UNIT NO. 4

APPROACH TO URINARY SYMPTOMS IN MEN

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PREVIEW

This unit covers the definition, pathophysiology and diagnostic approach to lower urinary tract symptoms in male. It also showcases some common pitfalls faced by primary health care providers.

OBJECTIVES

At the end of this unit, the course participants should be able to describe the following:

1. Definition of lower urinary tract symptoms
2. Pathophysiology of lower urinary tract symptoms
3. Differential diagnosis of lower urinary tract symptoms
4. Assessment of lower urinary tract symptoms
5. Common pitfalls.

1. URINARY SYMPTOMS IN MEN

Three main groups of symptoms:

1) Obstructive

a) slow/weak stream – decrease force
b) hesitancy in voiding – prolonged interval necessary to initiate voiding
c) straining – need to increase intra abdominal pressure to initiate voiding
d) decreased calibre – narrowing of stream
e) split stream – bifurcation or splaying of stream, implies possible urethral stricture
f) terminal dribbling – prolonged dribbling of urine after completion of micturition
g) sense of residual urine – sensation of incomplete emptying of bladder
h) intermittency – interrupted stream.

eg. Benign prostatic hyperplasia (BPH), urethral stricture, cancer of prostate, acute prostatitis, bladder neck contracture, meatal stenosis, detrusor sphincter dyssynergia, stone, foreign body.

2) Irritative

a) Frequency – need to urinate more often than usual. It can be due to:
   i) polydipsia (high fluid intake)
   ii) polyuria (due to uncontrolled diabetes mellitus (DM), diabetes insipidus, on diuretics)
   iii) small bladder capacity [infection, tumour, stone, bladder outlet obstruction (BOO), neurogenic bladder, foreign body]

   Recorded in terms of how many hours between voiding (usual 2 hours)

b) Nocturia – awake at night to urinate
Same pathophysiology as in frequency.
1 – 2 times per night is inconsequential if patients drink a few cups of coffee before bed

c) Urgency – sensation to urinate immediately if an accident is to be avoided. Often accompanies infection, BOO or neurogenic bladder

d) Dysuria – burning or painful sensation on urination, felt in the urethra. Eg in urinary tract infection (UTI)

e) Strangury – a subtype of dysuria in which intense discomfort accompanies frequent voiding of small amount of urine.

3) Incontinence

a) Urge incontinence
Result of involuntary rise in intravesical pressure secondary to detrusor contraction which overcomes outlet resistance, i.e bladder instability

eg, local causes: UTI, bladder stone, tumour (carcinoma in situ / CIS), interstitial cystitis, foreign body, loss of cortical inhibition of voiding reflex in strokes, dementia or Parkinsonism

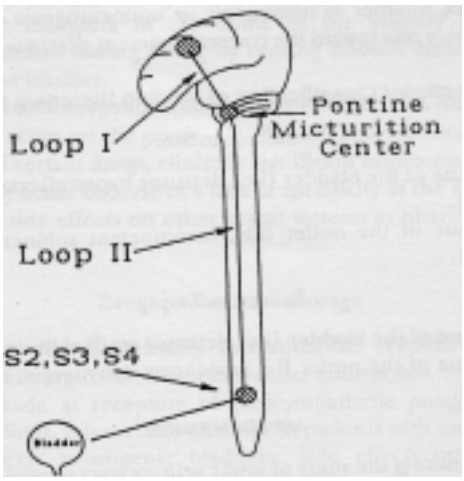

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Table 1.

Functional classification
a) Failure to store
1. because of bladder (i.e detrusor hyperreflexia, local irritants)
2. because of outlet (i.e incompetent sphincter mechanism)
b) Failure to empty
1. because of bladder (i.e detrusor areflexia)
2. because of outlet (i.e sphincter dysynergia, BPH, stricture)

b) Overflow incontinence
This is due to failure to empty bladder rather than inability to store urine. Eg. BOO (BPH, strictures), detrusor weakness (DM, anticholinergic medications) or combination of both

c) Stress incontinence
This is due to the sudden increase in intra abdominal pressure (laughing, straining etc) resulting in elevated bladder pressure causing urine leakage. It is frequently after radical prostatectomy for carcinoma of prostate or rarely after transurethral resection of prostate (TURP)

d) Enuresis
Involuntary urination and bed wetting during sleep. Usually implies overflow incontinence in adult male.

2. PATHOPHYSIOLOGY

Neurophysiology of Voiding

1. Act of micturition is a reflex function under voluntary control
2. Coordination of micturition reflex (detrusor contraction with sphincter relaxation) is controlled by brainstem (pontine) micturition centre via long spinal pathways (loop II) to sacral cord (S2, S3, S4)
3. This in turn under voluntary control of suprapontine higher functions via loop I.

Hence, three possible scenarios:

1) Detrusor hyperreflexia with coordinated external sphincter relaxation due to:
   a) suprapontine lesion involving loop I (stroke, Parkinson's disease, tumour)
   b) non neurologic local causes (infection, BOO, tumour, stone, foreign body)

2) Detrusor hyperreflexia with external sphincter dyssynergia due to suprasacral spinal lesions involving loop II [tumour, multiple sclerosis (MS), myelodysplasia, spinal arterio-venous malformation (AVM)]

3) Detrusor areflexia due to:
   a) interruption of sacral reflex arcs (DM neuropathy, MS, herniated disc, spinal cord tumour)
   b) myogenic cause (prolonged retention)
   c) also during initial spinal shock after suprasacral spinal cord injury.

3. DIAGNOSIS

History

- Determine onset and duration of symptoms
- Quantify symptoms eg how many times do you wake up at night to urine? What is the interval between successive urination during daytime?
- Associated symptoms eg frequency, urgency, dysuria implies UTI (cystitis, urethritis, prostatitis)
- History of perineal or pelvic trauma (stricture), prior instrumentation (stricture, bladder neck contracture), venereal diseases (stricture)
- History of spinal injury
- History of stone disease
- Other medical conditions eg DM, MS, stroke, Parkinson's disease, psychiatric disorders
- Medications eg alpha agonists, anticholinergics, anti psychotics etc.

Physical examination

- Abdominal examination especially to exclude any palpable bladder, ballotable renal mass or inguinal hernia
- Examine the penis for any phimosis, paraphimosis or meatal stenosis
- Rectal examination to assess the prostate size and consistency as well as anal tone
- If neurological cause suspected, proceed to do full neurological assessment.

4. ASSESSMENT

1. *IPSS (international prostate symptoms score)*
   Classified as mild (0 – 7), moderate (8 – 19) or severe (20 – 35)
2. *Urinalysis +/- urine cultures*
   Pyuria – infection, stone, foreign body
   Sugar – need to exclude DM
   Hamaturia – malignancy, stone
3. *Voiding charts*
   Patient will chart down amount of fluid intake and amount of urination every time per day for at least 3 days
4. *Serum electrolytes and creatinine*
   Indicator of renal function
5. *Fasting blood sugar*
   To exclude DM
6. *Prostate specific antigen*
   Prostate organ specific but not cancer specific
7. *Uroflowmetry and postvoid residual urine*
   Peak urine flow rate – objective documentation of severity of obstruction. Useful indicator of response to treatment
   Postvoid residual urine is single most useful information – categorised patients into failure to store or failure to empty

8. *Urodynamics*
   Include uroflowmetry, cystometry, urethral pressure profilometry and electromyography
9. *Imaging*
   An intravenous urogram is indicated in patients with haematuria, persistent infections or suspected bladder tumour
   An ultrasound scan of the bladder can detect any significant intravesical prostatic protrusion that suggests BPH
10. *Cystoscopy*
    If associated haematuria, persistent infection or suspected tumour.

5. COMMON PITFALLS

a) Beware of persistent UTI or irritative symptoms despite adequate treatment – may be CIS or muscle invasive bladder tumour
b) Nocturia may be an indicator of insomnia and not organic urological problems
c) Look out for polydipsia as a cause of urinary symptoms – do voiding charts
d) Frequency and nocturia may be first presentation of underlying DM
e) An elderly man who complained of stress incontinence and nocturnal enuresis may be in urinary retention
f) High index of suspicion if a man with no other medical conditions came with urinary retention – may be spinal cord problem.

RECOMMENDED READING

1. PM Hanno, SB Malkowicz, AJ Wein (eds). Clinical Manual of Urology, third edition. McGraw – Hill International Edition.
2. RM Weiss, NJR George, PH O'Reilly (eds). Comprehensive Urology. Mosby.

LEARNING POINTS

- Lower urinary tract symptoms are the summation of multiple urinary symptoms, characterized by the interplay between bladder function or outlet obstruction
- Multiple differential diagnoses are possible and a firm diagnosis, based on careful history and physical examination, supported by urinalysis and voiding chart, could be established in most cases
- There are common pitfalls that one should be aware of, such as CIS in patients with irritative symptoms, DM in patients with polyuria and insomnia in patients complaining of nocturia.