Leak Point Pressures: Assessment and Pitfalls

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4th Friends of Israel
Urological Symposium
Tel Aviv, Israel
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Urodynamics - Why we do it?

- Symptoms and physical exam do not always correlate with
  - Injury type, extent of injury or level of injury
  - Prognosis or “danger” to upper tract function
  - UDS findings

- In Spinal Cord Injury, level of injury not always predictive of UDS*
  - Correlation of imaging and UDS not exact

*Weld and Dmochowski, 2000
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- Therefore management often dictated by UDS

*Weld and Dmochowski, 2000
Have a strategy – what are you looking for???

- Urinary incontinence
  - Detrusor overactivity
  - Compliance
  - Sphincter/Outlet
- Leak point pressures
- Incomplete emptying
  - Poor bladder contractility
  - DESD

<table>
<thead>
<tr>
<th>Storage</th>
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<td>Emptying</td>
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<tr>
<td>Normal</td>
<td>compliance/Capacity</td>
<td>Closed</td>
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<td>Emptying</td>
<td>Contractile Detrusor</td>
<td>Opens</td>
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Leak Point Pressure Definitions

• **Leak Point Pressure**: pressure, spontaneous or provoked that has caused fluid to be expelled from the bladder at the moment that it is visible outside the urethra.

• **Detrusor LPP**: detrusor pressure at which leakage is observed in the absence of strain or detrusor contraction

• **Abdominal, Cough, Valsalva LPP**: lowest value of the intentionally increased intravesical pressure that provokes urinary leakage in the absence of a detrusor contraction

Stohrer, et al, NUU, 1999
Clinical Significance of ALPP

- No clear consensus on value of UDS to SUI treatments or altering surgical approaches
- No clear correlation between severity of SUI (by either ALPP or UPP) to choice of surgical technique
- Little evidence correlating severity of SUI to success of most common treatment options
- Additional urodynamic parameters might provide prognostic information regarding risk of voiding dysfunction postoperatively and possibility of urge related leakage post ant-incontinence surgery

Lemack, G 2004
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Lemack,G 2004
Detrusor Leak Point Pressure (DLPP)

- Measurement of the resistance of the urethral outlet (sphincter) to detrusor pressure as an expulsive force

- Unable to adequately assess if outlet is incompetent

- This is not and should be clearly differentiated from a Abdominal leak point pressure/ALPP
Cough/Leak
Cough/Leak
Foley placed to occlude outlet
Foley placed to occlude outlet
Cough Associated Detrusor Overactivity

- New from 2016 ICS UDS guidelines
- Cough Associated DO (aka stress induced DO)
  - Reported when onset of the DO occurs immediately following the cough pressure peak
  - Precise patho-physiology remains speculative

2016 ICS Good Urodynamic Practices
Important to demonstrate leak

Distinguish between leak due to poor outlet and poor bladder

Be able to identify when both bladder and outlet are compromised