

RESEARCH ARTICLE

The Evaluation and Management of Acute Urinary Retention in Elderly Male patients

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ABSTRACT

Background: Urinary retention is a common urological emergency characterized by sudden inability to pass urine despite having a full bladder, which may or may not be associated with abdominal pain.

Objective: The aim of this retrospective study is to document the prevalence, risk factors, management and outcomes of acute urinary retention in geriatric male patients.

Materials and Methods: Medical records of all patients who had acute urinary retention treated at Urology Center Khost, from January 2018 to April 2020 were retrospectively reviewed. A total of 181 patients who had acute urinary retention were included in this study. The demographic information, etiology and treatment methods were collected and analyzed.

Results: The average age ranged from 47 to 89 years with median age of 73. A total of 68 out of 181 patients presenting with acute urinary retention were previously diagnosed with BPH history of 1 year 15 patients (21%), 5 years 33 patients (48%), >10 years 20 patients (31%). The rest of 113 patients were categorized as having newly diagnosed BPH (54 cases) 48%, urethral stricture owing to STD (4 cases) 3.5%, history of penile trauma (2 cases) 1.7%, occlusion due to urethral and bladder stone (2 cases) 1.7%, bladder carcinoma (1 case) 1%, neurologic disorder (stroke, spinal cord lesion and diabetic neuropathy) 62 cases (53%), neurogenic bladder 7 cases (6.2%). Urinary tract infection was exclusively found in majority of the cases. Over all in 93% of the patients, the symptoms resolved with successful bladder decompression through urethral catheterization, 7% of the patients with difficult catheterization, drainage was achieved by suprapubic bladder catheterization under local anesthesia.

Conclusions: This study suggests that the incidence rate of acute urinary retention is directly related to the efforts made in primary prevention of acute urinary retention in high risk patients. Acute urinary retention in BPH cases was more evident in age group of ≥ 65 years. The most commonly used initial management for acute urinary retention was by carrying out bladder decompression via urethral catheterization, and suprapubic catheter only being used in failures.

Keywords: Acute urinary retention, Benign Prostatic Hypertrophy, Urethral catheterization.

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INTRODUCTION

Acute urinary retention (AUR) is a urological emergency characterized by a sudden and/or painful inability to pass urine.¹ It is estimated that 10% of men in their seventies and a third in their eighties will experience AUR.² AUR is an important public health issue in older male population, and is associated with a substantial economic burden.³ The exact incidence of acute urinary retention in the general population remains unclear, with various estimates suggested from 2.2 to 6.8 cases/1000 patient.^{4,5} In older literature, the risk of recurrent AUR was cited as being 56%–64% within 1 week of the first episode and 76%–83% in men with diagnosed BPH.⁶⁻⁸

The etiology of acute urinary retention was previously understood poorly, however, in recent years, the natural history and risk factors of acute urinary retention has become better understood. The precise causes responsible for the development of acute urinary track retention are still not proven but it can be categorized as obstructive, infectious and inflammatory, pharmacologic, neurologic, or other (Table 1).⁹⁻¹² The risk factors that are identified for acute urinary retention include age, male sex, bladder pathology, neurologic diseases, cognitive impairment, use of anticholinergic medications, constipation, diabetes, and postoperative complications.¹³⁻¹⁵

Acute urinary retention is managed by immediate decompression of the bladder through catheterization. Transurethral catheters are readily available and it is usually inserted easily. If urethral catheterization is unsuccessful or contraindicated, the patient should be referred immediately to a physician trained in advanced catheterization techniques, such as placement of a suprapubic catheter.¹⁶

Our main purpose in this study is to determine the prevalence of acute urinary retention; establish risk factors for acute urinary retention; determine the etiology of acute urinary retention in old age male patients; compare different methods of bladder decompression and provide evidence-based information on managing

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urinary retention in order to ensure a rapid return to normal bladder function and reduce the risk of long-term complications.

METHODS AND MATERIAL

The medical records of 181 patients presenting with acute urinary retention were enrolled between January 2018 and April 2020 at Urology Center Khost, Afghanistan. Patients who were terminally ill, had long-term catheters, or catheterized for reasons other than acute urinary retention were excluded from the study. The data was retrospectively analyzed to identify the prevalence, risk factors, etiology and type of management utilized. Written informed consent was obtained from all patients. Consent was also obtained from the next of kin of the patients with severe cognitive impairments. Study protocol was approved by the ethics committees and Health Authorities, according to local legislation.

RESULTS

Of the 181 patients included in this study, 54 cases were newly diagnosed BPH and 68 patients had been previously diagnosed with BPH, making a total of 67% of the all acute urinary retention patients (Figure 1). The distribution of severity of urinary retention in BPH according to age group is shown in Table 2.

The most common risk factors that we found in our study were advanced age, benign prostatic hyperplasia and urinary tract infection Table 3. Diabetes, neurologic disorder, anticholinergic medications and urinary bladder outlet obstruction secondary to trauma, myogenic dysfunction, and alteration of bladder innervations are other major mechanisms. The urine culture and sensitivity investigation revealed that the most common organism responsible for causing urinary tract infection was *Escherichia coli*, followed by other *Enterobacteriaceae*, such as *Proteus mirabilis*, *Klebsiella* and *Providentia*

species. Gram-positive organisms, such as methicillin resistant *Staphylococcus aureus* and *Enterococcus*, are less common overall, but are seen with increasing frequency in healthcare settings and in adults with long term indwelling catheters.

All patient with acute urinary retention were managed by immediate and complete decompression of the bladder through catheterization. Standard transurethral catheters are readily available and were easily inserted in 169 cases. In 7% of the patients, urethral catheterization was unsuccessful or contraindicated, the patients were immediately referred to a physician trained in advanced catheterization techniques for placement of a suprapubic catheter under local anesthesia. It was noted that patients found the supra-pubic catheter more comfortable and easier to manage. Despite these findings the majority of patients with AUR are still managed with a urethral catheter, probably due to the continuing perception of supra-pubic catheterization as a potentially hazardous procedure.

DISCUSSION

Acute urinary retention in elderly male population is an age-old disorder that remains a modern day management problem. This study showed that acute urinary retention is directly related to advanced age, urinary outlet obstruction and urinary tract infection. It is demonstrated in this study that physicians can rely on clinical signs and risk factors to identify patients at risk of urinary retention. To determine the incidence of AUR a longitudinal design is needed, preferably using a population-based approach. However, the cumulative incidence of acute urinary retention increases several folds with age. The most common etiology we found in this study was BPH related, and there is high variability within and among countries in the management of AUR in routine practice. The initial management of AUR of urine is prompt relief of

Table 1. Causes of Urinary Retention

Obstructive	Benign prostatic hyperplasia, meatal stenosis, paraphimosis, penile constricting bands, phimosis, prostate cancer, Aneurysmal dilation, bladder calculi, bladder neoplasm, fecal impaction, gastrointestinal or retroperitoneal, malignancy/mass, urethral strictures, foreign bodies, stones, edema				
Infectious and Inflammatory	Balanitis, prostatic abscess, prostatitis, Bilharziasis, cystitis, echinococcosis, Guillain-Barré syndrome, herpes simplex virus, Lyme disease, periurethral abscess, transverses myelitis, tubercular cystitis, urethritis, varicella-zoster virus				
Other	Penile trauma, fracture, laceration, Disruption of posterior urethra and bladder neck in pelvic trauma, postoperative complicatio, psychogenic				

Table 2. Distribution of Acute Urinary Retention according to age group in BPH patients

Age Group	Newly diagnosed BPH		Recurrent BPH		Total	
	No.	%	No.	%	No.	%
40-59	2	3.7	5	7.4	7	5.7
60-79	49	90.7	62	91.2	111	90.9
≥80	3	5.5	1	1.5	4	3.3
Total	54	100%	68	100%	122	100%

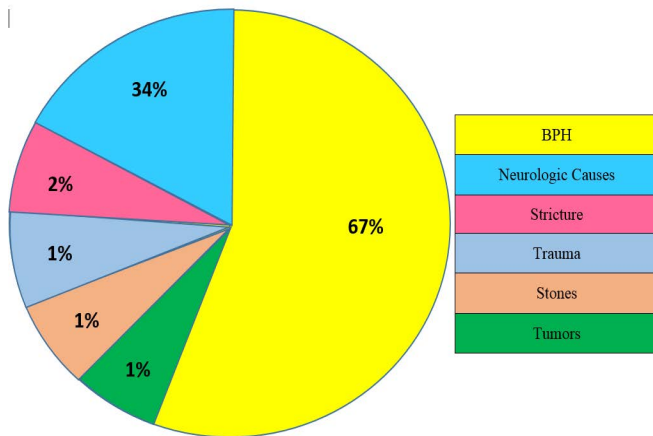


Figure 1: Incidence of acute urinary retention in different

Table 3. Risk factors associated with acute urinary retention

Factors	Percentage (%)
Age > 65 years	91
BPH	93
UTI	97

retention and pain by catheterization of the bladder. The most commonly used method of bladder decompression is urethral catheterization, suprapubic catheter was reserved most often reserved for those cases where the urethral route has failed. Several benefits of suprapubic catheterization over urethral have been reported as it carries lower UTI and stricture rates.¹⁷

In patients with known or suspected BPH, the optimal amount of time to leave a catheter in place is unknown. The definitive management of urinary retention will depend upon the underlying etiology and may involve surgical and medical treatment.

Future studies validating combinations of clinical features to predict acute urinary retention should be conducted and serve as the foundation for an evidence-based management.

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