CHARACTERIZING NORMAL URODYNAMIC PARAMETERS IN MIDDLE-AGED and OLDER WOMEN: A NEEDLE IN A HAYSTACK?
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BACKGROUND
• Defining normal urodynamic parameters in young healthy women controls has been done (1).

• However, such definition in older women remains an unachieved goal and will challenge the development of reliable obstruction nomograms until the norm can be defined in this age group.

• Most older women have some elements of lower urinary tract symptomatology (2) which precludes calling them “normal”.

• Urodynamic changes in older women with SUI have recently been reported (3), but those are not “normal” patients either.

Aims of study
To determine urodynamic parameters in middle-aged and older women with various lower urinary tract symptoms (LUTS) who were found to have a normal study interpretation.

Study design, material and methods:
• IRB approved study
• Inclusion criteria:
  ✓ non-neurogenic women
  ✓ ≥ 40 years
  ✓ normal UDS interpretation.

• Demographic data, indications for UDS, and UDS parameters were extracted by a neutral reviewer with UDS expertise.

• 6F dual-lumen catheter (ICS guidelines) with a Laborie Aquarius XLT ™ used

• The fill-void study was frequently repeated during the same UDS session to confirm normal findings

RESULTS
• From 2000-2012, over 2200 UDS reviewed.

• N= 42 women (95%Caucasian) included

• Mean age:       63 (42-85)
• Mean BMI:       24.5 (20-37)
• Mean parity:     2 (0-4)
• 67% were post-menopausal.

• No differences found between >65 or <65 y old groups

• Main UDS findings are reported in Table 1.

Table 1. Urodynamic data

<table>
<thead>
<tr>
<th></th>
<th>Group 1 (Incontinence)</th>
<th>Group 2 (POP)</th>
<th>Group 3 (All others)</th>
<th>All groups combined 1st void</th>
<th>All groups combined 2nd void</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients studied (N)</td>
<td>16</td>
<td>12</td>
<td>14</td>
<td>42</td>
<td>28</td>
</tr>
<tr>
<td>Age (years): mean ± s.d. (range)</td>
<td>64 ± 11</td>
<td>61 ± 8</td>
<td>65 ± 14</td>
<td>63 (42-85)</td>
<td></td>
</tr>
<tr>
<td>NIF (N)</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Qmax (mL/sec): mean ± s.d.</td>
<td>22.3 ± 11.2</td>
<td>18.5 ± 9.5</td>
<td>20.4 ± 7.3</td>
<td>20.3 ± 9.3</td>
<td></td>
</tr>
<tr>
<td>VV (mL): mean ± s.d.</td>
<td>274.4 ± 170.4</td>
<td>284.0 ± 181.0</td>
<td>284.4 ± 176.9</td>
<td>281.1 ± 169.8</td>
<td></td>
</tr>
<tr>
<td>PVR (mL): mean ± s.d.</td>
<td>29.4 ± 36.9</td>
<td>65.5 ± 47.5</td>
<td>61.0 ± 127.7</td>
<td>52.5 ± 79.1</td>
<td></td>
</tr>
<tr>
<td>PFS (N)</td>
<td>16</td>
<td>12</td>
<td>14</td>
<td>35.2 ± 14.4</td>
<td></td>
</tr>
<tr>
<td>MCC (mL): mean ± s.d.</td>
<td>30.1 ± 69.1</td>
<td>355.8 ± 127.6</td>
<td>374.6 ± 196.4</td>
<td>352.3 ± 136.8</td>
<td>345.2 ± 114.2</td>
</tr>
<tr>
<td>Qmax (mL/s): mean ± s.d.</td>
<td>22.2 ± 5.9</td>
<td>17.1 ± 3.9</td>
<td>20.5 ± 10.3</td>
<td>20.2 ± 7.3</td>
<td>18.1 ± 7.1</td>
</tr>
<tr>
<td>PdetQmax (cmH2O): mean ± s.d.</td>
<td>22.5 ± 6.9</td>
<td>20.5 ± 11.6</td>
<td>20.2 ± 7.5</td>
<td>21.2 ± 8.5</td>
<td>19.9 ± 9.5</td>
</tr>
<tr>
<td>VV (mL): mean ± s.d.</td>
<td>365.3 ± 74.8</td>
<td>425.3 ± 165.5</td>
<td>405.8 ± 203.3</td>
<td>395.7 ± 150.6</td>
<td>357.8 ± 137.2</td>
</tr>
<tr>
<td>PVR (mL): mean ± s.d.</td>
<td>6.4 ± 15.3</td>
<td>1.9 ± 6.6</td>
<td>11.1 ± 32.5</td>
<td>6.6 ± 20.7</td>
<td>7.6 ± 25.6</td>
</tr>
</tbody>
</table>


REFERENCES

Interpretation of results:
• Finding normative UDS data in older women is like finding a needle in a haystack.

• We were fortunate to have a prospective UDS database with coding assigned to normative data from which to extract this much needed information.

• The strength of this data derives from consistent findings between the 1st and 2nd fill-void study on the same patients, reaffirming their coding as normal.

Concluding message
• UDS parameters from a cohort of middle-aged and older women with normal findings are now available as reference values when interpreting urodynamic studies.

• These parameters can be used for a better design of an age-matched bladder outlet obstruction nomogram.