PROSPECTIVE URODYNAMIC MODEL FOR PREDICTION OF URINARY INCONTINENCE AFTER ROBOT ASSISTED RADICAL PROSTATECTOMY

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Introduction

- Robot assisted radical prostatectomy (RARP) has gained widespread use in many countries as an alternative to open and conventional laparoscopic approaches.

- We must consider the incidence of side effects. The quality of life of a significant number of patients continues to be affected by urinary incontinence (UI)
Certain prediction models for the incidence of UI after radical prostatectomy have looked at the preoperative risk factors:

- including age, comorbidities, prostate volume, and pre-existing erectile dysfunction.

These factors can contribute to produce a pre-existing bladder and sphincter dysfunction and this can be assessed objectively by a urodynamic examination (UE)
Objective

We examined the preoperative urodynamic predictors of UI at one year post RARP and designed a nomogram capable of predicting its occurrence.
Material and Methods

- Our prospective study included 58 patients who underwent RARP at our institution between May 2011 and January 2012.

- Only previously continent patients that did not undergo pre- or post-operative radiotherapy were included.
Material and Methods

- The operations were performed using the same technique by three senior surgeons with a RARP experience. No technical variations were used that could have altered the postoperative continence.

- A urodynamic examination including a urethral pressure profile, was performed preoperatively.

- Multivariate analysis was used to assess the predictors for the need to use one safety pad or more per day and a nomogram was constructed.
## Results

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>&lt;1 safety pad/d</th>
<th>&gt;1 safety pad/d</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Qmax (ml/sec)</strong></td>
<td>15.7 (3-23)</td>
<td>14.8</td>
<td>16.3</td>
<td>0.766</td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>17.2%</td>
<td>8.6%</td>
<td>8.6%</td>
<td>0.489</td>
</tr>
<tr>
<td><strong>BC (ml/cmH2O)</strong></td>
<td>30.2 (4.4-67.2)</td>
<td>38.4</td>
<td>23.6</td>
<td><strong>0.043</strong></td>
</tr>
<tr>
<td><strong>MCC</strong></td>
<td>254 (121-435)</td>
<td>256</td>
<td>244</td>
<td>0.219</td>
</tr>
<tr>
<td><strong>MUCP (cm/H2O)</strong></td>
<td>58.5 (19-68)</td>
<td>54.1</td>
<td>36.5</td>
<td><strong>0.001</strong></td>
</tr>
<tr>
<td><strong>FULL (MM)</strong></td>
<td>67.4 (24-148)</td>
<td>60.9</td>
<td>68.4</td>
<td>0.56</td>
</tr>
<tr>
<td><strong>Pdetmax (cmH2O)</strong></td>
<td>58.7 (22-98)</td>
<td>49.3</td>
<td>58.9</td>
<td>0.26</td>
</tr>
<tr>
<td><strong>Hypo contractility</strong></td>
<td>15.5%</td>
<td>8.7%</td>
<td>6.8%</td>
<td>0.179</td>
</tr>
<tr>
<td><strong>BOO</strong></td>
<td>27.5%</td>
<td>12%</td>
<td>15.5%</td>
<td><strong>0.05</strong></td>
</tr>
</tbody>
</table>
Results

Points

Bladder compliance

MUCP

BOO

Obstructed
Unobstructed/Equivocal

Total Points

Linear Predictor

Probability of incontinence

0.1 0.25 0.5 0.75 0.9
Results

- **In summary**
  - We recorded a 20.6% (12 patients) global incontinence rate at one year after RARP. Half of the patients had mild UI using 2 pads/day

  - After multivariable logistic regression, BC, MUCP and BOO, correlated well with the incidence of UI. With these predictors a nomogram has been designed

  - The accuracy of the prediction model for UI was 88.5% (C-index) with an AUC of 87.9%. The cut-off points for BC were calculated at 27.8 ml/cmH2O and for MUCP at 50.3 cmH2O.
Conclusion

- Bladder Compliance <27.8 ml/cmH2O, MUCP < 50.3 cm/H2O and the BOO are independent urodynamic factors correlating with UI after RARP.

- The new nomogram can objectively predict a patient likelihood of requiring one or more pads per day at one year post RAPP with a good accuracy.
Thank you