Peer reviewed

A guideline for the nursing assessment and management of urinary retention in elderly hospitalised patients

Abstract

The objective of this project was to develop a guideline for the nursing assessment and management of urinary retention in hospitalised older adults. The guideline was developed from a review of the literature and from consultation with a multidisciplinary expert panel. These experts provided feedback through a structured process known as the Delphi technique. Based on findings from both sources, a final guideline was developed which provides a framework for the nursing assessment and management of urinary retention in hospitalised older adults. This foundational work provides the basis for further research and evaluation of the management of urinary retention.

Introduction

Urinary retention commonly affects older people, and disproportionately more men than women. Early detection is important as the adverse outcomes associated with delayed response to an overly distended bladder are significant and include urinary tract infection and renal complications. On the other hand, catheter insertion that is premature or inappropriate exposes patients to unnecessary catheter associated infection and urethral trauma. One of the dilemmas for clinicians is that urinary retention is not always a straightforward diagnosis as symptoms can be masked, particularly in patients with neurological disorders, or in patients with cognitive impairment, i.e. delirium or dementia.

Having diagnosed urinary retention, the other critical issue for clinicians is to differentiate between those patients who require immediate bladder decompression and those who do not. Many clinicians are guided in this decision by protocols that prescribe a threshold post void residual urine volume (PVR) or a range of PVR values as the basis for determining whether or not to catheterise a patient. There is some evidence to suggest, however, that reliance on PVR as the basis for determining the appropriateness of urinary catheterisation for older adults is limited.

An Australian survey conducted in 2006 on current assessment and management practice for urinary retention completed by medical and nursing staff in an aged care rehabilitation facility, confirmed anomalies in practice. Specifically, this study revealed that clinicians in the aged care setting commonly encountered patients with undiagnosed urinary retention and that there were no guidelines to inform their practice.

To fill this gap, our project was to review the literature on the management of urinary retention and to develop a guideline for the initial management of this condition in hospitalised older adults. As nurses are usually the first point of care for patients with this condition in hospital settings, the guide was developed for this group. This paper describes the process used to develop the guideline and details the guideline for further discussion and research.

Method

To develop the guideline, we searched for and reviewed the literature on urinary retention to form the basis of a draft guideline. This was then peer reviewed by an expert multidisciplinary panel in an iterative consultation process.
Review of the literature

The literature was searched using the database EBSCOhost and included CINAHL, Health Source: / Academic Edition and MEDLINE. Keywords were identified from a preliminary review of the literature. Topic relevant keywords included: ‘urinary retention’, ‘acute urinary retention’, ‘chronic urinary retention’, ‘bladder scan’ and ‘post-void residual urine volume’, ‘older adults’, ‘hospital’, ‘guidelines’, ‘protocols’ and ‘clinical pathways’. The reference lists of topic relevant publications were reviewed for additional publications. No arbitrary limitation was placed on the age of the data and, hence, data were located between 1981 and 2005. The full documents of all abstracts considered potentially relevant were retrieved and the main issues were summarised.

Searches in websites of peak national and international organisations with expertise in continence or urology were also used to collect information on definitions, assessment and management recommendations and guidelines pertaining to urinary retention.

Consultation with multidisciplinary expert panel

Clinical experts specialising in gerontology, urology and continence medical and nursing practice were approached by the project team and invited to participate in the multidisciplinary expert panel. Using a Delphi technique, they were invited to comment on information obtained from the literature and on drafts of the developing guideline. The purpose of the Delphi technique is to elicit information and expert comments from participants in an iterative way so as to facilitate problem solving, planning and decision-making until a consensus is reached. In order to reach consensus about the guideline, the experts were consulted on three separate occasions. Where clinical expert opinion varied, we consulted the research literature.

In addition to consulting multidisciplinary experts, the penultimate draft of the guideline was circulated among a group of nurses working in an aged care rehabilitation facility and feedback was sought on its clinical usefulness. Comments obtained from this group were incorporated into the design of the final draft of the guideline.

Findings

Results of review of the literature

The review of literature revealed the following three main definitions:

- Urinary retention is a failure to empty the bladder totally – a condition that is clinically diagnosed as either acute or chronic.
- Acute urinary retention is a painful, palpable or percussible bladder, when the patient is unable to pass any urine. This condition can cause frail older adults to have a large PVR and concurrent lower urinary tract symptoms such as urinary incontinence.
- Chronic urinary retention is a non-painful bladder, which remains palpable or percussible after the patient has passed urine.

The International Consultation on Incontinence further recommends that transient voiding difficulty in older adults be differentiated from chronic urinary retention. The need to differentiate patients with urinary retention combined with high pressures (i.e. hydronephrosis, kidney back pressure and congestion and an elevated serum creatinine) from patients with urinary retention combined with low pressures is also advised.

The literature search yielded no specific clinical management guidelines on the topic of urinary retention. There were a number of guidelines published on disease processes where urinary retention may present as a symptom (i.e. benign prostatic hypertrophy, or spinal cord disease) and the on the issues of urinary catheterisation and intermittent catheterisation.

Although there were no specific guidelines on urinary retention, there was a large volume of related literature; this was grouped according to the key issue or theme addressed by each publication. The first theme centred on prevalence, and the impact and management of acute urinary retention as a symptom of disorders such as benign prostatic hypertrophy, or following pelvic surgery. This literature revealed important information on risk factors for urinary retention in older adults such as faecal impaction, impaired mobility, neurological disorders (i.e. stroke, Parkinson’s Disease, Multiple Sclerosis), longstanding diabetes, medicines (i.e. antihypertensives, anticholinergics, antispasmodics, atropine, sedatives), urethral obstruction, spinal cord injury or disease, spinal anaesthesia and surgical disturbance of bladder innervation. These risk factors were included in the guideline.

Another major topic area gleaned from the literature focused on the physiological effects of ageing on bladder function. Studies showed that, as people age, their bladder contractility decreases; factors that may explain this change include detrusor fibrosis, increased collagen deposition and a loss of acetylcholinesterase-positive nerve terminals. Not only do many older people have reduced bladder contractility, but many frail older adults also have a concurrent overactive bladder, a condition termed detrusor hyperactivity with impaired contractility (DHIC). This condition can cause frail older adults to have a large PVR and concurrent lower urinary tract symptoms such as urinary incontinence.

In light of these findings, one of the challenges for clinicians is that many older adults with impaired bladder contractility or DHIC may have few or no symptoms. Where symptoms are limited to urinary incontinence, this can be erroneously
attributed to other factors. The condition can be further concealed by the presence of other conditions, for example dementia. Cognisant of the potential for clinically unsuspected urinary retention in certain groups, some researchers have recommended routine screening for PVR for all patients admitted to general rehabilitation units 19, for incontinent nursing home residents 20, 21 and for all patients with lower urinary tract symptoms 22.

The literature on PVR presented variable findings that challenge the reliability of using PVR as a measure for diagnosing clinically significant urinary retention. For example, even in healthy older adults, the presence of retained urine (i.e. PVR) may represent normal ageing as Bonde and colleagues 1 identified in a normative sample of 140 older adults aged over 75 years, who had PVRs ranging from 0-150mls, and averaged 45mls for women and 90mls for men. Another study of healthy community dwelling people, over 55 years of age, found that detrusor contractions declined significantly with age and this decline was associated with lower urine flow rates and a small increase (generally ≤50mls) in PVR 23.

The critical question is: at what volume does a residual volume become clinically significant? This was not answered as the literature revealed a wide range of PVR values that require attention. (Table 1).

After reviewing urinary retention in 100 elderly hospitalised individuals, Grosshans and colleagues claimed that, “… no one value is considered significant as a normal or pathological value” 24(p.637) and have called for further research in order to better define what may constitute a normal PVR value among elderly persons, and to determine its significance. To further illustrate the proposition that proper bladder emptying and the clinical significance of PVR varies from one person to the next, Taylor and Kuchel 35(p.1923) state that “repeated PVR values of 250mls in an older woman who is asymptomatic without urinary frequency or recurrent urinary tract infections probably requires no further action, whereas, the same individual who is symptomatic and has renal failure, or evidence of hydronephrosis on ultrasound, requires a urology referral”.

A final consideration for clinicians is that there is some doubt in the research literature about the test-retest reliability of PVR itself, even within a 24-hour period 36-38. Griffiths and colleagues 38 measured residual urine in each of the geriatric patients in their study at three different times of day, during two visits at 2-4 week intervals and found large within-patient variability within that study group.

Results of consultation with expert panel
The multidisciplinary expert panel was provided with a summary of the major points found in the literature and panel members
were invited to agree, disagree or comment on these points. The findings from this process revealed that they agreed with most of the proposed content that formed the basis of the draft guideline. They identified some limitations with the definitions of acute and chronic urinary retention found in the review of literature. For example, the definition of acute urinary retention as “a painful, palpable or percussible bladder, when the patient is unable to pass urine” does not accommodate patients with acute urinary retention who have few or none of these symptoms. Similarly, the definition of chronic urinary retention as “a non-painful bladder, which remains palpable or percussible after the patient has passed urine”, does not account for patients with chronic urinary retention whose bladders are not able to be palpated or percussed. Hence, reliance on the review of literature definitions for acute and chronic retention as the basis for diagnosing the type of urinary retention was seen as problematic.

There was no professional consensus in the literature on what constitutes a threshold PVR and none of the studies reviewed provided a formula for practice. Members of the expert panel also expressed varied opinions about what information should be included in the guidelines to assist healthcare professionals to interpret PVR. Despite this variability, the expert panel emphasised that any interpretation of the clinical significance of PVR should be done in conjunction with other clinical information. A key message from the expert panel was that the knowledge and skills required for identifying and managing urinary retention were highly specialised and that, “… the management of urinary retention should be underpinned by specialised individualised clinical decision-making and is context specific”.

The panel also identified the different factors that underpin clinical decision making, including:

- The person and their carer’s preferences for treatment.
- Their psychosocial status and quality of life.
- The potential for upper tract damage.
- Any underlying pathology.
- The type and severity of symptoms.
- The results of investigations.
- Whether or not the person needs and has assistance to carry out treatment for their condition.

Therefore, all these factors were included in the guideline. In addition, we included information on the major risk factors and key signs and symptoms for urinary retention in hospitalised older adults to alert users of the guide to the fact that multiple factors need to be considered when interpreting PVR in older adults.

**Discussion**

Retention of urine is widely experienced by older adults and is often difficult to detect and diagnose. Its management in this group of patients poses challenges for clinicians as previously
Figure I. Guidelines for nursing assessment and management of urinary retention in elderly hospitalised patients.

Guidelines for nursing assessment and management of urinary retention in elderly hospitalised patients

Urinary retention manifests either acutely or chronically and is characterised by......

Urinary retention symptoms that warrant attention
- Lower abdominal pain and/or discomfort (this may present as distress or agitation in people who are cognitively impaired), and/or
- Urinary incontinence, and/or
- Inability or difficulty to void and/or empty the bladder (see facts about bladder emptying)

Conduct a nursing assessment
- Brief patient history
- Review urinary retention risk factors
- Conduct a physical assessment of lower abdomen (inspect, palpate, percuss)
- Urinalysis (if possible)
- Bladder scan to determine the PVR

Modify and monitor risk factors as medically advised (i.e. improve mobility, bowel management program, relieve pain, administer prescribed medications etc)

Distinguishing Symptoms

PVR / PAIN / DISTRESS / AGITATION

PVR / NO PAIN / NO DISTRESS / NO AGITATION

Plan of Care

Notify Medical Practitioner

Appearance of clinical signs and symptoms
- Monitor for clinical signs and symptoms (i.e. observe urine output)

Modify and monitor risk factors as medically advised (i.e. improve mobility, bowel management program, relieve pain, administer prescribed medications etc)

Relieve bladder distension as medically advised (i.e. IDC / IC)

In collaboration with Medical Practitioner, establish the clinical significance of the PVR*

Notification of Medical Practitioner

Relieve bladder distension as medically advised (i.e. IDC / IC)

Clinically significant

Not clinically significant

*The Clinical Significance of PVR

There is no professional consensus on the PVR that constitutes an upper or lower threshold

The PVR measurement is one of many factors to be considered in determining treatment options

Other factors to consider include:
- The person’s preferences for treatment
- Psychosocial status, quality of life
- The potential for upper tract damage
- The type and severity of symptoms
- The results of investigations
- Comorbidities, prognosis
- Underlying pathology

Facts about Bladder Emptying

Bladder emptying can be affected by:
- A lack of privacy
- Voiding in unfamiliar places
- Voiding on command
- Voiding with a partially or overfull bladder
- Pain

It is also affected by the above mentioned risk factors

Modify and Monitor Common Risk Factors

- faecal impaction
- impaired mobility
- neurological conditions (i.e. multiple sclerosis, stroke, Parkinson’s disease)
- longstanding diabetes
- drugs (antihypertensives, anticholinergics, antispasmodics, atropine, sedatives)
- urethral obstruction (i.e. benign prostatic hypertrophy, urethral stricture, prostate cancer, tumours)
- spinal injury or disease
- spinal anaesthesia
- surgical manipulation of the bladder nerves

List of abbreviations
Post void residual – PVR
Indwelling catheter – IDC
Intermittent catheter – IC

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there has been a lack of clear guidance on which to base current practice. An ongoing dilemma is the lack of consensus about the clinical significance of PVR in older adults. This absence of evidence has important implications for nurses who are often required to make judgements about when to intervene and seek more specialised advice. The survey of clinicians that was conducted prior to the development of the guideline revealed considerable variability in practice in relation to the management of this condition.

In order to assist nurses’ clinical decision making on this issue, this research resulted in a guideline that provides a framework for the nursing assessment and management of urinary retention in hospitalised older adults. It is based on the best available evidence at the time it was created and was developed in consultation with a multidisciplinary expert panel. Information is included on key signs and symptoms for urinary retention in hospitalised older adults, risk factors that need to be considered in the decision making process, factors that affect normal bladder emptying, and on the gap in evidence on the clinical importance of PVR in older adults. As such, it recommends that nurses interpret the finding of PVR in collaboration with a medical practitioner and in context with other factors (Figure 1).

Although the guideline was developed for the nursing care of older people in acute and subacute settings, it may also be useful to other healthcare professionals who are involved in the initial management of this condition and in other healthcare settings. It is important that this research be viewed as foundational and that further trial and evaluation of the guideline is undertaken in a range of populations and settings.

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References