**Aims of course/workshop**

Despite surgical improvement, radical prostatectomy isn’t free of complications, urinary incontinence remaining the most important. When salvage radiotherapy is applied, an additional risk factor is added. Finally, some patients develop a difficult situation: stenosis of anastomosis.

To give a comprehensive management, one should adapt to the resources available or provide a reasonable referral. Ideally this should be done in a team-based approach.

The objectives are:

1. To explain surgical techniques that decrease the risk of incontinence and diagnostic methods and treatment for incontinence.
2. To explain the role of pre and post behavioural therapy to improve the functional outcome.

**Learning Objectives**

1. Review current evidence about the usefulness of physiotherapeutic treatment previous to radical prostatectomy in the prevention of incontinence.

2. Outline a diagnostic and management scheme for patients with post-prostatectomy incontinence.

3. Explain the treatment options and timing in post prostatectomy incontinence.
IMPROVING CONTINENCE BEFORE AND AFTER RADICAL PROSTATECTOMY.

Course director: Jose E Batista Miranda.
CM Teknon and URD Urodynamic Centers. Barcelona, Spain

Speakers:

Anais Bassas.
Physiotherapist. CM Teknon, Barcelona, Spain

Kari Bo
Exercise scientist. Norwegian School of Sports Medicine
Akershus University Hospital, Norway.

Argimiro Collado Serra.


INTRODUCTION
JE BATISTA.

THINGS HAVE CHANGED IN THE LAST YEARS

1- NEW SURGICAL OPTIONS (laparoscopy/robotics) SEEMED TO REDUCE FUNCTIONAL COMPLICATIONS... BUT PATIENTS ARE STILL COMING!

2- TIMING IN PRE AND POSTOPERATIVE CARE
(Preoperative management, early postoperative intervention)

3- NEW THERAPEUTIC OPTIONS

Radical prostatectomy:
Impact on

* Urologic practice
* Resource distribution (Robotic surgery)
* Complications .

Number of procedures; difficult to assess worldwide
Some data (Diebert CM Urol Oncol 2015)
451,707 radical prostatectomies in USA (2002-09)

Personal, social and economic costs of incontinence.
The symptom is denied by patients and urologists
Late consultation
After the impact of diagnosis and treatment many patients simply “give up” with incontinence.

Economic impact:
Spain 2011, Male population: 23M.

Diapers : 355 M €
Condom catheters : 9 M€

Under reported consequences: i.e. dermatitis

PREOPERATIVE FACTORS
THAT WE CAN NOT CHANGE
(but we can choose and inform)
**PREOP FACTORS: COMORBIDITY**

<table>
<thead>
<tr>
<th>Factor</th>
<th>UNIVARIATE</th>
<th>MULTIVARIATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.024</td>
<td>0.027</td>
</tr>
<tr>
<td>BMI</td>
<td>0.140</td>
<td></td>
</tr>
<tr>
<td>Charlson</td>
<td>0.007</td>
<td>0.009</td>
</tr>
</tbody>
</table>

**OBESITY**

Van Roermund y cols. Urol Int 2009  
(BMI>30) Incontinencia 25.8% versus 8.7%

**PHYSICAL ACTIVITY**

Active and slim

26% Incontinence less likely

**PREOP. CONTINENCE**

Patient and tumour-related factors for prediction of the return of urinary continence after radical prostatectomy

539 patients

Continen @12 months

no relation

- BMI
- Previous TURP
- Previous RT
- Stage/Gleason
- Prostatic volume

+ relation

- Age
- Previous continence

**PEROP RISK FACTORS: SUMMARY**

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>CUTOFF RISK VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>age</td>
<td>&gt;65 (Novara J Urol 2010)</td>
</tr>
<tr>
<td>BMI</td>
<td>&gt;30</td>
</tr>
<tr>
<td>Prostatic volume</td>
<td>&gt;90</td>
</tr>
<tr>
<td>Comoribility</td>
<td>+++</td>
</tr>
<tr>
<td>Previous continence</td>
<td>ICIQ-Ul SF &gt;8</td>
</tr>
<tr>
<td>Urodynamic study</td>
<td>Hiperactive detrusor.</td>
</tr>
<tr>
<td>Physical activity</td>
<td></td>
</tr>
<tr>
<td>Urethral length</td>
<td></td>
</tr>
<tr>
<td>Previous TURP</td>
<td></td>
</tr>
</tbody>
</table>

**PREOPERATIVE FACTORS**

WE CAN CHANGE

CHOOSE AND INFORM

**PHYSIOTHERAPY IN THE PREOPERATIVE OF PROSTATECTOMY**

ANAÏS BASSAS PARGA

BARCELONA - SPAIN
Pelvic Floor Muscle Training (PFMT): preop and postop better than postop only?

- Patients 180 males
  - Treatment group (n=91) → started PFMT 3 weeks before surgery and continued after RP.
  - Control group (n=89) → started PFMT after catheter removal.
- Assessed:
  - 24h pad-test (daily until continence, 3 consecutive days of 0gr) / 1h pad-test
  - VAS / IPSS / King’s Health Questionnaire
- Results:
  - No difference in duration on postop UI between both groups
  - Mean time to continence was 30 and 31 days
  - Median amount of first-day incontinence was 108gr and 124gr
- Conclusion: 3 preop sessions of PFMT didn’t improve postop duration of incontinence

Is preoperative and postoperative PFMT better than postoperative PFMT only?

- 179 males
  - Treatment group (n=87):
    - 3 weeks before RP: weekly assisted BFB session and GAH + daily PFMT at home & written instructions
    - BFB contractions (1, 3, 5 seconds) + quick contractions + intense contractions + maximum strength contractions
  - Control group (n=92)

- Conclusions:
  - A programme of intensive preoperative PFMT does not guarantee complete recovery of continence, but it considerably REDUCES DURATION AND SEVERITY of SIUI after RP

Assessment

- 24h pad-test
- Questionnaires (make it simple):
  - IPSS
  - ICIQ-SF
  - OAB
  - King’s Health Questionnaire
- Urodynamics

Is preoperative and postoperative PFMT better than postoperative PFMT only?

- DB: To assess the effect of preoperative PFMT among patients undergoing radical prostatectomy, Public and private hospital comparison
  - 139 males
    - Public hospital (n=32) & Private hospital (n=107) providers of PFMT
    - ICIQ-UI SH done to assess UI at 3 months after RP
- Results/Conclusion:
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Geraerts et al. Influence of preoperative and postoperative pelvic floor muscle training compared with postoperative PFMT on urinary incontinence after radical prostatectomy: a randomized controlled trial. European Urology. 64(2013) 766-772
Is preoperative and postoperative PFMT better than postoperative PFMT only?

- 100 males
  - Control group (PFMT without BFB + verbal&written instructions in PFMT before and after surgery)
  - BFB group (PFMT with BFB 2 to 4 weeks before surgery + PFMT 4 times/day + to resume PFMT after surgery when catheter was removed)

- Contraception assessed personally/phone interviews.

- FOLLOW UP: 6 months after surgery
  - 1 or 0 pad/day 94% (44 of 47)  →  BFB group
  - 1 or 0 pad 96% (48 of 50)  →  control group

- CONCLUSION:
  - Preoperative BFB didn’t improve outcome of PFM exercises on overall continence or the rate of return of urinary control in men undergoing radical prostatectomy.

- Bales et al. Effect of preoperative BFB/PFT on continence in men undergoing radical prostatectomy.
  - Urology. 2000 Oct 1;56(4):627-30

Is preoperative and postoperative PFMT better than postoperative PFMT only?

- 284 males
  - Treatment group (n=152) → received physiotherapist-guided pelvic floor muscle training program from 4 weeks preop.
  - Control group (n=132) → received verbal instruction on PFM exercise by the surgeon.

- Postop all patients received physiotherapist-guided pelvic floor muscle training.

- 24h pad-test: Incontinence severity (>50g)
  - 6w: Treatment group 9g 8/152  no sign diff
  - 6w: Control group 17g 33/132  no sign diff

- Results
  - Preop physiotherapist-guided PFMT reduces time to continence by 28% (it reduces the duration and severity of early incontinence after RRP)

- Patel et al. Preoperative pelvic floor physiotherapy improves continence after radical retropubic prostatectomy.
- Patients Assessment Follow-up Conclusion
  - Tierfort et al. 6th International 2012 32 males Questionnaires NP pads/week NP UI episodes/week 6 months FAVOUR
  - Gerarts et al. 2013 160 males 24h pad test 1h pad test Questionnaires (FSS, VAS, King’s health Q)
  - 12 months No sign diff
  - Fürknerhorn et al. ISU Urof 2014 139 males ICIQ Questionnaire 3 months FAVOUR
  - Tuba et al. Arch Urol. 2008 98 males NP pads 2 months No sign diff
  - Collado et al. 2013 174 males 24h pad test ICIQ Questionnaire 12 months FAVOUR
  - Sales et al. Urol. 2000 300 males Remanual and phone interviews 6 months No sign diff
  - Patel et al. Int Urol 2013 284 males 24h test Severity of incontinence 3 months FAVOUR

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POSTOPERATIVE ASSESSMENT.
Jose E Batista
URD / Teknon, Barcelona

Postoperative workup
When should we start assessment?.

SURGERY SCHEDULED
physiotherapy

AFTER SURGERY
physiotherapy
No improvement in 3-6 months: URODYNAMIC STUDY
Patient perceives we consider his problem
Urodynamics:

Improved diagnosis

Improved treatment

URODYNAMICS: what we can find

FILLING PHASE:
- D.O.
- Low bladder compliance / capacity
- Normal, stable bladder

VOIDING PHASE
- Obstruction
- Under-active detrusor

FILLING PHASE ALTERATIONS

They are not all the same
350 ml capacity

56 yo Low capacity (200ml) Low compliance. No response to anticol. Good response to PTNS + phyio.

Diagnóstico postoperatorio: URODINAMIA

Mild filling phase alterations don’t affect AUS outcome.

Previous radiotherapy / low capacity / low compliance:
Bladder cycling + antichol + PTNS + re-evaluation

Diagnosis postoperative: URODYNAMIA

Mild filling phase alterations don’t affect AUS outcome.

Previous radiotherapy / low capacity / low compliance:
Bladder cycling + antichol + PTNS + re-evaluation
VOIDING PHASE ALTERATIONS

Detrusor underactivity is prevalent after radical prostatectomy. Chung DE, Can Urol Assoc J. 2012:

264 urodynamics post-RP
Detrusor underactivity 41%
Obstruction 17%
(Overactive detrusor 7%)
CONSERVATIVE MANAGEMENT

PENILE CLAMPS

A. Collado.

FACTORS DERIVED FROM SURGICAL TECHNIQUE

• Wide variation
• Each surgeon describes his/her technique...but few are willing to reproduce others’ results

“TEWARI’s COMMANDMENTS”

• Preservation of puboprostatic ligaments
• Flap “fibromuscular” retrotrigonal flap
• Preservation of Santorini’s plexus and PP ligaments
• Long urethral
• Retro-vesical flap” (Pagano)
• Sutura de “Rocco’s suture”
• Tendinous arc and puboprostatic lig. reanastomosis
Impact of Posterior Musculofascial Reconstruction on Early Continence After Robot-Assisted Laparoscopic Radical Prostatectomy: Results of a Prospective Parallel Group Trial

NO DIFFERENCES
- % incontinence
- Complications

SUMMARY...
- Urethral length
- Watertight anastomosis
- Bundle preservation
- Fascial reconstruction
- Surgical volume

A Collado.
Surgical options

Critical review of “old” and new device.

INSTITUTO VALENCIANO DE ONCOLOGIA
Valencia, Spain

SELECTION CRITERIA

Non adjustable slings
- Moderate incontinence, 24h pad test < 450 mL/d, good urethral function and mobility.

Compression devices and adjustable slings
- Moderate / severe incontinence, rigid urethra.

AUS
- Severe incontinence, no sphincter function, 24 h pad test > 450ml

SELECTION CRITERIA

ANASTOMOTIC STRicture

TURBNC 1
CLASICAL PITFALLS IN ANASTOMOTIC STRicture
• High recurrence rate
• Continence worsening.

RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Control (n=54)</th>
<th>Dilatation (n=55)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>After prostatectomy</td>
<td>37</td>
<td>39</td>
<td>0.83</td>
</tr>
<tr>
<td>After BNI</td>
<td>17</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>SUCCESS RATE</td>
<td>42%</td>
<td>87%</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
Postoperative Physiotherapy in men - what is the evidence? ICS-15

Kari Bø
Professor, PhD
Physical Therapist
Exercise scientist

Norwegian School of Sport Sciences
Dept of Sports Medicine

Akershus University Hospital
Dept of Obstetrics & Gynecology
ST Chang: Internal exercises 1984

• The «deer» exercise
  – «important to strengthen rectum and prostata
  – Cures or treats hemorrhoids
  – Cures prostate weakness, hypertrophy and cancer
  – Strengthens nerves
  – Helps erectile dysfunction and premature ejaculation»

WHAT IS THE EVIDENCE?
Conservative management for postprostatectomy UI  Anderson et al 2015

• Determine effectiveness of conservative management for UI up to 12 months after transuretral, suprapubic, laprascopic, radical retropulic or perineal prostatectomy
• Lifestyle intervention, PFMT, el.stim, magnetic chair
• 45 trials in men after radical prostatectomy, 4 trials after TURP, one trial after either operation
• 26 trials starting post-surgery
• Trials included 4717 men
• Variation in
  – interventions
  – populations
  – outcome measures
  – definition of cure
• No evidence from 8 trials that PFMT was better than control for men who had UI up to 12 months after radical prostatectomy
• No effect of PFMT after TURP
• Limited evidence of el.stim, magnetic innervation or combinations
• Studies on both treatment and prevention for all men after radical prostatectomy showed moderate evidence for reduction of UI, however data not supported by pad tests
Conclusion Cochrane 2015

• Men’s symptoms tended to improve over time regardless of intervention

• The value of various approaches to conservative management of post-prostatectomy remains uncertain
Ability to perform a correct PFM contraction

- > 30% of women unable at first consultation Kegel-48, Benvenuti et al -87, Hesse et al-88, Bø et al-88)

- 20% of men at first consultation – 8.6% at 3 months Øvergård et al -08
Effect of exercise training

• Dose response
  – type of exercise
  – duration
  – frequency
  – INTENSITY
  – ADHERENCE

• 8-12 (or fewer) close to maximum contractions x 3/ day, 3-5 times/ week
  Haskell, ACSM -07, Garber et al -11
Examples of POSITIVE results
Radical retropubic prostatectomy
Van Kampen et al 2000

• 102 men: RCT training and control (sham)
  – 15 days after surgery
  – PT once a week (biofeedback) as long as needed (el.stim/bladder training) 90 contractions/day

• Results
  – 88% versus 56% continent at 3 months
  – at one year no difference 1 h test or VAS
Effect on QoL  Zhang et al -06

• RCT: 29 men post prostatectomy
  – Control
  – Combined PFMT and support group

• Results
  – Trend towards increased functioning and reduced
    perception of illness intrusiveness in intervention
    group
  – Improved UI sign associated with ↓ depression
    and symptom distress
Physiotherapist guided PFMT after RP
Øvergård et al. 2008

- RCT: 85 men → 80 after open RP (drop-out 6%). Starting pre-operatively and immediately after catheter removal. Anal palpation
  - Control (written information 10x3 contr/day)
  - 45 min exercise class + home exercise (Bø et al. -90)

- Results
  - 3 months: no sign diff except preceived problems with urinary function
  - 12 months: 92% versus 72% continent (p=.02)
Early postoperative pelvic floor biofeedback training Ribeiro et al 2010

• 73→54 men after RP
  – PFMT with biofeedback once /week + home training for 3 months
  – Control

• Results
  – 96.2% versus 75% cured (≤ 1 pad), p=.02
  – Absolute risk reduction: 21.2 (95% CI: 3.45-38.81)
  – Relative risk of recovery: 1.3(95% CI: 1.02-1.69)
  – Numbers needed to treat: 5 (95% CI: 2.6-28.6)

• Conclusion: PFMT hastens recovery, improves severity, voiding symptoms and PFM strength
PFMT with and without biofeedback for persistent postprostatectomy incontinence

Goode et al -10

• RCT in 208 men with persisting UI > 1 year after RP. 8 weeks training period
  – PFMT + bladder control strategies
  – Same + in-office biofeedback training + el.stim
  – Delayed treatment

• Results
  – 55% and 51% reduction in incontinence episodes in treatment groups compared to controls
  – Effect durable at 12 months
  – No additional effect of adding biofeedback/el stim
Role of personal trainer Marchiori et al -10

• 332 incontinent (> 1 pad /day) after RP, starting 1 month after catheter removal
  – Control
  – Follow-up program, individual, once/week; biofeedback, el.stim

• Results
  – Continence recovery 44 ± 2 days versus 76± 4
  – Number of incontinent patients higher in control group at 3,6 and 12 months

• Conclusion: tight follow-up is important
Examples of NEGATIVE results
Verbal versus therapist-directed PFMT after RP  Moore et al -08

• RCT 205 men at 4 weeks after RP. All had verbal and written instruction
  – Weekly phone contact
  – Weekly 30 min biofeedback assisted PFMT with PT + home training

• Results
  – 8 weeks: 23% versus 20% continent
  – 12 weeks: 28% 32%
  – 16 weeks: 40% 44%
  – 28 weeks: 50% 47%
  – 52 weeks: 64% 60%
Physiotherapy versus instruction folder  Dubbelman et al -10

- RCT in 70 men after retropubic RP. Power calc: N=96. 82 randomized, 70 completed
  - Preoperative instruction & folder by PT
  - Same + 9 X 30 min with PT + 150 contractions /day postoperatively

- Results
  - 30% versus 27% continent on 1-h and 24 h-pad test (ns)
  - No difference in one hour pad test
PFMT and bladder training after RP and TURP  Glazener et al -10

• RCT in 441 men after RP and 442 after TURP
  – Standard management
  – 4 times with «therapist»

• Results
  – 92% and 85% of RP and TURP group attended «at least one session» (!)
  – RP: absolute risk diff: -1.9% (75.5% versus 77.4%)
  – TURP: absolute risk diff: 3.4% (64.9% versus 61.5%)
  – Resources better used elsewhere (?)
Erectile dysfunction  Dorey et al -04,-05

• RCT: 55 men aged > 20 with erectile dysfunction
  – Lifestyle intervention (reduce alcohol consumption, stop smoking, reduce weight, improve fitness, avoid bicycle saddle pressure)
  – Lifestyle + PFMT with biofeedback supervised by PT (5 x 30 min)

• Results
  – Sign improvement in PFMT group
  – Cross over ; 40% regained normal erectile function, 35.5% improved, 24.5% failed
Erectile dysfunction  Geraerts et al 2015
(abstract ICS 2014)

• RCT in 33 men who underwent open or robot RP with erectile dysfunction 12 months post-prostatectomy
• 3 months of PFMT
• Outcome: International Index of Erectile Function (IIEF-EF) and climacturia
• Results:
  – Significantly better erectile function in PFMT (p=0.02)
  – Climaturia significantly reduced (p=0.02)
  – No effect on orgasmatic function, sexual desire, intercourse satisfaction, overall satisfaction
Conclusion PFM training for men with UI post-prostatectomy

• Spontaneous recovery, prevalence is still high
• Exercise science?
• There is no easy way to effective training....
• Pre-operative!
• Close follow-up?
• Two RCTs on erectile dysfunction show positive results
• Can we conclude???

Thank you for your attention!