

Personalised risk prediction of side effects after RARP

Helping patients to make better treatment choices



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Specialising in prostate cancer, I have worked as a nurse practitioner in urology for the last 13 years. I have seen many patients with localised prostate cancer have difficulties to make a choice of treatment.

Many treatment options are available and are dependant of prostate cancer staging categories, grading classification and PSA level [1] (Table 1) Regardless of the treatment options chosen, most patients (>95%) with localised PCa are still alive at 15 years and only 2.7% will die from PCa.[2]

In my practice I often hear patients complaining about the standardised information we give to them to help make a treatment choice. Most of the information about the side effects of treatments are indeed standardised and largely based on previous clinical studies and patient cohorts from high volume specialised PCa centres. [5] Many patients doubt their preferred treatment choice and some of them (3-4%) even do regret their choice. [4]

When Dr. N. Grivas (GR) joined our hospital for a PhD, we began to collaborate, and he inspired me about individualised predictive factors of side effects after RARP. I spoke to Prof. Van Der Poel (NL) who encouraged me to begin a PhD about this subject.

I was able to combine a PhD with my clinical work and dedicated one day a week to my research. Now after three years, I am analysing the results of my last clinical research and I hope to finish my PhD at the end of 2023.

In the meantime, I have already presented some results of my research at the EAU Congress (European School of Oncology Session) and also at the International Society for Quality of Life Research (ISOQOL) congress.

Helping patients in their choice is always a priority for me (shared decision-making). I use the Patient Reported Outcome Measures (PROMs) as a basis for interviews with patients. The results of the PROMs are important to evaluate quality of life (QoL), lower urinary tract symptoms (LUTS), and status urinary continence, erectile function, as well before treatment (baseline) as in follow-up after treatment of PCa.

Active surveillance: differed treatment in cT1-2 with ISUP 1 and PSA <10 ug/l (low risk PCa)
Watchful waiting: conservative management for patients unsuitable for curative treatments
Brachytherapy: implantation of radioactive seeds in prostate for low- or favourable intermediate-risk PCa (T1-2; ISUP 1-2)
External beam radiotherapy with or without adjuvant hormonal therapy: external radiotherapy in T1-3; ISUP 1-5
Radical prostatectomy with or without pelvic lymph node dissection: surgical extraction of prostate in T1-3 ISUP 1-5

Table 1: Treatment options for localised/locally advanced (cT1-3N0 PCa) [1]

	Active surveillance	Brachytherapy	External beam radiotherapy	Radical prostatectomy
Urinary leak	7%	26%	23%	60%
Urinary incontinence (constant dripping of urine)	1%	2%	2%	4%
Urinary urgency	24%	65%	48%	29%
Diarrhoea	9%	24%	15%	4%
Erectile dysfunction	16%	28%	56%	76%

Table 2: Most common side effects 1 year after treatment of localised PCa and incidence [3]

My thesis is divided into several sections:

1. PROMs in clinical practice

PROMs play an increasingly important role in the planning and evaluation of medical care. A high response rate is crucial to get a good view of the patient population. QoL questionnaires in oncology are important in order to evaluate the impact of the disease or the treatment of cancer patients and guide treatment decisions. The traditional way to collect data is a paper-based questionnaire sent by post. However, online questionnaires seem an attractive and cheap way to send a survey. The response rate of PROMs is higher when a reminder paper-based questionnaire is sent to the patients who do not respond to the web-based questionnaire. Elderly patients respond significantly more often than younger patients to both questionnaires (web-based or paper-based). [6]

PROMs are widely used after robot-assisted radical prostatectomy (RARP) in order to evaluate the impact/burden of the treatment. The most bothersome side effects of RARP are urinary incontinence (UI) and erectile dysfunction (ED). During the follow-up consultations, clinicians (urologists and nurse practitioners) report these

side effects in interviewing patients. Discrepancies between PROMs and clinical report outcomes (CROs) are known [7] but it is not clear if it has an impact on management of UI and ED after RARP. Results indicated that clinicians overestimated ED and underestimated UI compared to PROMs, but the observed discrepancies between the PROs and CROs did not affect offered management and counselling of UI and ED. [8]

2. Preoperative predictors

The extent of nerve preservation or fascia preservation (FP), the preoperative membranous urethral length (MUL) and the inner levator muscle distance (ILD) have been reported to affect continence recovery following robot-assisted radical prostatectomy (RARP). [9] Individualised information about the risk of UI after prostatectomy could help patients in shared decision-making. The continence prediction tool (CPRED) was developed based on MUL, ILD and FP Score 0 (no erectile nerve sparing). We compared a historical cohort that received standardised information about risk of UI after RARP and a prospective cohort that received individualised information about risk of UI

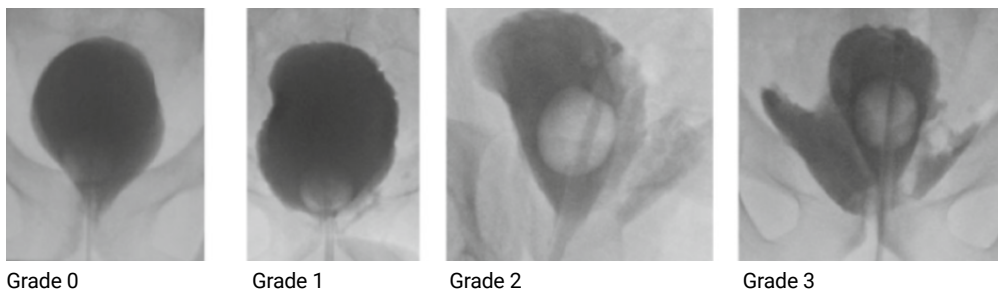


Fig. 1: Incidence and imaging appearance of urethrovesical anastomotic urinary leaks following da Vinci robotic prostatectomy

(CPRED score). Patients who received the individualised information switched more often from treatment options than patients in historical cohort. Personalised information about the risk of UI after RARP makes more patients reconsidering their initial treatment preference. The CPRED correlated strongly with continence outcome after RARP and is a useful tool for shared decision-making. [10]

The recovery of ED after RARP is also very important for patients. My last clinical research is on non-surgical predictive factors of ED after RARP. It will be innovative if we can show that some non-surgical factors have an impact on the recovery of ED after RARP and if patients could have a direct influence on factors to recover from ED after RARP.

3. Postoperative predictors

The role of a cystogram to assess the vesicourethral anastomosis (VUA) after robot-assisted laparoscopic radical prostatectomy (RARP) has been debated. Early catheter removal without cystogram was reported to be associated with a trend towards an increased risk of acute urinary retention (AUR). Leakage was scored according to Williams and Menon [11] (See Fig. 1).

A cohort of 1390 men (cohort A) that routinely underwent a cystogram after RARP was compared to a group of 120 men (cohort B) that underwent cystography 7–10 days after RARP but had the transurethral catheter (TUC) removed independent of cystography findings. The incidence of AUR and

voiding complaints was associated with grade 2–3 leakage on cystography in cohort B but not in cohort A. Grade 2–3 leakage on cystogram was more likely in men with larger prostates and preoperative voiding complaints. Selective cystogram in men with larger prostates and preoperative lower urinary tract symptoms (LUTS) may prevent early AUR and voiding complaints after RARP when prolonged TUC use is applied. [12] In the practice we now perform a cystogram after RARP only in patients with high risk of anastomosis leakage after RARP.

4. Comprehension of predictive factors by patients

In my thesis we focused on pre-, per-, and post-operative predictive factors in order to help patients with PCa. However, it is primordial to know how to communicate the predictive factors to patients. As healthcare professionals (HPs), we tend to speak in percentage with patients. How could we be sure that patients do understand the real risk of urinary incontinence after RARP? Patient consultations with nurse practitioners and urologists discussing personalised risks of UI after prostatectomy were audiotaped, transcribed, and coded. HPs always used percentages, but rarely used natural frequencies (14%). Uncertainty was disclosed in only 34% of consultations. One-third of patients used personalised risks in their treatment decision-making by either switching to another treatment or sticking to their initial preference. Patients value and use personalised side-effect risks during treatment decision-making. Clearly explaining the relationship between risk factors and personalised risk

estimates may help patients understand and recall those. HPs should not only give patients specific and precise numerical risk information, but should also put effort in explaining how the personalised side-effect risks are determined. [13]

Conclusion

My PhD is focused on the pre-, per-, and post-operative predictive factors of side effects after RARP and I hope that the results of my research will help patients to make a better treatment choice without regrets.

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“Spot-on” evidence-based urological nursing care

New research and developments

Dear EAUN members,

The growing evidence in urology nursing care is amazing!

With this column, the EAUN Special Interest Groups want to put the spotlight on recent publications in their field of interest. This month's articles have been carefully chosen because of the scientific value from PubMed and other sources and represent different methods and approaches in research and development in urological nursing care.

We hope this initiative will have your attention and continuously provide information on “spot-on” urological nursing care. If you would like to inform us and your colleagues about new initiatives or exiting developments in one of the special interest fields you can contact us using the email addresses below.

Best regards

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