

EDITORIAL



clinical

When you say “Prostate”, don’t forget to say “Bladder”!

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Earlier this year, Dr Wayne Kuang published on his website (Published by ManVsProstate; www.ManVsProstate.com; Contact at: DrWayneKuang@ManVsProstate.com; First Edition: 2023) a very intriguing book of 86 pages concerning the importance of urinary bladder health in men affected by lower urinary tract symptoms (LUTS) related to Benign Prostatic Hyperplasia (BPH) [1]. Dr Wayne Kuang presents an educational claim called the “Five Stages of Bladder Health” to guide men affected by LUTS/BPH to make the best decision about their prostate care. The author focuses on the need to prevent bladder damage during the progression of prostatic hyperplasia over time. This social media global campaign raises awareness that the timing of a surgical procedure is critical if our aim is to relieve men of their suffering from the burden of BPH.

This crusade is inspired by several observations:

1. while the majority of BPH patients are managed primarily with prescription medications (EAU/AUA Guidelines), the minority of men are actually compliant [2];
2. too many patients are left on medications for too long time with an increased risk of permanent bladder dysfunction, with the well-known poorer postoperative outcomes when urologists manage the obstruction too late [3];
3. if BPH generates symptoms and an impaired bladder output, then only a mechanical solution should be advocated: medications are only temporizing measures, but not real therapeutic options.

Based on a very wide body of literature that reviews urodynamic findings, pharmacological studies, and the long-term effects of prostatic resection (or even other kinds of surgery) [3–5], the author emphasizes the need for an increased awareness and information about the preservation of bladder health, essentially for patients. Moreover, Dr. Kuang encourages all the urologists to become the «Defenders of the Detrusor».

Even if the comparison is not original, in the book the bladder detrusor is compared to a “noble” muscle: the heart. The relationships between bladder and heart are surprising: both muscles pump liquids; both can be impaired by obstructive disorders; and both can suffer from an “attack” causing its definitive failure. The author describes five connected phases, called the “Stages of Bladder Health”. This model of course doesn’t reflect the exact pathophysiology of BPH progression, but in our opinion, it is a helpful path during consultations. It has the clear aim to share with men the possible evolution of their underestimated the “warning symptoms” at the beginning of their “journey”. The book also raises the question of a proper diagnosis

in the right time to orientate the right choice, advocating more detailed procedure as flexible cystoscopy, non-invasive urodynamics, and the definition of a “window of curability”. In order to facilitate the discussion, Dr Kuang translates the five stages of bladder health into pragmatic and “non-academic” definitions and invites to use these communication skills during office consultations. In addition, he offers free educational videos and referenced materials, with the final goal to spread awareness about prostate care and to help the “misinformed masses of men” who need a urological advice.

Herein, we report on how the five stages of bladder health could be narrated stage by stage to the patient (Table 1).

STAGE I or “Benign Prostatic Obstruction”, or “Things Slow Down”.

It all begins with Benign Prostatic Obstruction. Under physiological conditions, the relationship between the pressure developed by the pump (bladder muscle) and the outflow resistance (prostate) is balanced. Benign prostatic hyperplasia often occurs with aging causing an increase in bladder outlet obstruction, as if the “outflow hole” was narrowed due to the prostate growth. Pathophysiological consequences are “pump overload” and increased intravesical pressure resulting in detrusor hypertrophy. In this Stage, males usually report voiding symptoms, such a slow stream, intermittency, hesitancy, and *things slow down*. Unfortunately, often these “warning symptoms” are ignored or undervalued, and the pathological pathway goes on.

STAGE II or “Detrusor Overactivity” or “The Overactive Bladder”

The unrecognized and untreated bladder outlet obstruction progresses, and the detrusor fibers push urine harder and harder through the narrowing outflow hole. This micturition pattern and a combination of vesical pathophysiological changes (blood supply, neurological control, adrenergic receptor hypersensitivity, increased neurotransmitters release) contribute to provoke a “bladder quake”: the involuntary, irrepressible, and tetanic detrusor contractions [6]. At this stage, men complain of urgency, frequency, nocturia and they often seek medical help.

STAGE III or “Urge Urinary Incontinence” or “The Rebellious Child”

When benign prostate obstruction is not treated for a long time, storage symptoms may increase and the strength of the detrusor overactivity may cause urine leakage: the urge urinary incontinence. This is often a shocking symptom for men, producing frustration and negatively affecting their quality of life. This condition, while so relevant, has been poorly screened and reported. Moreover, in the International Prostate Symptoms Score, one of the most widely used symptomatic questionnaires for BPH, urge urinary incontinence domain is missing [7].

STAGE IV or “Acute Urinary Retention” or “The Heart Attack”

The bladder can have an “attack”, similar to the heart when it is overloaded. This condition results from the loss of the fragile balance between the excessive pressure developed by the hypertrophic detrusor fibers and the extremely increased outflow resistance. The consequence is that the efficiency of detrusor

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Table 1. The Five “Ds” that can help to recall the stages of detrusor damage and to explain progressive bladder dysfunctions.



Stages	Patient perception	Keywords	Physiopathological changes
I	Decrease Flow	Things Slow Down	Obstruction, detrusor hypertrophy
II	Dysfunctional Bladder	The Overactive Bladder	Detrusor overactivity
III	Diapers	The Rebellious Child	Urge incontinence
IV	Drained bladder	The Heart Attack	Acute urinary retention
V	Dead Bladder	The Heart Failure	Chronic urinary retention and detrusor underactivity

contractility is no longer able to overcome the obstruction, to pass urine through the “narrow hole”, and to empty the bladder. Many trigger points can be involved, such as bladder overstretching, urinary tract infection, pain, traumatism, hematuria and intercurrent conditions. This is a sign of bladder function deterioration and it is likely to be associated with BPH progression [6]. Lower abdominal pain, urgency and inability to pass urine are the typical signs and symptoms of acute urinary retention. Catheter placement is needed, and it is a dramatic situation for many men.

STAGE V or “Detrusor Underactivity” or “The Heart Failure”

As in the case of a heart attack, even in the event of a “bladder attack,” muscle activity cannot always be restored. The chronic damage on detrusor fibers causes underactivity, which means a weakened and reduced voluntary contractility of bladder muscle. When this detrusor activity is too decreased, it is likely that the bladder can no longer be adequately emptied with a spontaneous micturition. It is a “bladder failure”, comparable to a heart that is no longer able to contract effectively. Interstitial collagen modifications and bladder wall damages, muscle fibers impairment, blood ischemia and neurologic changes are involved in the development of this severe condition [8, 9], which is often an irreversible disorder.

The continuous introduction of newer and minimally invasive solutions in the management of LUTS/BPH has opened a field in urology and has really raised the question of a true patient-centered medicine [10, 11]. Now we can offer a true personalized therapy to every kind of men with every kind of prostate morphology and sizes. So, we think that, as urologists, we should be prepared and prone to explain all the advantages and disadvantages of all available solutions in our centers, even if this is a very time-consuming activity. This is the reason why we believe that Dr Kuang’s book might be read from urologists and shared with patients. It could be helpful in creating empowerment and responsible choices from both sides as physicians and as patients. If we agree that, thank to recent technological advances, we can better manage obstruction, symptoms and bladder health doing earlier proper diagnoses and avoiding to prolong medications for decades, a good communication tool is an extraordinary resource. Once more, with different words and communication skills, we are encouraged to change paradigm from “prostate-centric” to a “bladdercentric” view, even if this is not a novelty [6, 12]. We hope that this campaign “Defenders of the Detrusor” could soon improve quality of the choices, limit the regret and litigation, help clinicians to recognize and fulfill their patient’s expectations.

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REFERENCES

1. ManVsProstate; www.ManVsProstate.com; contacts at: DrWayneKuang@ManVsProstate.com; First Edition: 2023.

2. Cindolo L, Pirozzi L, Fanizza C, Romero M, Tubaro A, Autorino R, et al. Drug adherence and clinical outcomes for patients under pharmacological therapy for lower urinary tract symptoms related to benign prostatic hyperplasia: population-based cohort study. *Eur Urol.* 2015;68:418–25.
3. Presicce F, De Nunzio C, Gacci M, Sosnowsky R, Lombardo R, Porpiglia F, et al. The influence of the medical treatment of LUTS on benign prostatic hyperplasia surgery: do we operate too late? *Minerva Urol Nefrol.* 2017;69:242–52.
4. Rubilotta E, Balzarro M, Trabacchin N, Righetti R, D’Amico A, Blaivas JG, et al. Post-void residual urine ratio: A novel clinical approach to the post-void residual urine in the assessment of males with lower urinary tract symptoms. *Investig Clin Urol.* 2021;62:470–6.
5. Ornaghi PI, Porreca A, Sandri M, Sciarra A, Falsaperla M, Ludovico GM, et al. Features of patients referring to the outpatient office due to benign prostatic hyperplasia: analysis of a national prospective cohort of 5815 cases. *Prostate Cancer Prostatic Dis.* 2022. <https://doi.org/10.1038/s41391-022-00575-w>.
6. Rubilotta E Bladder outlet obstruction and overactive bladder in males. Springer Nature Switzerland AG 2021, Non-neurogenic bladder dysfunction, urodynamics, neurourology and pelvic floor dysfunctions. Chapter 6 67–88.
7. Barry MJ, Fowler FJ Jr, O’Leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK, et al. The American Urological Association symptom index for benign prostatic hyperplasia. The Measurement Committee of the American Urological Association. *J Urol.* 1992;148:1549–57.
8. Osman NI, Chapple C. Contemporary concepts in the aetiopathogenesis of detrusor underactivity. *Nat Rev Urol.* 2014;11:639–48.
9. Welliver C, Feinstein L, Ward JB, Kirkali Z, Martinez-Miller EE, Matlaga BR, et al. Poor clinical guideline adherence and inappropriate testing for incident lower urinary tract symptoms associated with benign prostatic hyperplasia. *Prostate Cancer Prostatic Dis.* 2022;25:269–73.
10. Manfredi C, Arcaniolo D, Spatafora P, Crocero F, Fusco F, Verze P, et al. Emerging minimally invasive transurethral treatments for benign prostatic hyperplasia: a systematic review with meta-analysis of functional outcomes and description of complications. *Minerva Urol Nephrol.* 2022;74:389–99.
11. De Nunzio C, Presicce F, Lombardo R, Trucchi A, Bellangino M, Tubaro A, et al. Patient centered care for the medical treatment of lower urinary tract symptoms in patients with benign prostatic obstruction: a key point to improve patients’ care—a systematic review. *BMC Urol.* 2018;18:62.
12. Creta M, Collà Ruvolo C, Longo N, Mangiapia F, Arcaniolo D, De Sio M, et al. Detrusor overactivity and underactivity: implication for lower urinary tract symptoms related to benign prostate hyperplasia diagnosis and treatment. *Minerva Urol Nephrol.* 2021;73:59–71.

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LC study design, literature review and manuscript preparation; ER literature review, manuscript preparation; WK literature review and manuscript preparation, AA critical manuscript revision.

COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

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