

Key Competency 5: Neurogenic Bladder Management

Through discussion and observation, workbook completion and Q&A, the healthcare professional must demonstrate;

1.0 Knowledge and understanding of the anatomy, physiology and function of the genitourinary system

1.1 Demonstrate knowledge and understanding of the structure and function of the male and female genitourinary system including;

- 1.1.1 Upper Urinary tract
 - Kidneys
 - Ureters
- 1.1.2 Lower urinary tract
 - Bladder (detrusor, trigone)
 - Urethral sphincter
 - Urethra
- 1.1.3 Vascular supply
- 1.1.4 Nervous supply
- 1.1.5 Lymphatics
- 1.1.6 Pelvic floor muscles /complex
- 1.1.7 Endocrine system
- 1.1.8 Reflexes
- 1.1.9 The prostate

1.2 Describe the mechanisms for normal bladder function (bladder cycle):

- 1.2.1 Filling and storage (urine production)
- 1.2.2 Voiding (normal micturition)
- 1.2.3 Termination of voiding
- 1.2.4 Differences between underactive and over active bladder

1.3 Describe the neurological conditions that can affect the lower urinary tract function, including congenital, acquired, progressive/degenerative.

- 1.3.1 Brain conditions (suprapontine lesions/diseases)
- 1.3.2 Supra-sacral spinal cord conditions/lesions/diseases
- 1.3.3 Sacral spinal cord/peripheral nerve conditions lesions/diseases

1.4 Describe the typical patterns of neurogenic bladder and sphincter dysfunction of the lower urinary tract;

- 1.4.1 Brain conditions (Suprapontine lesions/diseases)
- 1.4.1 Classifications
 - Overactive (spastic)
 - Underactive (flaccid)
 - mixed
- 1.4.2 Patterns associated with;
 - Supra-sacral spinal cord conditions/lesions/diseases
 - Sacral spinal cord/ peripheral nerve conditions/lesions/diseases

1.5 Describe and discuss the pathophysiology of a neurogenic bladder in relation to;

- 1.5.1 Lesions above L1
 - Hyper-reflexia/Overactive
 - Neurogenic detrusor overactivity
 - Detrusor sphincter dyssynergia
- 1.5.2 Lesions Below L1
 - Detrusor areflexia

1.6 Describe and discuss how Spinal cord injury (including Cauda Equina Syndrome (CES) and metastatic cord compression (MSCC) can affect bladder function in relation to;

- 1.6.1 Spinal shock
- 1.6.2 Sympathetic and parasympathetic function
- 1.6.3 T6 level
- 1.6.4 Complete and incomplete cord injury

2.0 Bladder assessment of the spinal cord injured patient

2.1 Undertake the following assessments and discuss the rationale for each;

History taking

- 2.1.1 Past history
- 2.1.2 Present history
- 2.1.3 Specific urinary history
- 2.1.4 Bowel history
- 2.1.5 Sexual history
- 2.1.6 Neurological history
- 2.1.7 Patient quality of life questionnaires
- 2.1.8 Accurately document information

2.2 Undertake the following assessments in a safe manner and discuss the rationale for each (observational assessment);

Physical examination

- 2.2.1 Lumbosacral dermatomes (S1 – S5)
- 2.2.2 Cutaneous nerves (T12 – S5)
- 2.2.3 Reflexes
 - Bulbocavernosus
 - Perianal/anal reflex
 - Knee
 - Ankle
 - Planter responses (Babinski)
- 2.2.4 Anal Sphincter tone
- 2.2.5 Prostate palpation
- 2.2.6 Descensus (prolapse) of pelvic organs
- 2.2.7 Accurately document findings/neurological status

2.3 Undertake the following procedures in a safe manner in line with standards of practice (Observational assessment);

***Refer to your local policies, procedures and competencies documents**

- 2.3.1 Bladder scan
- 2.3.2 Catheterisation (in-dwelling/IC/SPC)
- 2.3.3 Flip flow regimen
- 2.3.4 TWOC
- 2.3.5 Uro-analysis/dipstick test
- 2.3.6 Blood test/interpretation

2.4 Observed practical assessment to include undertaking the following in a safe and professional manner;

- 2.4.1 Gain appropriate consent
- 2.4.2 Chaperone as required
- 2.4.3 Provide explanation of the procedure to the patient
- 2.4.4 Risk assessment
- 2.4.5 Understand any contra-indications
- 2.4.6 Prepare required materials/equipment/environment
- 2.4.7 Maintain dignity and privacy (including use of chaperone if required)
- 2.4.8 Appropriate communication methods
- 2.4.9 Note baseline observations/assessment findings (i.e. BP, bladder scan)
- 2.4.10 Interpretation of baseline observations/assessment
- 2.4.11 Good hand hygiene and correct PPE

- 2.4.12 Position patient in correct position for procedure
- 2.4.13 Perform systemic examination
- 2.4.14 Ability to minimise unnecessary discomfort, when not to proceed/abandon an assessment
- 2.4.15 Note any physical abnormalities of vaginal/penis/urethra on visual inspection or examination
- 2.4.16 Note genital/perianal sensation
- 2.4.17 Note any smell/discharge present
- 2.4.18 Note if anal tone is present or absent
- 2.4.19 Note if voluntary anal contraction is present or absent
- 2.4.20 Appropriately dispose of equipment and waste
- 2.4.21 Repeat observations/assessment findings post-procedure
- 2.4.22 Interpretation of observations/assessment
- 2.4.23 Discussion with the patient
 - Findings of assessment
 - Likely causes of symptoms
 - Implications of condition
 - Risks identified
 - Potential conclusions/differential diagnosis
 - Need for further investigations
- 2.4.21 Accurately document findings
- 2.4.22 Initiate further investigations/onwards referrals as appropriate
- 2.4.23 Provide relevant information to patient

NB: To combine the bladder assessment with assessment of the neurogenic bowel

3.0 Neurogenic bladder care of the spinal cord injured patient

3.1 Describe the key aims of treatment in patients with neurological problems affecting the urinary tract in relation to;

- 3.1.1 Protection and preservation of kidney function (UUT)
- 3.1.2 Improvement/maintenance of urinary continence or control
- 3.1.3 Improvement in lower urinary tract (i.e. bladder and urethral) function
- 3.1.4 Bladder management
- 3.1.5 Improvement in the patient's quality of life
- 3.1.6 Infection prevention and control
- 3.1.7 Autonomic dysreflexia

3.2 Describe and discuss the possible complications of the neurogenic bladder including the causes, inappropriate management, signs and symptoms of urinary tract dysfunction in relation to;

- 3.2.1 Renal impairment
 - Underactive bladder/urethral sphincter
 - Overactive bladder/ urethral sphincter
- 3.2.2 Upper urinary tract
 - Renal failure
 - Kidney stones
 - AKI/CKD
- 3.2.3 Lower urinary tract
 - Storage impairment
 - Voiding impairment
 - Bladder stones
- 3.2.4 Red flags
 - Haematuria
 - Recurrent UTI's
 - Loin pain
 - Recurrent catheter blockages
 - Hydronephrosis/kidney stones on imaging
 - Biomechanical evidence of renal deterioration
- 3.2.5 Control
- 3.2.6 Infections/UTI
- 3.2.7 Autonomic dysreflexia
- 3.2.8 Quality of life
- 3.2.9 Bladder cancer

3.3 Demonstrate knowledge and understanding in line with evidence-based practice the recommended treatment options for the neurogenic bladder, including rationale, indications and complications of each

- 3.3.1 Intermittent catheterization/Intermittent self-catherization
- 3.3.2 Indwelling catheter
- 3.3.3 Urethral
- 3.3.4 Suprapubic
- 3.3.5 Credé and Valsalva
- 3.3.6 Reflux voiding
- 3.3.7 Pharmacological
- 3.3.8 Alpha blockers
- 3.3.9 Botulinum Toxin injections
- 3.3.10 Surgical options
- 3.3.11 Urethral stents
- 3.3.12 Transurethral sphincterotomy
- 3.3.13 Bladder augmentation

- 3.3.14 Urinary diversion
- 3.3.15 Electrical stimulation

3.4 Demonstrate knowledge and understanding through discussion, with reference to the evidence base; (in line with local standards of practice)

- 3.4.1 Patient assessment (as above)
- 3.4.2 Adaptation of patient assessment in line with the patient's health status
- 3.4.3 Purpose of relevant baseline observations and tests (including why they are required, how and when to perform them and the possibility of false results)
- 3.4.4 How to interpret and act on the findings (baseline observations, tests and clinical examination of individuals with bladder and/or bowel dysfunction)
- 3.4.5 What further investigations and interventions that may be required for bladder dysfunction and why
- 3.4.6 Effects of certain medication on lower urinary tract function including continence status
- 3.4.7 How lifestyle, diet and fluids affect bladder and bowel function
- 3.4.8 Escalation processes
- 3.4.9 Early recognition and management of complications
- 3.4.10 Appropriate onward referrals
- 3.4.11 Provide explanation of procedures and findings
- 3.4.12 Shared decision making with regards to treatment options and on- going management
- 3.4.13 Provide/offer appropriate patient information/support and signposting to relevant charities/professional bodies.
- 3.4.14 Follow up requirements
- 3.4.15 Patient training, support and review of relevant bladder management systems
- 3.4.16 Standards of care (local procedures clamping, TWOC, SCI protocol for intermittent self - catheterization)

*To combine with local policies and procedures for catheterisation

4.0 Management of the neurogenic bladder

4.1 Describe and discuss the management options and their rationale for neurogenic urinary tract systems and their application to practice;

- 4.1.1 Observation
- 4.1.2 Timed voiding
- 4.1.3 Catheter (indwelling/ISC/super-pubic)
- 4.1.4 Pharmacological
- 4.1.5 Surgical Options
- 4.1.6 Bladder training
- 4.1.7 Pelvic floor physiotherapy

- 4.1.8 Fluid management and lifestyle modification
- 4.1.9 Botox injections
- 4.1.10 Information and support
- 4.1.11 Bladder diary
- 4.1.12 Urine testing
- 4.1.13 Measurements of the bladder
- 4.1.14 Co-ordination and implementation with other professionals
- 4.1.15 Recognize the increased risk of renal tract complications

4.2 Demonstrate through discussion essential knowledge, factors to be taken into consideration when determining the best treatment, and its application to practice.

- 4.2.1 The patient's quality of life and aims for treatment
- 4.2.2 The specific neurological condition and its prognosis or likelihood of progressive disability
- 4.2.3 The patient's mobility and level of independence and self-care
- 4.2.4 The patient's hand and eye function and potential ability to perform intermittent self-catheterisation
- 4.2.5 The patient's cognitive function
- 4.2.6 Care support and assistance in continence management
- 4.2.7 The severity of the neurological abnormality affecting the bladder and its potential to cause deterioration in kidney function and bladder function
- 4.2.8 MDT discussion, decision making process on treatment recommendations
- 4.2.9 Formulation of a treatment plan (Patient involvement)
- 4.2.10 Transfer of documentation for on-going care
- 4.2.11 Access and referral to specialist care for advice and on-going monitoring/long term renal surveillance (SCI unit, Urology)
- 4.2.12 The impact of pregnancy and childbirth on bladder dysfunction

Appendix 1. Recommended Reading

- 1) NICE Clinical Guideline 148- Urinary incontinence in neurological disease: Management of lower urinary tract dysfunction in neurological disease. August 2012.
<https://www.nice.org.uk/guidance/cg148/evidence/cg148-urinary-incontinence-in-neurological-disease-full-guideline3>
- 2) Ku JH, Choi WJ, Lee KY, Jung TY, Lee JK, Park WH, Shim HB. Complications of the upper urinary tract in patients with spinal cord injury: a long-term follow-up study. Urol Res. 2005 Dec;33(6):435-9. doi: 10.1007/s00240-005-0504-4. Epub 2005 Nov 30. PMID: 16317536.
<https://link.springer.com/content/pdf/10.1007/s00240-005-0504-4.pdf>
- 3) Neurogenic bladder: Royal National Orthopaedic Hospital
<https://www.rnoh.nhs.uk/services/spinal-cord-injury-centre/medical-management-advice/neurogenic-bladder>
- 4) Clinical Practice Guideline: Spinal Cord Medicine. Bladder management for adults with spinal cord injury: A clinical practice guidance for healthcare professionals. Spinal Cord Medicine, 2006.
- 5) Abrams P, Agarwal M, Drake M, El-Masrit W, Fulford S, Reid S, Singh G, Tophill P. Lower Urinary Tract: A proposed guideline for the urological management of patients with spinal cord injury. BJU International 2008.
- 6) <https://www.hollister.co.uk/engb/continencecare/continencecareprofessionalresources/urinarysystemelearning>
- 7) National Institute for Health and Care Excellence: Metastatic Cord Compression in Adults: Risk assessment, diagnosis and management. Clinical guideline 2008.
www.nice.org.uk/guidance/cg75
- 8) British Association of Spinal Cord Injury Specialists (BASCIS), Multi-disciplinary Association of Spinal Cord Injury Professionals (MASCIP) and Spinal Injuries Association (SIA) joint statement on Autonomic Dysreflexia (2017) <https://www.mascip.co.uk/wp-content/uploads/2019/01/Statement-on-Autonomic-Dysreflexia-2017.pdf>
- 9) Patient information: Neurogenic bladder <https://patient.info/doctor/neurogenic-bladder>
- 10) RCH Bladder and Bowel Learning Resource on Bladder and Bowel Care <https://rcni.com/hosted-content/rcn/continence/home>
- 11) International Spinal Cord Injury Society (ISCoS) Recommended Knowledge and skills Framework for Spinal Cord Medicine. 2015
- 12) Agency for Clinical Innovation. Management of the Neurogenic Bladder for Adults with Spinal Cord Injuries. 2014