



## Review

Urinary tract dysfunction in older patients<sup>☆</sup>Carlos Verdejo<sup>a,\*</sup>, Santiago Méndez<sup>b</sup>, Jesús Salinas<sup>c</sup><sup>a</sup> Servicio de Geriátría, Hospital Clínico San Carlos, Universidad Complutense, Madrid, Spain<sup>b</sup> Servicio de Urología, Hospital Sanitas La Moraleja, Madrid, Spain<sup>c</sup> Servicio de Urología, Hospital Clínico San Carlos, Universidad Complutense, Madrid, Spain

## ARTICLE INFO

## Article history:

Received 22 February 2016

Accepted 21 March 2016

Available online xxx

## Keywords:

Urinary tract dysfunction

Ageing

Incontinence

## ABSTRACT

Urinary tract dysfunction in older patients has a multifactorial aetiology and is not a uniform clinical condition. Changes due to physiological ageing as well as comorbidity and polypharmacy, can produce several dynamic conditions such as urinary incontinence and urinary retention. Lower urinary tract symptoms increase with age in both sexes and are a major problem in older patients due to their medical and psychosocial consequences. For these reasons, in assessing urinary dysfunction in older patients, we should consider external circumstances such as polypharmacy, poor mobility, affective and cognitive disorders and also accessibility to housing.

© 2016 Elsevier España, S.L.U. All rights reserved.

## Palabras clave:

Disfunción tracto urinario

Envejecimiento

Incontinencia

## La disfunción del tracto urinario inferior en el paciente mayor

## RESUMEN

La disfunción del tracto urinario inferior en los mayores suele ser multifactorial. Los cambios en el aparato urinario derivados del envejecimiento, junto con la comorbilidad y la polifarmacia, pueden ocasionar alteraciones dinámicas. Los síntomas del tracto urinario inferior aumentan con la edad, siendo un problema por sus consecuencias médicas y psicosociales. Por ello, en la valoración de la disfunción urinaria de los mayores hay que considerar aspectos como la polifarmacia, la movilidad, las alteraciones afectivas y cognitivas, y la accesibilidad a la vivienda.

© 2016 Elsevier España, S.L.U. Todos los derechos reservados.

## Introduction

Lower urinary tract (LUT) dysfunction in older patients is not a uniform disease entity. The same physiological changes resulting from ageing, along with various diseases of the cerebro-spinal system, LUT obstruction or sphincter involvement, can cause disorders such as urinary incontinence (UI) and/or urinary retention.<sup>1</sup>

The LUT undergoes physiological changes resulting from ageing. Thus, the bladder volume, at least in the male, decreases with age although the total urine volume does not seem to change significantly. This results in increased urinary frequency. Some of the changes that come with age, such as reduced maximal flow rate,

increased post-void residue and decreased voided volume, seems to occur in both sexes, not being a sex-specific phenomenon. Others develop more often in one particular sex; in women, a decrease in urethral resistance and functional urethral length, while detrusor overactivity is more frequent in men than in women.<sup>1,2</sup>

UI is the most common reason for a urodynamic study request in postmenopausal women. From the age of 75, female bladder function deteriorates sharply, with the occurrence of overactivity and/or impaired detrusor contractility, with a gradual decline of urethral function. Age, not menopause, seems the most important factor.

Increased *neuronal growth factor* in patients with refractory overactive detrusor to anticholinergic agents it indicates that certain chronic inflammatory mechanisms may be involved.<sup>3</sup> Additionally, increased prostate volume occurs in men; and although not all authors unequivocally correlate this with urinary symptoms, they coexist in time. In fact, according to some studies, an increased prostate size correlates with age and this increase is associated with decreased urinary flow. The finding of inflammatory

<sup>☆</sup> Please cite this article as: Verdejo C, Méndez S, Salinas J. La disfunción del tracto urinario inferior en el paciente mayor. Med Clin (Barc). 2016. <http://dx.doi.org/10.1016/j.medcli.2016.03.043>

\* Corresponding author.

E-mail address: [cverdejob@segg.es](mailto:cverdejob@segg.es) (C. Verdejo).

**Table 1**  
Age-related functional changes of the lower urinary tract.

	Histological changes	Functional changes	Clinical implications
Bladder	Changes in smooth muscle with muscle loss Urothelium changes Axonal degeneration Fibrosis Vascular changes Sensory neuropathy	↓ bladder capacity ↓ maximum flow rate ↓ micturition volume ↑ postvoid residue Detrusor overactivity Impaired detrusor contractility ↓ bladder sensitivity ↑ first desire to void volume	LUT symptoms and favours UI
Urethra	↓ of smooth circular fibres ↓ oestrogen Inflammatory changes	↓ closing pressure ↓ urethral length ↑ urethral sensitivity	Favours UI
Prostate	BPH Cancer		LUT symptoms and favours UI
Oestrogen decline			Favours UI
Pelvic	Denervation	↓ elasticity	Favours UI
Floor	↓ striated fibres number and diameter Collagen content change		Favours the occurrence of prolapses
↑ nocturnal urine production		Nocturnal polyuria	Favours nocturnal UI

BPH: benign prostatic hyperplasia; UI: urinary incontinence; LUT: lower urinary tract. Taken and modified from Verdejo-Bravo<sup>5</sup> and Verdejo Bravo.<sup>6</sup>

infiltrates, with recruitment of T lymphocytes by interleukin and cytokine activation in nearly all studied samples of benign prostatic hyperplasia (BPH) suggests the existence of an autoimmune mechanism for this disease.<sup>4</sup>

But not only must take into account the ageing of LUT, but also consider the influence of comorbidity and polypharmacy, the decreased mobility and cognitive impairment, as well as the lack of accessibility in the home.<sup>5,6</sup>

Table 1 summarizes LUT changes related to ageing.

### Urinary incontinence

Age is considered a predisposing factor for the occurrence of UI, affecting 30–60% of those over 65 years of age, increasing exponentially with age. This percentage is even higher in the case of frail elderly people, reaching 43–77%.<sup>7,8</sup>

Urinary incontinence in the elderly, especially in the frailest, should be considered a syndromic model that goes beyond the LUT and its neurological control. The same physiological changes related to age, comorbidity, polypharmacy and functional impairment increase the vulnerability of these patients.<sup>9</sup>

Table 2 shows the main drugs that can precipitate or aggravate UI. Some authors think that, in the development of the UI, and specifically in overactive bladder are involved certain inflammatory mechanisms. In this sense, higher levels of C-reactive protein have been observed in women with overactive bladder syndrome (OAB) and urge incontinence, without stress incontinence, relating these levels also with a decreased maximum flow and an increased body mass index in women with LUT symptoms (LUTS), but without stress incontinence.<sup>10</sup> Importantly, UI does not only represent a urological problem, because people who have it have a higher burden of changes in mental health and a lower health-related quality of life.<sup>11</sup>

In the pathophysiology of the UI among the elderly there are several factors to consider:

- **Central nervous system:** There are multiple urinary manifestations associated with damage to the cerebral white matter, including frequent urination and UI. For example, it has been observed that white matter hyperintensity in the right inferior frontal region and in some selective white matter tracts, detected by MRI, predicts incontinence, its severity and the degree of discomfort, indicating that these structures and their abnormalities play a role in incontinence and urinary urgency in the elderly.<sup>3,12</sup>

- **Peripheral nervous system:** pudendal nerve demyelination without axonal damage may be involved in stress UI (SUI), finding a relationship between abnormalities to the pudendal innervation and symptoms of the filling phase and detrusor overactivity, in some cases with incontinence urgency.<sup>13,14</sup>

- **Urinary sphincter:** significant differences have been found between the action potentials of the urethral sphincter motor unit among continent women and women with SUI, showing that continent women have better innervation, and finding a negative correlation with age, which can indicate the existence of a neuropathy.<sup>15</sup>

The intrinsic sphincter involvement is a cause of SUI. It occurs after obstetrical complications or in older women with multifactorial aetiology. In males, it occurs primarily as a complication of prostate or bladder cancer surgery.

UI may develop after BPH surgery. Studying 125 cases of urinary incontinence following surgery for BPH in men aged 69–75 years old, sphincter involvement was the most common cause, but in 25% of cases the aetiology was an isolated bladder dysfunction. This dysfunction increased at a rate of 5.3% for each year of age of the patient.<sup>16</sup>

- **Urethra:** Closing pressure decreases about 15 cm H<sub>2</sub>O per decade without affecting the function of the elevator, or the support of the pelvic organs in nulliparous women.<sup>17</sup> Therefore, other factors should be involved, such as changes in the mucosa to the trigone and increased urethral sensitivity in older women, possibly because of a sensory neuropathy which can contribute to the development of an overactive bladder.<sup>18</sup> A decrease in vascular flow and urethral vascularization density (but not so in the flow rate) found by Doppler study in the urethra of postmenopausal women, may affect the urethral closure at rest, while other studies have found no vascularization differences between subjects with SUI and those without it.<sup>19,20</sup> The density of the urethral circular smooth muscle fibres also decreases with age.<sup>21</sup>

- **Pelvic floor:** changes in muscle fibres, with some denervation, a decrease in the number and diameter of the fibres and the collagen content are observed in both the fascia and the pelvic muscles, which reduce with age, with increased cross-linking and decreased elasticity.<sup>22</sup>

From a UI's duration perspective and following a practical classification, we can distinguish<sup>5,6</sup>:

Download English Version:

<https://daneshyari.com/en/article/8763711>

Download Persian Version:

<https://daneshyari.com/article/8763711>

[Daneshyari.com](https://daneshyari.com)