Continence Advisory Panel (CAP)

Guidelines for Quality and Sustainable Bladder Management in the Neurogenic Bladder Patient in South Africa

Background

Recent research of the standard of care and related quality of life of the (mainly) spinal cord injured/afflicted (SCI/SCA) community in South Africa, has revealed significant gaps in practice and challenges regarding levels of care and access to services and supplies specifically related to the neurogenic bladder. [1]

There is some evidence that the type of bladder management method and also the types of catheters used may have an impact on the risk of urinary tract infection (UTIs). Prevention of UTIs is a major goal of bladder management. Education on proper catheterization techniques and care is essential. There is evidence that, as a population, people with disabilities experience poorer health outcomes than the general population. People with SCI/SCA are at a high risk of secondary conditions such as pneumonia, pressure ulcers and UTIs. These conditions frequently lead to hospitalization and can also result in increased costs for care, reduced employability, decreased quality of life and lowered life expectancy. [2]

In response to this, the Continence Advisory Panel (CAP), under the auspices of the Southern African Spinal Cord Association (SASCA) has produced this guideline to further evidence-based bladder management (mainly in SCI/SCA) that ensures social continence and appropriate and safe drainage of the neurogenic bladder. We thereby aim to prevent unwanted and costly bladder complications (i.e. infections, stones, renal reflux and scarring).

It has been drawn up in South Africa with the input of clinicians working in the fields of urology - specifically in the field of SCI/SCA, with reference to well researched existing international clinical guidelines and research.

The aims of this guideline are in line with our vision to:

- Establish the standard of care for people living with SCI/SCA, specifically relating to continence who want to lead active and fulfilling lives.
- To improve access to continence care for Southern Africans through education, advocacy and service, thereby improving the standard of care, dignity and quality of life (QoL).

Bladder management strategies:

Bladder management strategies are long-term treatment plans with implications for maintaining health and quality of life. In order to make informed choices about the most appropriate method of bladder management, patients and/or their family members and carers require information about the risks and benefits of the available options. [3]

People with neurogenic urinary tract dysfunction, their family members and carer's need specific information and training. People who are starting to use, or are using, require a bladder management system that involves the use of catheters, appliances or pads.
This entails:

- Training, support and review from healthcare professionals who are trained to provide support in the relevant bladder management systems and are knowledgeable about the range of products available
- Access to a range of products and services that meet their needs. [4]

Intermittent catheterisation (IC) or intermittent self-catheterisation (ISC) is the gold standard for the management of the neurogenic bladder. Appropriate techniques and selection of catheters are subject to specific patient care environments, for example, sterile, aseptic, no touch and clean techniques. [5]

The prevalence of complications can be limited by adequate patient education, use of non-traumatising techniques and adequate precautions to prevent infections. [6]

Recommendations:

Spinal cord services in South Africa vary in logistics and intensity. Levels of care are delivered at different institutions and educational standards.

Care pathways are therefore (for practical purposes) divided into 3 phases in the management of the neurogenic bladder following SCI/SCA's.

The gold standard for all 3 phases (internationally accepted) is intermittent catheterization (IC). The average frequency of catheterisations per day is 4-8 times. It is thus the preferred method of catheterization in patients who have neurogenic bladder dysfunction.[6]

Also of utmost importance in all 3 phases is the prevention of catheter associated urinary tract infections (CAUTI) through correct staff and patient supervision/training and monitoring, education in hand hygiene as well as the maintenance of the clean closed-loop/circuit-principle with indwelling catheters (IDC).

Phase 1 - Early/Acute management

The monitoring of physiological stability initially after SCI/SCA, including urine output and timely catheterisation, is of the utmost importance.

Awareness of urinary retention immediately post-injury (catheterization), preservation of the urethra (limiting prolonged trans-urethral catheterization) and continence (to prevent pressure sores) are the main focus in this phase.

Prolonged indwelling urethral catheterization is a major cause of iatrogenic urethral strictures in SCI/SCA men. Urethral strictures can compromise the feasibility and safety of patients to be managed by IC or condom & bag urinary drainage. Attempts at reconstructive surgical repair are much less successful than in the neurologically intact population.

A urethral stricture can impact upon the SCI/SCA patient's management for the rest of his life.

The option of a supra-pubic catheter (SPC) also needs to be considered, alternatively aseptic IC (even in intensive care settings) if staff allocation and expertise allow for this. In the aseptic technique the catheters remain sterile, the genitals are disinfected, and disinfecting lubricant is used. [6]

If experience in SCI/SCA management is absent/lacking, the help of an Urologist (with an interest in SCI/SCA urology) should be sought to assist in the correct management of above. The same principle applies to any complications related to the neurogenic bladder management (i.e. traumatic catheterisations, possible renal/bladder injuries, etc.).

The early detection and treatment of urinary tract infections (UTI's) is vital in this early phase as long-term damage can thereby be prevented.

Phase 2 – Rehabilitation – preferably in a specialised centre

Suitability of a SCI/SCA patient for intermittent self-catheterization (ISC) or IC (via a carer) needs to be the top priority in this phase, if not already implemented earlier. Care needs to be taken in patient selection as patient insight and compliance are vital for success in intermittent catheterisation.

The dexterity and mental capacity of a SCI/SCA patient, and/or the availability of a willing caregiver to perform the catheterisation, are paramount factors in the decision making process. Avoid intermittent catheterization in individuals with SCI/SCA who have one or more of the following:

- Inability to catheterize themselves.
- A caregiver who is unwilling to perform catheterization.
- Abnormal urethral anatomy, such as stricture, false passages, and bladder neck obstruction.
- Bladder capacity less than 200 ml.
- Poor cognition, little motivation, inability or unwillingness to adhere to the catheterization time schedule.
- High fluid intake regimen.
- Adverse reaction to passing a catheter into the genital area multiple times a day.

- Tendency to develop autonomic dysreflexia with bladder filling/urethral instrumentation despite treatment. [7]

Offer a choice of either single use hydrophilic or gel reservoir catheters for intermittent self-catheterisation. [8]

The "gold standard" in IC remains a new sterile catheter, because of the risk of infection. [9]

Minimum investigations needed to appropriately assess the neurogenic bladder:

1) Urodynamic study (UDS) at approximately 3 months post-injury, or at the discretion of the treating physician.

2) Genito-urinary ultrasound,

3) Abdominal X-ray (AXR) and cysto-urethrogram (CUG), the latter in condom and sheath/bag (C&B) patients. Intravenous pyelogram is an optional investigation and becomes mandatory in cases of suspected upper renal tract tuberculosis, obstruction and/or hydronephrosis.

The early detection and management of autonomic dysreflexia (AD) is imperative as this condition can be potentially life-threatening. This usually occurs only in lesions above T7 ("unsafe" bladder).

UDS is an essential part of the assessment of the neurogenic bladder as it is internationally accepted that reflex neurogenic activity of the bladder has usually returned at three months post injury. A patient in whom normal sensory voiding (with acceptable residual urine) returns within a few weeks of the SCI/SCA, does not need a UDS.

An important factor (and potential medico-legal hazard) in the current practice environment is the shortened length of stay of SCI/SCA patients due to various factors (including prescribed minimum benefits - PMB). This can result in the UDS being done before the recommended 3 months post injury. If discharge is premature, we recommend that the UDS (and following CUG - see above) should still be done at 3 months and we strongly advise that this should be covered by the PMB in the private sector. The initial ultrasound and AXR can be done as in-patient.

Urological drugs initiated during this phase might include: Oxybutinin (or derivatives), Imipramine, Macrodantin, Propranolol, Nifedipine, Doxasozin, Prazosin, etc.

A well-functioning bowel management program is also essential to the "urological health" of SCI/SCA patients as constipation/faecal impaction can not only negatively affect their general well-being, but specifically their urological outcomes as well.

Discharge planning must include regular follow-up at a specialised unit/urologist: initially after six months, then yearly comprising of an ultrasound, AXR and CUG (for C&B patients only). Earlier follow up for high risk patients (especially on IC) is strongly advised if any doubt exists regarding compliance or high risk behaviour.

Many general medical and social factors need to be considered when dealing with urinary incontinence (see Addendum A). A dedicated multi-disciplinary approach in all SCI/SCA patients is vital in attaining long-term success/good outcome.

Phase 3 - Post discharge/rehabilitation

It is widely accepted that "urinary tract morbidity" ranks as a leading cause of hospital readmission in individuals with SCI and is still a leading factor in mortality in this population. Adequate phase 1 and 2 management will improve this.

The early identification of possible SCI/SCA complications (of which incontinence is a very high risk indicator) cannot be underestimated. The correct management and treatment of these is a very important step in the cost- and morbidity-saving chain of events. For instance, the prevention of one pressure sore (which often follows on incontinence) can relate to a cost saving of approximately R500 000.

Many surgical interventions exist to improve/restore continence in SCI/SCA patients (i.e. onabotulinumtoxinA, sacral anterior root stimulators, urinary diversions, artificial sphincters, bladder neck procedures, etc.). These fall outside of the framework of this guideline and need specialist, individualised decision making and management (see decision making ladder below for possible options)

The biggest challenge in phase 3 is the absence of readily available resources. The Patient Rights Charter of South Africa stipulates the right to basic medical care: in the SCI/SCA field this means the right to the provision of adequate basic medical care and supply of sundries (for human dignity and health). This thus relates to both the provision of expertise (especially in rural areas) and that of basic urological equipment, sundries and medication. The changing of urological management (and bowel) by unassuming, well meaning staff is a grave danger to the health of SCI/SCA patients.

Over-riding Principles for Urological decision-making in the neurogenic bladder:

The suggested "Ladder" – aim for the least invasive and most effective/safe option:

i. Spontaneous voiding
ii. Timed voiding
iii. Valsalva/ Crede
iv. Intermittent Catheterization
v. Chronic Indwelling Catheter
vi. Suprapubic Catheter
vii. Alpha Blocker
viii. Intravesical onabotulinumtoxinA
ix. Endourethral Stent
x. Transurethral Sphincterotomy
xi. Sacral Nerve Stimulation (Interstim)
xii. Sacral Rhizotomy
xiii. Bladder Augmentation
xiv. Urinary Diversion

General “rules” applicable to the use of antibiotics in the neurogenic bladder:

- Treat bacteriuria only if symptomatic (bacterial colonization does not require treatment)
- Urine microscopy, culture and sensitivity (MCS) is mandatory prior to initiating antibiotics in symptomatic patients, but it should not delay prompt treatment
- Choose antimicrobials with as little impact on bowel flora as possible
- Adjust antibiotics according to sensitivity
- Treat proven infections for at least 5 days. Re-infections are treated for 7 to 14 days
- Repair structural and functional risk factors
- Prophylaxis only to be used in recurrent infections
- Don’t use antibiotics routinely to prevent UTI in patients with indwelling catheters (blocked catheter protocols vary internationally)

Current view on catheter usage for intermittent catheterization (IC) techniques:

There is a lack of uniformity and standardization in nursing practice in terms of performing self-catheterization. Individualised assessment and specialist guidance is necessary in the implementation of IC and regular follow-up.

Cardenas et al report that the use of a hydrophilic-coated catheter for IC is associated with a delay in the onset of the first antibiotic-treated symptomatic UTI and with a 21% reduction in the incidence of symptomatic UTI in patients with acute SCI during the acute inpatient rehabilitation. Using a hydrophilic-coated catheter minimizes UTI-related complications, treatment costs, rehabilitation delays and reduces the emergence of antibiotic-resistant organisms. [10]

In the latest published meta-analysis regarding IC usage, Li et al reviewed 5 randomised controlled trials (RCTs) with a total of 462 SCA subjects. There was a significantly lower incidence of reported UTIs in the hydrophilic-treated (disposable) group compared with the non-hydrophilic-treated (uncoated disposable and multiple use) group. Haematuria was also significantly less in the hydrophilic catheter group than in the non-hydrophilic catheter group. Their meta-analysis found that UTIs and haematuria are less frequently associated with the use of hydrophilic-coated catheters for IC in patients with SCI. [12]

Chartier-Kastler et al[17] reports that compact catheters, designed for further discretion, offers 28% increase in QoL over non-compact IC. Given evidence of less UTI’s, less haematuria and better QoL compact hydrophilic coated IC appears to be the best treatment option. However, as evidence of UTI reduction is not robust enough to be conclusive clinicians will need to base their decision of catheterization technique on clinical judgement in conjunction with users.

Vulnerable patient groups should be considered for hydrophilic coated IC i.e.:

- Patients in hospitals, nursing homes, rehabilitation centres
- Immunosuppressed patients
- Patients with re-current UTIs

There are no clear guidelines about length of time for catheter use if the patient is re-using an uncoated catheter. Although widespread practice, there is no consensus for how many times a single use catheter should be reused and the practice is regarded as off label use. Guidelines do however refer to clean techniques that imply cleaning and storage of these catheters for an indeterminate number of times, although again there is no scientific evidence for number of uses. There is also insufficient data for recommending a cleaning method for multiple use catheters.

Several studies have investigated the advantages and disadvantages of reusable catheters in the home setting where catheterisation is performed by patient or caregiver. Available data on IC do not provide convincing evidence that single or multiple uses is superior for all clinical settings. Currently, clinicians need to base decisions about which technique and type of catheter to use on clinical judgment, in conjunction with patients. Differential costs of catheters/techniques may also influence decision making. [9] The type of catheter (hydrophilic/coated vs. non-coated) used for IC seems to make little difference to the risk of symptomatic UTI. [11] Given large differences in resources, using clean non-coated catheters are most cost effective.

There are limitations and gaps in the evidence base and the designation of non-coated catheters as single use devices.

We recommend that a precautionary principle should be adopted and that patients should be offered a choice between hydrophilic and gel reservoir catheters.

Conclusions

It is the recommendation of the CAP that medical practitioners should promote confirmed safe, non-infecting and non-traumatic techniques for intermittent catheterisation. In South Africa the Health Professions Act requires practitioners to provide patients with information on treatment options available, and to obtain their informed consent for the treatment thus chosen. Part of this process is a discussion on the benefits, risks and costs of the options. We therefore advise that patients are fully informed to make the choice to meet their needs, preferences [15] and circumstances.

The Act also requires that practitioners should offer “the best possible care at a cost effective rate”. [16] Cost effectiveness and low costs are not equivalent terms. The issue is rendered more difficult by the absence of measurements of total treatment and care pathway savings in the medium to longer term, which result from the avoidance of inferior technology. Reduced complications and co-morbidities and earlier return to normal activities are examples of such unmeasured outcomes.

International guidelines do not explicitly recommend multiple uses over single use but instead propose patient orientated choice. We subscribe to this recommendation as it aligns with our obligations as medical practitioners and to respective health legislation. We believe that SCI/SCA patients need to be empowered to live as independently as possible with the provision of adequate and appropriate continence care products to ensure quality of life, medical stability and safety.

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Addendum A

Many general medical and social factors need to be considered when dealing with urinary incontinence. A dedicated multi-disciplinary approach in all SCI/SCA patients is vital in attaining long-term success/good outcome.

URINARY INCONTINENCE RISK FACTOR CHECKLIST (*may cause transient UI)

Aging-related changes to urinary system

- Decreased bladder capacity ☐
- Decreased ability to postpone voiding ☐
- Decreased flow rate ☐
- Decreased urethral length, compliance, and pressure in females ☐
- Increase in uninhibited bladder contractions ☐
- Increase in post-void residual volumes ☐
- Increase in night-time fluid excretion ☐

Genitourinary conditions

- Intrinsic sphincter deficiency ☐
- Detrusor instability ☐
- Detrusor hyperactivity ☐
- Urinary tract infection * ☐
- Atrophic urethritis or vaginitis * ☐
- Enlarged prostate in males ☐
- Pelvic prolapse in females ☐

Chronic health state factors

- Cardiovascular conditions ☐
  - Congestive heart failure * ☐
  - Orthostatic hypotension * ☐
  - Peripheral oedema * ☐
- Endocrine conditions

Lifestyle factors

- Caffeine * ☐
- Alcohol * ☐
- Smoking ☐
- Recent admission to long-term residential facility * ☐
- High impact physical activity * ☐

Iatrogenic (treatment-induced) factors

- Post-prostatectomy in males ☐
- UI corrective surgery in females ☐
- Stool impaction * ☐
- Medication
  - Diuretic * ☐
  - Anticholinergic agent * ☐
  - CNS depressant ☐
  - Narcotic analgesic ☐
  - Sedative/hypnotic agent * ☐
  - Alpha-adrenergic agent * ☐
  - Beta-adrenergic agonist ☐
  - Calcium channel blocker * ☐
- Fluid intake
  - Excess * ☐
  - Decreased/restricted ☐
- Restricted mobility
  - Bed rest * ☐

- Diabetes mellitus ☐
- Hyperglycaemia * ☐
- Diabetes insipidus * ☐
- Hypercalcemia * ☐
- Oestrogen depletion in females ☐
- Obesity ☐

▪ Neurological conditions

- Spinal cord injury ☐
- Cerebro-vascular accident ☐
- Multiple sclerosis ☐
- Parkinson's disease * ☐

▪ Orthopaedic conditions

- Arthritis * ☐
- Recent fracture * ☐

Mental health related factors

▪ Depression * ☐
▪ Dementia ☐
▪ Delirium * ☐
▪ Psychological unwillingness to toilet ☐

- Traction * ☐
- Restraints * ☐

Environmental barrier factors

▪ Distance to toilet * ☐
▪ Poor lighting * ☐
▪ Environmental clutter * ☐
▪ Bedrails * ☐
▪ Complicated clothing * ☐
▪ Unable to locate toilet * ☐
▪ Unable to get assistance to toilet * ☐

Functional status factors

▪ Decreased manual dexterity ☐
▪ Poor eyesight * ☐
▪ Communication alteration

- Speech problems ☐
- Hearing problems ☐
- Speaks different language than caregivers ☐

(Adapted from: Lyons, BSN. & Pringle Specht, JK. 2005. Evidence-based practical guideline: Prompted voiding for persons with urinary incontinence)