UK Consensus on Bladder Management in MS

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A UK consensus on the management of the bladder in multiple sclerosis

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Aims

• Pathophysiology of bladder dysfunction in MS

• Queen Square management practice prior to Consensus

• UK Consensus 2008 on Bladder Management in MS
S2-4 in cauda equina
pelvic & pudendal ns
How full is my bladder? Is this the right time and place to void?
Multiple Sclerosis
S2-4 in cauda equina

pelvic & pudendal ns
Result

• Involuntary bladder contractions
• Small capacity
• Incomplete emptying
Urinary symptoms (%) of 170 patients with MS

- Urgency: 85%
- Frequency: 82%
- Urge incontinence: 63%
- Nocturnal enuresis: 14%
- Hesitancy: 49%
- Interrupted stream: 43%
- Incomplete emptying: 34%
1st Line Treatments
antimuscarinics

- urgency &

frequency

+ residual volume
Algorithm for the management of early urinary symptoms in MS:

1. Measure PVR
2. If PVR < 100mls, yes; if no, teach CISC
3. Teach CISC
4. Treat with antimuscarinics
5. If better, yes; if no, continue treating
6. Continent

Fowler 1996
Effect of raised post micturition residual volume and antimuscarinics on bladder dysfunction
Measurement of post-micturition residual volume by US
Raised PRV

Continence Advisor to assess for teaching clean intermittent (self) catheterisation.
Mainstay treatment Detrusor Overactivity (DO) causing urgency incontinence

Anticholinergics (= antimuscarinics)

- Propiverine
- Oxybutynin
- Tolterodine
- Trospium chloride
- Solifenacin
- Darifenacine
- Fesoterodine
How much does it cost?

Cost for 28 days treatment (prices from MIMS/Drug Tariff December 2004)

- Solifenacin 10 mg od: £36.04
- Solifenacin 5 mg od: £27.72
- Oxybutynin 10 mg qd: £23.03
- Oxybutynin 5 mg tds: £13.68
- Oxybutynin 2.5 mg tds: £4.83
- Tolterodine 4 mg qd: £29.03
- Tolterodine 2 mg bd: £30.56

N.B. Doses shown are for general comparison only and do not imply therapeutic equivalence.

NHS

Wolfson Unit,
DDAVP

- Desmospray
- Desmotabs
  - once/24 hours
  - restrict fluids
  - extreme care in >60 years old
  - not indicated with ankle swelling
Progression of MS and treatment options for bladder management

- Walking unaided: Antimuscarinics +/- DDAVP
- Walking mostly without aids: Antimuscarinics + CISC Buzzer +/- DDAVP BoNT/A
- Walking mostly with aids: Antimuscarinics + CISC/IDC BoNT/A
- Chairbound: Antimuscarinics + CISC/IDC BoNT/A
- Bedbound: IDC
Course of MS

Relapsing-remitting

EDDS4

Secondary progression

EDDS6

Clinical threshold

Brain volume

Inflammation

Axonal loss

Frequent inflammation, demyelination, axonal transection plasticity and remyelination

Continuing inflammation, persistent demyelination

Infrequent inflammation, chronic axonal degeneration and gliosis

Compston and Coles, 2002
2nd Line Treatments

B.Schurch, M.Stohrer, G.Kramer, DM Schmid, G.Gaul and D.Hauri

J.Urology, 164: 692-697, 2000
“Dasgupta Method” at Queen Square

- Flexible cystoscopy i.e. an outpatient procedure
- Ultra-fine flexible needle
- Local anaesthetic

Harper et al., BJU Int 2003
BNTX/A treatment in MS

- **Results**
- 43 patients with intractable NDO due to MS treated
- 39 women : 4 men
- Mean age 45.8 years (range 33 – 61)

- 65.1% (28/43) performing clean intermittent catheterisation (CISC) pre-treatment
- 2 patients with indwelling catheters treated

- Subjective discomfort score 3.4 (range 0.5 – 9)

Kalsi et al., 2007
Voiding diary results

**1st Injection**

**Incontinence**

- PRE: 5
- 4/52: *
- 16/52: *

**Frequency**

- PRE: 15
- 4/52: *
- 16/52: *

* $P < 0.0001$

Kalsi et al., 2007
Urgency

1st Injection

2nd Injection

* P <0.0001

Kalsi et al., 2007
Despite 42/43 needing to do CISC
UDI 6 Scores
NDO/MS

![UDI 6 Scores Graph]

- PreBoNT/A 1: p<0.001
- PreBoNT/A 2: p<0.001
- PreBoNT/A 3: p<0.001
- PreBoNT/A 4: p<0.001
- PreBoNT/A 5: p<0.001
- PostBoNT/A 1: p=0.016
Inter injection interval in MS patients
Median inter injection interval
(NDO/MS)

p=0.6; 12.6 months
Urine
(pH changes, temperature changes, mechanical stretch)

TRPV1

P2X3

NK1

M2

M3

ATP

ACh

SP

ATP/ACh

NGF

b1

mf

det

Apostolidis, Dasgupta, Fowler: Eur Urol 2006
• single injection of Botulinum toxin A to treat detrusor sphincter dyssynergia in patients with MS did not decrease post voiding residual urine volume

Gallien et al, 2005
Upper urinary tract damage in patients with MS

- much less common than following traumatic spinal cord injury
- may occur in men with MS who have long term indwelling catheters, DH+DSD, recurrent UTIS
- urinary symptoms in the majority of patients with MS can be managed without invasive urological investigations.
Algorithm B: Voiding Dysfunction

1. UT symptoms
2. PVR
3. Acceptable?
4. Anti-cholinergics
5. Symptoms resolve?
6. End
7. NO
   - Urodynamics with or without imaging
8. Normal
9. DSD
10. Treatment of DSD
11. Detrusor hyperreflexia
12. Behavioral techniques: medication
13. Areflexia
14. Symptoms resolve?
15. End
16. YES
   - Treatment of DSD
   - Behavioral techniques: medication
17. IC
18. YES
   - Urology consult
19. NO
**Neurogenic bladder in multiple sclerosis:**

**ASYMPTOMATIC PATIENT**
- Minimal evaluation
  - Specific questionnaire of VUD
  - Post void residual
- Micturitional symptoms?
  - No
  - Yes
- Minimal evaluation at each MS follow-up visit
  - Specific questionnaire of VUD
  - Post void residual

**SYMPTOMATIC PATIENT**
- Neuro-Urologic physician
- Baseline evaluation
  - 3-days voiding chart
  - Urinary Echoigraphy
  - Urine bacteriology
  - Urodynamic study
  - Urinary creatinin clearance
  - Quality of Life related to VUD
- Analysis of risk factors
  - Risk-free patient
    - Annual evaluation
      - 3-days voiding chart
      - Uroflowmetry
      - Post void residual
  - Risk patient
    - Annual evaluation
      - 3-days voiding chart
      - Post void residual
      - Urinary echoigraphy
      - Urinary creatinin clearance
      - Quality of Life VUD
      - Urodynamic(s) (1 to 3 year)
- Change in risk factors?
  - No
  - Yes
    - Urodynamics every 3 years
    - Upper Urinary tract deterioration
      - Multidisciplinary consideration
      - Complementary exam
    - Risk of bladder cancer
      - Annual cystoscopy
      - Annual cytology

Recommendations for diagnosis and follow-up of neurogenic bladder in MS.

*de Seze et al., 2007*
UK Consensus Panel for Management of the Bladder in MS

Friday 1st Feb 2008
King's Fund, 11–13 Cavendish Square
Urodynamic investigations with filling cystometry and pressure/flow studies of voiding should be carried out only in those who are refractory to conservative treatment or bothered by their symptoms and wishing to undergo further interventions (Grade D).

UK Consensus Panel 2008
General approach to lower urinary tract dysfunction in MS

- Patients complaining of lower urinary tract symptoms should be assessed by a suitably trained health care professional, who is knowledgeable about MS and its effects on lower urinary tract function.
- Patients should be periodically reviewed for new or changing lower urinary tract symptoms.
Investigations for planning management

- Dipstick urine testing: any patient with lower urinary tract symptoms
- Measurement of post void residual volume:
  - Initial evaluation
  - For any patient prior to treatment
  - Suspicion of incomplete emptying
UK Consensus Panel 2008
Progression of MS and treatment options for bladder management

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Time
Treatment in Early Stages

- Physical interventions such as pelvic floor exercises, may be effective for overactive bladder symptoms.
- Desmopressin is effective for treating day time frequency or nocturia; should be prescribed with caution.
- Any symptomatic patient with residual volume > 100 ml should be taught CISC, preferably by a urology specialist nurse or continence advisor.
- Anticholinergics should be started after checking the post void residual urine.
- In the cognitively impaired, anticholinergics should be prescribed with a warning for developing confusion or memory deterioration.
- Credé's manoeuvre is usually not encouraged.
Voiding Dysfunction: other alternatives?

- Suprapubic vibration
- Level Ib evidence in patients with DSD
- Effect is limited
Treatment in Intermediate Stage

• If patients continue to be symptomatic, botulinum toxin A should be recommended in patients with detrusor overactivity, if they are willing to perform clean intermittent self catheterisation.

• However this treatment is currently unlicensed and local approval must be obtained.
Treatment in Advanced Stage

If clean intermittent self catheterisation is no longer possible, a long term indwelling catheter should be offered-suprapubic rather than urethral catheter.
Between 01/09/2005 and 30/06/2009, 259 incidents were reported to the NPSA relating to the insertion and management of suprapubic catheters. Of these, nine resulted in bowel perforation – three deaths and seven cases of severe harm.

<table>
<thead>
<tr>
<th>Degree of harm</th>
<th>No. of incidents</th>
<th>Bowel perforation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Severe harm</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Moderate harm</td>
<td>18</td>
<td>0</td>
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<tr>
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<td>104</td>
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<tr>
<td>No harm</td>
<td>127</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>259</td>
<td>9</td>
</tr>
</tbody>
</table>
UTI

MS relapse

Accumulating deficit
Neuro-urology

Botulinum Toxin A Detrusor Injections in Patients with Neurogenic Detrusor Overactivity Significantly Decrease the Incidence of Symptomatic Urinary Tract Infections

Xavier Gamé a,*, Evelyne Castel-Lacanal b, Youssef Bentaleb a, Isabelle Thiry-Escudie b, Xavier De Boissezon b, Bernard Malavaud a, Philippe Marque b, Pascal Rischmann a

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b Service de Médecine Physique et de Réadaptation, CHU Rangueil, Toulouse, France
Urinary tract infections

• Urinary tract infections may lead to exacerbation of neurological symptoms
• Cranberry preparations may reduce likelihood of infections
• Urine should not be routinely tested if doing CISC, unless the patient has symptoms suggestive of infection
• Cystoscopy and ultrasound should be carried out in patient with recurrent urinary tract infections, to exclude underlying abnormalities such as bladder stones
• If no cause is identified, it is reasonable to start low dose antibiotics prophylactically
When should urology services be involved?

- Haematuria
- Frequent urinary tract infections
- Symptoms refractory to treatment
- Consideration for intradetrusor injections of Botulinum toxin A
- Long term suprapubic catheter required
- Rarely consideration of surgery (for stress incontinence or ileal conduit)
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Staff in Uro-Neurology

Members of the consensus panel