

## VOIDING PARAMETERS AND PROSTATE SIZE IN PROSTATE CANCER PATIENTS UNDERGOING LONG TERM ENDOCRINE MANIPULATION

### Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) due to prostatic disease and infravesical obstruction are common in elderly men. In BPH the effect of medical treatment on LUTS and flowmetry is well documented (1). For prostate cancer patients no high quality evaluation of endocrine treatment on voiding parameters or long term follow up studies has been identified.

The aim of the present study was to quantify changes in voiding parameters and prostate size prospectively from before start of endocrine treatment and during long-term follow-up in men with prostate cancer.

### Study design, materials and methods

The patients were recruited from 3 urological departments and followed to death, treatment for local progression, clinical deterioration making the patient unfit for examination, or end of study. Inclusion and follow-up periods differed for the 3 clinics due to changes in appointment for the investigators and in organisation of the departments. One site was closed after 12 months follow-up and replaced by another clinic. Included were patients with verified prostate cancer, who were going to start palliative endocrine therapy. Excluded were those with former treatment of the lower urinary tract, acute urinary retention, planned outlet surgery, diabetes or significant organ disease, and patients who were unable to comply with the planned investigations or fill out questionnaires.

Seventy-seven men were included and followed for median 18 months (3–90). The age was median 74 years (range 54–85). Endocrine treatment was orchiectomy in 10, LHRH-agonist in 6, antiandrogens in 55 and combinations in 6. Three patients on an antiandrogen later changed to medical or surgical castration.

Severity and bother of LUTS were examined with the DAN-PSS-1 questionnaire (2). Objective parameters were flowmetry, post void residual urine, volumes and number of voids on 2 or 3 days frequency volume chart, prostate volume on transrectal ultrasonography, and PSA. Clinical assessment, biochemistry and voiding parameters were obtained at inclusion, after 1, 3, 6, and 12 months (all clinics) and then every 6 months (not clinic 3). Prostate volume was measured at inclusion and after 3 and 12 months and then yearly (clinic 2) or biyearly (clinic 1). Endpoints were change in total score on DAN-PSS-1, maximum flow rate, post void residual urine, frequency & voiding volume and prostate size.

In the statistical analysis all patients served as their own control and contributed as long as they were on study. Wilcoxon's signed rank sum test or the paired t-test were used with a significance level of 5 %.

### Results

All parameters improved clinically and statistically significant. After 12 and 24 months the median total DAN-PSS-1 score was lowered from 14 to 7 and 4 respectively, maximum flow rate increased from 8 ml/s to 11 and 11 respectively, post void residual urine volume changed from 86 ml to 63.5 and 86 ml respectively, voiding frequency/24 h decreased from 10.4 to 9 and 8.5 respectively, median voiding volume went up from 150 ml to 175 and 194 respectively and the median prostate volume was reduced from 43 cm<sup>3</sup> to 27 and 25.5 respectively. The major part of the changes took place within the first month and improvement was maintained both before PSA nadir and in most follow-ups after biochemical progression.

Biochemical progression was defined in 56 patients after median 6 months (1–60). Follow-up time after PSA-nadir was median 16 months (3–72). About 2–3 years following PSA-nadir the number of patients was low and a possible deterioration might arise. Local progression causing urinary retention, prostate resection, irradiation or indwelling catheter was seen in 7 patients (9 %) after median 18 months (range 6–48).

### Interpretation of results

The study showed a positive effect on voiding and prostate size in men with non-curable prostate cancer. The effect is significant already within the first month, and the improvement is clinically relevant and remains for years in the majority of patients on follow-up, however after 2–3 years on biochemical progression the number of patients were too low for conclusion. About 1 of ten needed treatment for local progression.

Endocrine manipulation in prostate cancer patients is indicated primarily for tumour control. The observed results may influence the choice of treatment in men with LUTS and prostate cancer in the corner, where endocrine treatment, palliative outlet surgery or watchful waiting are in question.

### Concluding message

Androgen deprivation therapy improves LUTS, objective voiding parameters and prostate volume in patients with prostate cancer. The improvement is significant within the first month and clinically relevant. Despite biochemical progression the effect may last for years, and only a minority will need intervention for local progression.

### References

1. Roehrborn CG, Siami P, Barkin J et al. The Influence of Baseline Parameters on Change in International Prostate Symptom Score with Dutasteride, Tamsulosin, and Combination Therapy among Men with Symptomatic Benign Prostatic Hyperplasia and an Enlarged Prostate. *Eur Urol* 2009;55:461-471.
2. Hansen BJ, Flyger H, Brasso K et al. Validation of the Self-administrated Danish Prostatic Symptom Score (DAN-PSS-1) System for Use in Benign Prostatic Hyperplasia. *Br J Urol* 1995;76:451-458.

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**None**

**Is this a clinical trial?**

**Yes**

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<i>Is this study registered in a public clinical trials registry?</i>	No
<i>Is this a Randomised Controlled Trial (RCT)?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Den videnskabetiske Komité for Aarhus Amt 1999/4648 (Ethical Committee of Aarhus County)
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes