The Bladder – A Neuro-urology update

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North West Regional Spinal Injuries Centre
What are we dealing with

- Spinal Injuries
- Progressive Neuropathies - MS
- Parkinson’s Disease & MSA.
- CVA / Stroke

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SPINAL CORD INJURY

• An ailment not to be treated

• Edwin Smith papyrus - 2500 BC
SPINAL CORD INJURY

- Renal deaths in SCI are directly due to bladder physiology – Bors 1954
- 2% patients with balanced bladders; 31% with unsatisfactory bladders die of renal failure – Guttmann 52

- Factors important in improving mortality
  - improved techniques of catheter & catheter free management
  - reduction of infections & the sparing use of antibiotics
  - appropriate application of video urodynamics

- **Bladder management is vital**
Guidelines - Stages of Management

• Immediate Management
  Resuscitation - period of IDC

• Early Management
  (2/52) IC instituted if appropriate

• Intermediate management
  (2-12/52) rehab progresses – urological options discussed, trialled

• Long term management
  care beyond 12 weeks
Bladder Management

**Immediate management**

- Early urethral catheterisation – monitor urine output; avoid traction on the catheter – waist band / G strap
- Sepsis- closed drainage systems;
- Free drainage, avoid overdistention.

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Bladder Management

• **Early Management (0-2/3 weeks)**
  - Multidisciplinary involvement
    - Center choice; urologist
  - Discuss catheter free management
    - Family / Carers involvement
  - IC By the care team Early - CISC/CIC
    - Partner/ children involved
• IDC – Identify problem group
Bladder management

**Intermediate management - 12 weeks**

- Continue with CIC / CISC
  
  *Consider VUDS; hygiene.*

- Triggered/ reflex/ straining/normal voiding
  
  *Teach the carers, fluid management*

- Sheath/ pads with residue monitor
  
  *Consider UT screening / infrequent IC,*

- When IDC required – convert to SPC
  
  *Cheap and cheerful*
Bladder Management

**Long term management**

- AIM TO KEEP THE BLADDER SAFE
- NDO/ Poor compliance
  - Antimuscarinics, BoTox, Surgery
- Urodynamic stress incontinence
  - Treat; colposuspension/tapes; AUS
- Emptying
  - CIC; reflex;
- IDC – convert to SPC – consider urostomy
Options for the Neuropathic bladder

• “Normal Voiding” Including Reflux void, Controlled incontinence
• ISC With/without Reconstruction
• SARC +/- ISC
• Sheaths/ Condoms
• Urostomy, continent/incontinent
• IDC; SPC/ Urethral
Multiple Sclerosis

- Autoimmune induced focal neuronal demyelination with axonal sparing
- Bladder involvement in up to 90%
- UI 40-70%
- Essentially: storage failure due to detrusor overactivity; voiding may also be impaired
- Variable bladder symptoms
- Very dependent on the neurology
Multiple Sclerosis - patterns

- Detrusor hyperreflexia & striated sphincter synergia ~ 35%
- Detrusor hyperreflexia & striated sphincter dyssynergia ~ 29%
- Detrusor areflexia ~ 26%
- Sensation is frequently intact
- Careful to differentiate urodynamic pseudodyssynergia* from true striated dyssynergia

* (EMG sphincter flare during cystometry that is secondary to attempted inhibition of an involuntary bladder contraction by voluntary contraction of the striated sphincter)
MS Management

- VUDS – keep the bladder empty
- US scans prevent UT distention
- MSU – only if symptomatic infections
- Avoid Catheters
- Avoid reconstruction
- Symptom control with minimal intervention.
Parkinson’s Disease

- Dr James Parkinson 19th century GP (UK)
- Neurodegenerative process
- 3% of persons >65 years
- Dopamine deficiency – nigrostraital pathway
- Resting tremor; skeletal rigidity; bradykinesia
- Defining feature – resting tremor responding to levodopa & Lewy body (neuronal intracytoplasmic inclusion body)
Parkinson’s & the bladder

- Voiding dysfunction is seen in 75% of sufferers
- 75% - urgency/frequency/nocturia/urge
- 25% - + obstructive symptoms

- Commonest urodynamic finding
- Detrusor overactivity
- Synergistic Sphincter relaxation
- Frequently associated with Atonic Detrusor
Parkinson’s & bladder physiology on VUDS

- However:
- Sporadic involuntary activity in the striated sphincter during involuntary contractions does occur
- Pseudodyssynergia
- If this occurs with a delay in striated sphincter relaxation
- Urodynamically – interpreted as dyssynergia
PD or MSA

- Progressive neurodegenerative disease
- Voiding dysfunction predate – up to 4 yrs.
- Urgency – Incontinence common + ED
- Orthostatic hypotension
- Cerebellar dysfunction
- Anhidrosis (lack of sweating)
PD / MSA - management

- Video urodynamics mandatory

**WITH MSA**

- Open bladder neck and poor detrusor function – DO NOT TURP

- Management difficult – CISC best option

- Pontine lesions may lead to DSD

- Sacral lesions may lead to atonic bladder

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Gupreet Singh - BGS Bladders and Bowel Health 2012
CVA

- >60 years incidence is 60 per 1,000
- 75% survive
- 10% – require institutional care
- 10% - no deficit
- 40% - mild residual deficit
- 40% - significant disability
CVA & the bladder

- Effects on voiding depend on location of insult & extent
- Supra pontine lesions – synergistic sphincter
- Initial insult – retention may occur
- After a few weeks – fixed deficit
- Admission incontinence -79%
- Discharge incontinence 25-28%
Clinical manifestations

- Essentially:
- Failure to store urine due to bladder overactivity and treatment is aimed at increasing bladder capacity and reducing contractility
- Males with pre CVA symptoms of BPH:
- Urodynamics are advised to exclude detrusor overactivity + impaired contractility before considering TURP
Clinical manifestations

- 36% nocturnal frequency
- 29% – urge incontinence
- 25% - urgency alone
- 13% - frequency
- 6% - enuresis
- 6% - acute retention
- Detrusor areflexia is common ~ 20%
- Smooth sphincter is unaffected
Conservative

- Behavioral therapy
  Triggered reflex voiding
  Bladder expression (Crede and Valsalva manoeuvre)
  Behavioral methods Toileting assistance
  - Catheters
    Intermittent catheterisation
    Indwelling catheterisation
    Condom catheter and external appliances
- Pharmacotherapy
  Alpha blockers;
  Anti muscarinic - Botox
- Electrostimulation
  Electrical Neuromodulation
  Electrical stimulation of the pelvic floor musculature
  Intravesical electrical stimulation (IVES)
Conclusion.

Multi-disciplinary approach
Preservation-Renal function
Objective – VUDS
Consider cognition and EDSS
Conservative treatment
Individualise treatment
Surgery – rare and last resort
Thank You.