed. Pre-existent instabilities are no significant risk factor for developing long lasting micturition symptoms.

Interpretation of results

One year after treatment about 10% of patients complain of incontinence, but nearly 50% of patients complain about LUTS or urgency. Although patients treated with HDR show more micturition symptoms, we find no significant differences between both treatment groups. Patients with an urodynamically proven infravesical obstruction prior to therapy have a more than 8 times higher chance to develop bothersome urgency and urge incontinence ($p<0.1$).

Several algorithm have been calculated but neither a single item nor a combination of symptoms has been found to predict micturition symptoms after BT with a sensitivity over 80%

Concluding message

Patients with urodynamically proven obstruction have a higher risk of developing urgency even one year after BT. Since several studies find that storage or 'irritative' symptoms are conceived as more bothersome than voiding symptoms, these findings should not be neglected. Although this work confirms the prognostic value of urodynamic assessment, numbers in this study are too small to develop an algorithm to show who should be investigated. Further research is needed to develop a useful prognostic algorithm and to define the role of urodynamic investigations in advising patients with localised prostate cancer.

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HUMAN SUBJECTS: This study did not need ethical approval because Ethics committee approval was not required but followed the Declaration of Helsinki Informed consent was obtained from the patients.