

## The Underestimated Impact of Nocturia on Quality of Life



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### 1. Importance of nocturia for sleep quality and quality of life

Nocturia is one of the most bothersome symptoms in patients with lower urinary tract symptoms suggestive of benign prostatic hyperplasia (LUTS/BPH) [1]. This also appears from a survey amongst 150 urologists and 150 general practitioners (Fig. 1). However, nocturia is associated with considerably more morbidity than just being highly bothersome. Nocturia is the main cause of disturbed sleep maintenance in older men over 50 [2]. It has also been shown that older men with nocturia complain of poor sleep quality, increased daytime fatigue, have a lower degree of overall well-being (Fig. 2) and report a poorer health status compared to non-nocturics [3]. The percentage of men reporting these complaints increases with the severity of the nocturia, in particular if they have to void at least 2 times per night (Fig. 2). Not surprisingly, two thirds of nocturics with at least two nocturnal voids claim that their nocturia impairs their quality of life (QoL) [4]. In addition, nocturics have decreased activity levels, a lower productivity at work, are more likely to suffer a

depression, have a higher prevalence of cardiac symptoms, and even higher mortality rates than non-nocturics [5]. Furthermore, older people with nocturia are more likely to fall than non-nocturic elderly because of their nocturnal voiding trips [5]. A considerable proportion of falls in the elderly results in physical injury and subsequent disability, institutionalisation or even death [6].

### 2. Importance of undisturbed sleep

The reduced QoL and the morbidity associated with nocturia are mainly due to sleep disruption and consequently a reduction in the hours of undisturbed sleep (HUS) related to frequent nocturnal awakenings and difficulties falling asleep again. While to date the exact function of sleep remains to be elucidated it has been demonstrated that sleep is vital for physical and mental functioning. Lack of sleep is associated with daytime sleepiness, impaired cognitive functioning, mood disturbances, increased rates of sick leave and depression; sleep loss has furthermore been found to be predictive of traffic and occupational accidents [5]. Physiologically, sleep loss has deleterious consequences on

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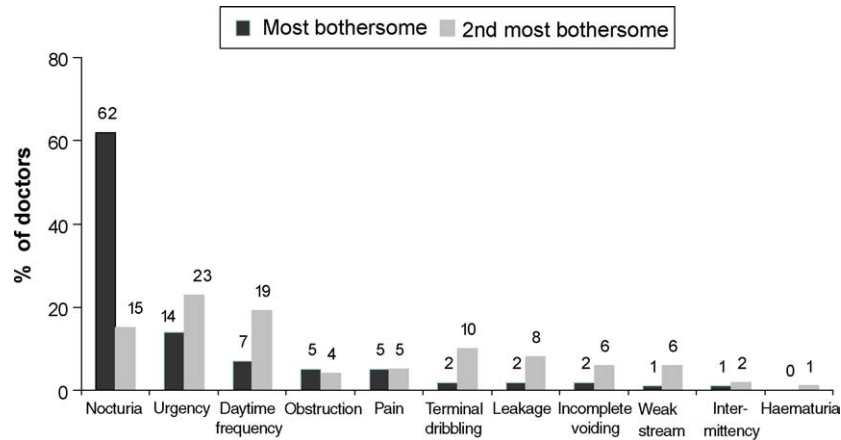


Fig. 1. Nocturia is the most bothersome symptom in patients with LUTS/BPH according to 150 GPs and 150 urologists during a survey in December 2003.

various body systems; it has been implicated in decreased immune functioning, an increased risk of cardiovascular disease, and metabolic alterations that may predispose for obesity and type 2 diabetes [5,7].

Sleep is a highly complex physiological process, consisting of two different states, rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep [8,9]. NREM sleep accounts for 75% of total sleep time and appears to be implicated in homeostatic processes and physical rest, while REM sleep apparently plays a role in mental functioning [8]. NREM sleep can be divided into 4 stages, with stage 1 comprising the transition between wakefulness and sleep, stage 2 being light sleep, while stage 3 and 4 constitute the deep, restorative sleep, or slow wave sleep (SWS) [8]. The progression of a night's sleep consists of 4 to 6 sleep cycles when the NREM sleep stages 1 to 4 alternate with REM sleep [10]. The restorative SWS takes part during the first third (3–4 hours) of the night, while in the later part of the night the lighter sleep and REM sleep prevail (Fig. 3) [8]. Awakening is most natural during or right after REM sleep. In contrast, interruption of SWS - even without a

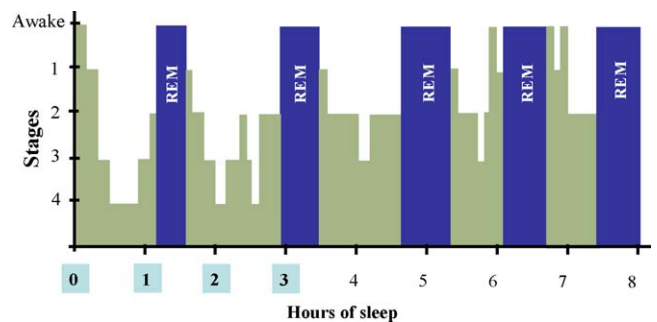


Fig. 3. Sequences of states and stages of sleep on a typical night: deep, slow wave, restorative sleep predominates during the first 3–4 hours of the night. Reprinted from European Urology Supplements, 3(6), Stanley N, The physiology of sleep and the impact of ageing, pp 17–23, 2005, with permission from European Association of Urology [9].

reduction of the total sleep quantity - leads to fatigue, increased discomfort and a decreased pain threshold [11]. Hence, the HUS until the first void could be a novel way to measure the impact of nocturia on the patient's QoL and sleep during the first part (2–4 hours) of the night in particular should be minimally disturbed.

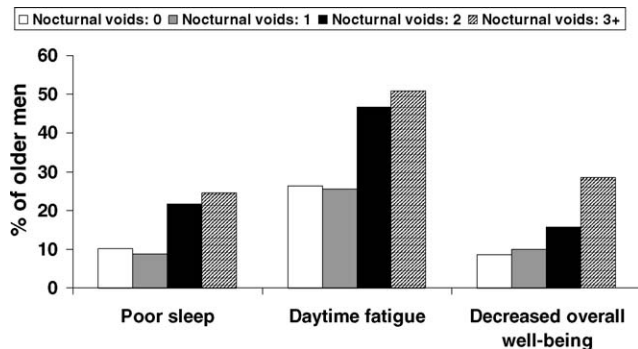


Fig. 2. Nocturia impairs sleep quality, daytime fatigue and overall well-being in older men [3].

### 3. Conclusions

It is clear that sleep loss has far-reaching negative consequences for health, functioning and QoL, especially in the elderly. In particular, nocturia, as the most common cause of disrupted sleep, should be reduced in order to improve sleep quality and its associated morbidity and ultimately the patient's QoL. The first 3–4 hours of sleep are the most restorative and therefore of most importance. Reducing the number of night time voids and in particular increasing the HUS until the first void will therefore give the patient better quality

sleep. Improving sleep quality improves the patient's energy levels which affects his daytime QoL.

It has been shown that the new improved drug delivery system of tamsulosin, the oral controlled absorption system (OCAS) called Omnic OCAS, at a dose of 0.4 mg once daily controls night time symptoms/nocturia and increases the patient's QoL com-

pared with placebo [12,13]. In addition, the HUS until the first night time void was increased by 60% compared to baseline and there was a correlation between the reduction in nocturia and the increase in the HUS [9–10]. By reducing nocturia, Omnic OCAS 0.4 mg will therefore improve the patient's sleep quality and ultimately his daytime energy and QoL.

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