

# Treatment of Urinary Frequency and Urgency through Lifestyle Modifications in Patients with over Active Bladder

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

Several age-related or geriatric changes take place in the entire body of a growing adult, with some systems getting affected more than others. Out of all the bodily systems that get affected as a consequence of ageing, the genitourinary system is one of the most commonly affected ones. Moreover, it is usually the male gender that gets subjected to the most of the atrocities of this system. Their urinary flow, stream, urgency, continuity, and everything related to it are seen to be affected as a consequence of age-related disorders. A person also becomes more vulnerable to contracting some infectious illnesses as part of these changes. However, to contain the broad spectrum of this system and its related disorders, this review will only deal with the urinary frequency and urgency that occurs in male patients as a consequence of ageing. In the majority of these patients, an overactive bladder is seen to be the culprit. The bladder starts hyperfunctioning, which ultimately leads to more and more urine being formed. As a result, the person constantly feels an 'urge' or feeling to urinate frequently. It almost seems as if the person has little to no control left over their urine and it will lead them to face drastic, embarrassing consequences.

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Therefore, this review will act as an exploratory study and help enlist the causes behind this urinary urgency and frequency that could become a chronic, debilitating condition in the long run. This review will also focus on treating both these symptoms using lifestyle modifications as a first line instead of opting for medications or surgical means to resolve the problem at hand.

**Keywords:** *Urinary frequency; urgency; micturition; overactive bladder; bladder symptoms; genitourinary diseases.*

## 1. INTRODUCTION

The genitourinary system is very important in the human body [1]. Undoubtedly, the effective working and functioning of the genitourinary system enables the body to get rid of these toxic wastes and substances. However, any malfunctions within this system can also lead to greater losses and a compromise of the health status of the patient in the long run [2].

Malfunctions within the urinary tract can manifest in various ways, spanning from the initial production of urine by the nephrons to its eventual elimination through the external urethral meatus. This process of transporting urine from the kidneys, through the ureters, bladder, and urethra to the outside world represents the core function of these organs [3].

While primary malignant tumors or infections within the urinary system may not necessarily result in urinary tract obstruction, most other common urological ailments do lead to such obstructions. Consequently, these conditions are managed with a focus on relieving or preventing damage to the nephrons caused by disrupted urine flow [4].

The bladder serves as a vital storage reservoir that should efficiently empty itself. However, this function can be disrupted by factors like obstructions, bladder irritation, or neuromuscular diseases. Such disturbances in voiding can give rise to a distinct set of complaints, necessitating a meticulous medical history analysis to narrow down potential diagnoses [5].

The male genital tract encompasses organs responsible for sperm production and transport, sex hormone secretion and the facilitation of erections. While issues related to sperm production, transport, and erectile dysfunction can arise, the primary reason for patient evaluation regarding the male genital tract often revolves around inflammatory processes and tumors affecting these organs. The interplay between the urinary tract and male genital

organs, such as the prostate, frequently presents diagnostic challenges for healthcare providers [6].

## 2. PROBLEMS WITH THE GENITOURINARY SYSTEM

Due to several reasons, the genitourinary system may lose its effective functioning. Since the context of this article revolves around the malfunctioning of the genitourinary system owing to age-related factors, we shall stick to that perspective only.

Complaints related to changes in voiding habits can typically be categorized into three main groups: irritative voiding symptoms, obstructive voiding symptoms, and incontinence. These symptoms categories serve as a valuable framework for exploring a range of potential differential diagnoses, even though there can be significant overlap among them [7].

The bladder can be conceptualized as a smooth muscle bag designed to store urine and evacuate its contents. Failures in either storage or emptying result in the symptoms of voiding dysfunction.

Symptoms of bladder irritation can stem from various sources, including inflammation, bladder and prostate infections, or abnormal bladder innervation and sphincteric mechanisms. These symptoms encompass issues like frequent urination, a sudden and compelling urge to urinate (urgency), painful urination (dysuria) and discomfort in the lower abdomen (suprapubic pain) [8].

Frequent and abrupt urges to urinate often lead to the expulsion of relatively small amounts of urine. In cases of severe urgency, urge incontinence can occur when the strong detrusor muscle contraction cannot be controlled long enough for convenient urination. Dysuria typically refers to pain during urination, which may extend to include suprapubic or perineal discomfort during the act. Any condition that irritates the

bladder's mucosal lining, whether intrinsic or extrinsic, can give rise to these symptoms [9].

Obstructive voiding symptoms arise due to the hindrance of urine flow from the bladder. In men, the most common cause is benign prostatic hyperplasia, leading to a condition often referred to as prostatism. Men may also experience similar symptoms in cases of prostatitis, which can result in edema and obstruction of the bladder outlet, or due to urethral stricture [10].

Women can also experience obstructive voiding symptoms, but the underlying causes are more frequently related to neurogenic or psychological factors than anatomical obstructions. This makes the male population more predisposed and vulnerable to developing these symptoms as compared to the females. These symptoms include hesitancy (difficulty in initiating urination), reduced urine stream force and caliber, straining to urinate, and a feeling of residual urine remaining after voiding, often accompanied by "double voiding" to empty the bladder. Additionally, frequency and nocturia may be present due to inefficient bladder emptying [11].

### **3. URINARY FREQUENCY AND URGENCY IN OLDER MALES**

If viewed from a very basic perspective, dysuria is termed as "experiences of great discomfort during urination". Similarly, 'urinary frequency' is a term used for when a person feels the need to urinate frequently or more often than the normal times that he usually do in a day. Whereas, 'urinary urgency' is a term applied when a person has an increase, strong, and abrupt need to urinate [12].

In very literal terms, the average adult bladder has a capacity of roughly 400 to 700 milliliters, though normal patterns of urination can exhibit significant variation. Typically, adults tend to empty their bladders about 5 to 6 times a day, except for no more than one trip during the night. In total, the average daily urinary output amounts to approximately 1200 to 1500 milliliters [13]. When it comes to urinary frequency, this can arise from either an increase in urine volume or a decrease in bladder capacity, defined as less than 200 milliliters. This amount generally varies depending on an individual's habits, but usually remains more or less the same in people with normally functioning genitourinary systems [14].

### **3.1 Urinary Urgency**

Any increase or elevated urine volume can be attributed to various factors such as the use of diuretics, diabetes mellitus accompanied by osmotic diuresis, diabetes insipidus, excessive water consumption, or a loss of the kidney's ability to concentrate urine. This last condition often occurs in the early stages of different renal parenchymal diseases, including infections. Additionally, an increased volume of urine can result from the termination of supraventricular tachyarrhythmias or during periods of bed rest in the presence of edema [15].

Conversely, a reduction in bladder capacity can be associated with factors such as anxiety, surgical procedures, obstruction leading to residual urine and decreased functional capacity, a thickened and inflexible fibrotic bladder wall (caused by conditions like interstitial cystitis, irradiation, or chronic infections such as tuberculosis and schistosomiasis), and inflammatory conditions that heighten bladder sensitivity [16]. Conditions that exert pressure on the bladder from intrinsic or extrinsic sources, such as masses, calculi, or infections, can also decrease bladder capacity. Spastic neurogenic bladders and hypotonic neurogenic bladders with chronic large residual volumes (greater than 30 milliliters) can mimic bladder outlet obstruction while exhibiting reduced functional capacity. Extremely low or high urinary pH levels can infrequently lead to urinary frequency, and psychiatric disturbances can sometimes manifest as symptoms of increased urinary frequency, especially in response to emotional stress [17].

When we talk about urinary urgency, it often points to inflammation, frequently affecting the trigone and posterior urethra. Reflexes responsible for the urge to void are governed by stretch receptors in the bladder and posterior urethra. Typically, the urge to urinate arises as the bladder approaches its maximum capacity. Increased sensitivity of these receptors can be brought about by either inflammatory or neuropathic processes [18].

Common clinical conditions associated with urinary urgency include urinary tract infections, trauma, calculi, bladder tumors (particularly carcinoma *in situ*), foreign bodies, and any condition that reduces bladder capacity. In cases of inflammatory edema affecting the bladder's mucosal layers, submucosa, and even the muscularis mucosa, there is a loss of bladder

elasticity, which results in pain even with mild bladder stretching. Urge incontinence is a frequent occurrence in the aforementioned clinical scenarios, including post-prostatectomy cases, and it is crucial to differentiate it from other forms of incontinence, such as overflow or stress incontinence [19].

### **3.2 Urinary Frequency**

As defined by the International Continence Society (ICS), urinary frequency encompasses any involuntary urine leakage and is considered a multifactorial issue. As the elderly population continues to grow, there is a documented increase in the incidence of frequent and urgent urination. Additionally, ethnic background, particularly non-Caucasian, and lower levels of education have been linked to an increased risk [20].

Several underlying medical conditions have emerged as significant predictors of frequent and urgent urination. These include a history of falls, obesity, respiratory issues, cognitive deficits, cardiac diseases, stroke, depression, arthritis, rheumatism/arthrosis, prostatic hyperplasia, urinary tract infections, diabetes mellitus, arterial hypertension, functional limitations, dependence, or limited mobility, comorbidities, and frailty [21].

## **4. LIFESTYLE MODIFICATIONS AND CONSERVATIVE MANAGEMENT FOR THE MANAGEMENT OF URINARY FREQUENCY AND URGENCY**

As always, several treatment modalities serve to relieve the symptoms and conditions of the patient. However, in context since the patients are already at a vulnerable stage of their lives, that is, in old age, there should not be much given to them that either exacerbates their condition or worsens it.

Some patients prefer home remedies instead of the traditional medicines and treatments that have been otherwise prescribed to them. The main concern, in the majority of these patients, is related to the adverse profile and side effects that come as an added complication of these medications.

However, lifestyle modifications and a conservative management plan are what have greatly helped people get through life easily. Although these modalities are slow-acting and require time to implement their effects, they often

help patients to live a complication-free and smooth life.

An overview of some of the popular lifestyle modifications and conservative management plans that have been prescribed for people dealing with urinary frequency and urgency are described as follows:

### **4.1 Behavioral Management**

The first and foremost priority of the patient is to train and educate themselves to take care of their condition. Various strategies could be employed to help people deal with this condition effectively.

Timed voiding is another valuable technique that involves scheduling urination at fixed intervals to proactively manage symptoms, particularly beneficial for addressing urgency and urinary incontinence not primarily associated with frequency. By adhering to a structured voiding schedule, individuals can gain better control over their bladder function [22].

In terms of symptom management techniques, there are several strategies worth considering. Urgency control techniques involve practices like deep breathing and engaging in complex mental tasks, such as reciting poetry or counting backward from 100 by 7s, to divert attention away from the sensation of urgency [23].

Bladder training is another method that entails gradually extending the time intervals between voiding episodes. It relies on distraction and relaxation techniques to incrementally increase the duration between urinations, ultimately helping individuals regain control over their bladder function [24].

Multicomponent behavioral training combines various elements, teaching individuals not to rush to the bathroom in response to urgency. It incorporates pelvic floor muscle contractions to suppress bladder contractions and delay voiding. Pelvic floor muscle exercises are performed daily as part of this regimen, aiming to maintain or enhance muscle strength and endurance.

Lastly, pelvic floor muscle training is a standalone practice involving regular pelvic floor muscle contractions. These exercises contribute to the maintenance or development of muscle strength and endurance, supporting overall bladder health.

Delayed voiding, as a technique, entails progressively extending the time interval between the onset of urgency and the act of voiding. These multifaceted approaches collectively provide a comprehensive tool kit for managing urinary symptoms and fostering optimal bladder health [25].

## 4.2 Lifestyle Modifications

Lifestyle modification is a pivotal aspect of this approach, encompassing dietary adjustments, fluid management, bowel health considerations, and the cessation of smoking. These lifestyle changes can significantly impact bladder health and alleviate symptoms.

When investigations fail to identify an alternative cause for a patient's symptoms related to overactive bladder, established guidelines advocate for initiating lifestyle modifications as the primary approach.

Lifestyle modifications can also be complemented with secondary pharmacologic treatments, depending on the severity of the symptoms and the patient's preferences. Should conservative management fail to yield optimal improvement within a span of 8 to 12 weeks from the commencement of treatment, the guidelines recommend considering the inclusion of pharmacologic interventions in the treatment plan [26].

Certain foods and beverages are known to exacerbate symptoms of overactive bladder (OAB) and urge urinary incontinence (UUI) in some individuals by promoting diuresis or irritating the bladder.

Caffeine, in particular, is recognized for its diuretic effect and is found in a wide range of beverages and foods. Products containing caffeine, both in solid and liquid form, can intensify OAB symptoms by increasing detrusor pressure and enhancing the excitability of the detrusor muscle [27].

While the exact strength of the association between caffeine intake and OAB symptoms and UI is still under investigation, the effects of caffeine likely depend on the dose consumed. Therefore, healthcare providers need to inquire about their patients' caffeine consumption and inform them about the potential adverse impact of caffeine on detrusor overactivity. Patients should be encouraged to consider reducing their

caffeine intake and substituting it with non-caffeinated alternatives. They should also be advised to monitor any changes in their bladder symptoms [28].

Maintaining an appropriate level of fluid intake is especially crucial for older adults, as studies have shown a significant link between evening fluid intake and nocturia (waking up to urinate during the night). It is generally recommended that individuals consume approximately six 8-ounce glasses of fluid over a 24-hour period, which equates to roughly 1500 milliliters or 30 milliliters per kilogram of body weight per day [29].

To alleviate nocturia, healthcare providers often suggest reducing fluid intake after 6 PM, or approximately 3 to 4 hours before bedtime, and shifting more fluid consumption to the morning and afternoon. This adjustment has been reported anecdotally to yield positive results in managing night time urination [30].

## 5. CONCLUSION

Urinary urgency and frequency are two major symptoms that are among the first ones to arise when a person begins to age. They signify the aging of the genitourinary system and can pose many adverse effects on the life of a patient. Therefore, to contain these symptoms and to ensure that a person is able to enjoy their life freely, there are certain lifestyle modifications and behavioral practices that a person can do to ensure that these symptoms do not interfere with their daily routines. With the effective implementation of these modifications, a person can very soon be able to live with these symptoms in a very controlled and smooth manner.

## CONSENT AND ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Author has declared that no competing interests exist.

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