Urinary Incontinence: The Distressing Problem

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ABSTRACT

The prevalence of urinary incontinence (UI) in India is as high as 30%. Since, patients do not directly report the problem of incontinence leading questions regarding incontinence should be a routine part of history taking in gynecology.

Older patients may assume that UI is a normal consequence of aging. Incontinence is not a normal part of ageing, but it becomes a clinical problem in ageing women due to trauma of child birth, acute and chronic illnesses, loss of estrogenic stimulation at menopause and weaker pelvic support.

A stepped management strategy is recommended beginning with lifestyle modification, then behavioral therapy, then medications and finally surgery. First-line treatment to women with stress or mixed UI is pelvic floor exercises.¹

Bladder training lasting for a minimum of 6 weeks should be offered as first-line treatment to women with urge or mixed UI. Most urinary incontinence can be evaluated and treated in the primary care setting after careful history and simple clinical assessment. Initial treatment, for both urge urinary incontinence and stress urinary incontinence, is lifestyle modification and pelvic floor muscle treatment. Urinary urgency responds to bladder training and pharmacotherapy with anticholinergic medication. Pharmacotherapy has a limited place in stress incontinence.

Keywords: Urinary incontinence, Stress urinary incontinence, Overactive bladder.

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INTRODUCTION

Urinary incontinence is a worldwide common health problem having great social impact which affects quality of life. It is defined by the International Continence Society as involuntary loss of urine that is a social or hygienic problem. A population study says that 20 to 30% of women are affected, but only 7 to 12% perceive it as a problem.

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PHYSIOLOGY

For urine storage, spinal reflexes are responsible whereas for voiding, parasympathetic stimulation is responsible. During urine storage, these reflexes mediate contraction of the outflow region through somatic (striated muscle) and sympathetic (smooth muscle) nerves. During voiding, distension of bladder initiates micturition through activation of mechanoreceptors on bladder wall. The bladder receives parasympathetic innervations through pelvic nerve. Acetylcholine acts on muscarinic receptors on the detrusor muscle of bladder and stimulates them which lead to bladder contraction.

Continence and micturition involve a balance between urethral closure and detrusor muscle activity. Urethral pressure normally exceeds bladder pressure, resulting in urine remaining in the bladder. The proximal urethra and bladder are both within the pelvis. Intra-abdominal pressure increases (from coughing and sneezing) are transmitted to both urethra and bladder equally, leaving the pressure differential unchanged, resulting in continence. Normal voiding is the result of changes in both of these pressure factors: urethral pressure falls and bladder pressure rises.

Etiology

Evaluation includes sorting out transient causes of UI. These can be remembered by the pneumonic DIAPERS

D: Delirium

I: Infection

A: Atrophic vaginitis or urethritis

P: Pharmaceuticals and psychological disorders

E: Endocrine disorders

R: Restricted mobility

S: Stool impaction.

The most common medications contributing to UI include diuretics, anticholinergics (related to antihistaminics, antipsychotics and antidepressants), sedatives/hypnotics, alcohol, narcotics, alpha-adrenergic agonists/antagonists, calcium channel blockers.

Other causes are:

- Cystitis
- Detrusor hyperreflexia
- Spinal injury
- Diabetes mellitus
- Obesity
- Parkinsonism.

Male incontinence is most commonly due to sphincteric damage postradical prostatectomy. In India the cause is often after surgery for benign prostate and or due to neuropathic causes. Detrusor dysfunction can coexist with sphincteric incontinence in these cases. Stricture with sphincteric incontinence occurs in the cancer group. Radiation therapy following surgery can further complicate it.²

Evaluation

Key to evaluation and management of UI is directly inquiring about it because about 50% of patients will not spontaneously report it. Thorough history, with a validated questionnaire, voiding diary, some measure of quantifying urinary loss, urine analysis (urine dipstick tests to detect blood, glucose, protein, leukocytes and nitrites) and postvoid residual (PVR) measurement is adequate for a pure stress urinary incontinence or initial management of OAB symptoms. History includes presence of nocturia, the volume and frequency of leakage, precipitating factors like stress, degree of urgency, the strength of stream, other medical conditions, bowel and sexual function and quality of life. The woman's urinary incontinence (UI) should be categorized as stress UI, mixed UI, or urge UI/overactive bladder syndrome (OAB). Initial treatment should be started on this basis. In mixed UI, treatment should be directed toward the predominant symptom.

Bladder diaries should be used in the initial assessment of women with UI or OAB (minimum 3 days).³

Patients with failed prior surgery, mixed incontinence, unexplained large PVR and those with neuropathic history may need further workup. Ultrasound is required only to assess residual urine volume.

Routine use of pad tests or imaging (MRI, CT and X-ray) is not recommended.

Q-tip, Bonney, Marshall and Fluid-Bridge tests are also not recommended.

PVR is performed by catheterization or ultrasound. A residual of less than 50 cc is considered adequate. A PVR of 50 to 150 cc may contribute to frequency or exacerbate urge and stress incontinence. If PVR is over 150 cc bladder relaxing drugs should be avoided. PVR over 200 cc suggests detrusor weakness or outlet obstruction. In such cases urological consultation should be done.

Cystoscopy in the initial assessment of women with UI alone is not recommended. Multi-channel cystometry, ambulatory urodynamics or videourodynamics is not recommended before starting conservative treatment.

Urodynamic testing should only be considered when empiric therapy has failed, the diagnosis is unclear and the results would affect management or surgical intervention is being considered.

Multichannel filling and voiding cystometry is recommended in women before surgery for UI if:

- There is clinical suspicion of detrusor overactivity, or
- There has been previous surgery for stress incontinence or anterior compartment prolapse, or
- There are symptoms suggestive of voiding dysfunction.

Ambulatory urodynamics or videourodynamics may also be considered in these circumstances.

MANAGEMENT

A stepped management strategy is recommended beginning with lifestyle modification, then behavioral therapy, then medications and finally surgery.

Lifestyle Modification

Smoking cessation, weight loss (if BMI is over 30), fluid intake management (modify high or low fluid intake), alcohol and caffeine restriction and functional mobility improvement are the key components of life style management.

In women with UI who also have cognitive impairment, prompted and timed toileting programmes may help reduce leakage episodes.

If reversible causes of urinary incontinence are evident, they should be treated in the emergency department.

All suspected cases of cauda equina syndrome, cord compression, or paraspinal abscess require neurology and neurosurgery consultation. Treat the underlying cause of delirium from medical illness.

Neurological consultation including mental status, mobility, motor/sensory examination and degenerative disk disease should be done.

When to Consult a Urologist?

All suspected bladder neoplasm, unexplained hematuria, and recent voiding symptoms within 1 to 2 months require cystoscopic evaluation.

History of prior radical pelvic surgery or pelvic radiation.

Prior pelvic incontinence surgery

Gross pelvic prolapse

Use urine dipstick tests to detect blood, glucose, protein, leukocytes and nitrites. Treat urinary tract infection or renal calculi.

In postmenopausal women with vaginal atrophy intravaginal estrogens should be prescribed for OAB symptoms. Alpha-agonists have been shown to be helpful in women on estrogen. They increase bladder outflow resistance and internal sphincter tone.

Discontinue pharmacological agents contributing to urinary tract infection.

Treat psychiatric conditions contributing to UI.

Identify and treat hyperglycemia in patients with diabetes. Treat disimpaction in patients with fecal impaction and urinary incontinence.

Outpatient treatment regimens include pelvic muscle rehabilitation, behavioral therapies, pharmacologic therapies, anti-incontinent devices and absorbent products.

Pelvic muscle rehabilitation includes Kegel exercises (for a minimum period of 3 months), biofeedback, vaginal weight training and electrical stimulation. It increases urethral resistance by strengthening the pubococcygeus, periurethral and pelvic muscles.

Pelvic floor muscle training should be offered to women in their first pregnancy as a preventive strategy for UI.

Bladder training and pelvic muscle exercises are effective for urge, stress and mixed incontinence. The voiding schedule involves training to inhibit the sensation of urgency and postpone voiding, and to urinate according to a timetable. The goal is to attain a longer interval between consecutive voids with larger voided volumes. The training of selective contraction of the PFMs restores or facilitates the detrusor-inhibition reflex, which may restore normal function.

For bladder overactivity, PFM exercises may be combined with biofeedback and/or Electrical stimulation (ES). ES can also be applied as a sole therapy. Biofeedback can support PFM exercises by providing the patient with information about unconscious physiological processes (for active self-control over the processes which are being monitored).

ES of the PFMs induces a reflex contraction of the striated para- and periurethral muscles, accompanied by a simultaneous reflex inhibition of the detrusor muscle. This reciprocal response depends on a preserved reflex arc through the sacral micturition reflex center. Peripheral innervation of the PFMs must at least be partly intact to obtain a therapeutic effect in patients with detrusor overactivity.

PFMT should consist of at least eight contractions, three times a day.

Stress or Mixed UI

First line of treatment is pelvic floor exercises.

Urge or Mixed UI

Bladder training lasting for a minimum of 6 weeks should be offered as first-line treatment. It has fewer adverse effects and lower relapse rates than treatment with anti-muscarinic drugs.

Behavioral Therapies

These are directed toward urgency suppression and include bladder retraining, timed voiding, prompted

voiding, decreasing fluid intake, and decreasing caffeinated beverages.

Pharmacologic therapy remains the most commonly prescribed treatment. Medications are most helpful for urge incontinence and outlet obstruction.

Urge Incontinence

Anticholinergic agents such as oxybutynin, tolterodine, darefenacin, trospium and fesoterodine, hyoscyamine and dicyclomine and tricyclic antidepressants such as imipramine and doxepin.

Stress urinary incontinence-alpha-agonists such as pseudoephedrine, phenylpropanolamine.

Anti-incontinent devices include pessaries, urethral occlusion devices, absorbent pads.

Definitive cure is achieved with surgical therapies but the risk of complications is increased. This includes retropubic slings, suspensions and bulking injections.

Bulking Agents

Intramural bulking agents (glutaraldehyde crosslinked collagen, silicone, carbon-coated zirconium beads, hyaluronic acid/dextran copolymer).

Patient should be explained that repeat injections may be needed and the effect decreases over time.

Limitations

This technique is less effective than retropubic suspension or sling. The cost of repeated injections is high. Since mid urethral slings have low morbidity, the indications for bulking agents are limited to a few select cases.

There are insufficient studies to make any solid conclusions regarding the effectiveness of electrostimulation and magnetic therapy. These modalities are used in patients with spinal cord dysfunction.

Sacral neuromodulation - implanted devices for nerve stimulation.

Artificial urinary sphincter: Is an option if previous surgery has failed.

Intravesical botulinum injections: Novel treatment modality that has shown promise in candidates who have failed pharmacological therapy and do not desire surgical therapy.

Medication

Goal of therapy is to improve the symptoms of frequency, nocturia, urgency and urgency incontinence. Treatment options include anticholinergics, antispasmodic agents, and TCAs.

Immediate release oxybutynin should be used as first drug treatment for OAB or mixed UI if bladder training

has been ineffective. If immediate release oxybutynin is not well tolerated, darifenacin, solifenacin, tolterodine, trospium, or an extended release or transdermal formulation of oxybutynin should be considered as alternatives. Women should be counselled about the adverse effects of antimuscarinic drugs.

How Anticholinergic Agents help?

These agents suppresses involuntary bladder contraction of any etiology. They increase the volume of the first involuntary bladder contraction, decrease the amplitude of the involuntary bladder contraction, and may increase bladder capacity.⁴

Tolterodine: It has selectivity for urinary bladder over salivary glands (Dose 2 mg PO bid) Pregnancy category C.

Flavoxate

Used for symptomatic relief of dysuria, urgency, nocturia, and incontinence as may occur in cystitis, prostatitis, urethritis, and urethrocystitis/urethrotigonitis. It exerts direct effect on muscle. Counteracts smooth muscle spasms of urinary tract.

It is a calcium channel blocker, a local anesthetic, as well a phosphodiesterase blocker. No anticholinergic activity has been demonstrated.

This drug is no longer in widespread clinical use in overactive bladder and two randomized controlled trials have demonstrated no benefit *vs* placebo (Chapple 1990; Dahm 1995).

Four trials (Gaudenz 1978; Meyhoff 1981; Riva 1989; Wehnert 1989) reported that there were no statistically significant differences between flavoxate and anticholinergic drugs. Gaudenz 1978 found more patients preferred flavoxate although objective assessment with urodynamics was equivocal. Milani 1993 et al found flavoxate was the preferred drug. Two crossover trials (Cardozo 1979; Milani 1993) reported favorable results for anticholinergics.

Results of review of nine studies comparing flavoxate and anticholinergics favored the use of anticholinergics in preference to flavoxate for overactive bladder. Side-effect were more in the anticholinergic groups. But the newer anticholinergics have less side effects. There is no evidence to suggest flavoxate should be used in treatment of overactive bladder.

Darifenacin

Extended-release product eliciting competitive muscarinic receptor antagonistic activity. Reduces bladder smooth

muscle contractions. Indicated for overactive bladder with symptoms of urge incontinence, urgency and frequency.

Tricyclic Antidepressants

Imipramine

Useful in facilitating urine storage by decreasing bladder contractility and increasing outlet resistance.

Trospium

Elicits antispasmodic and antimuscarinic effects. Parasympathetic effect reduces smooth muscle tone in the bladder. Indicated to treat symptoms of overactive bladder (e.g. urinary incontinence, urgency, frequency).

Surgical Management

Sacral nerve stimulation is recommended for the treatment of UI due to detrusor overactivity in women who have not responded to conservative treatments.

Retropubic mid-urethral tape procedures, colposuspension and autologous rectus fascial sling are treatment options for stress UI where conservative management has failed.

CONCLUSION

UI is a hidden epidemic its incidence in India is not known exactly. History alone is a very efficient tool to reach at a diagnosis. Thorough history, with a questionnaire, voiding diary, some measure of quantifying urinary loss, quality of life assessment, urine analysis and postvoid residual (PVR) measurement is adequate for a pure stress urinary incontinence or initial management of OAB symptoms. Additional workup may be required in patients with failed prior surgery, mixed incontinence, unexplained large PVR and those with neuropathic history.

REFERENCES

1. Berghmans L, Hendriks H, De Bie R, Van Waalwijk E, Van Doorn Bø. Conservative treatment of urge urinary incontinence in women: a systematic review of randomized clinical trials. *BJU International* 85:254-263.
2. Badlani GH. Recent updates in the management of urinary incontinence. *Indian J Urol* 2007;23:133-134.
3. NICE guidelines on urinary incontinence in women. Nice Clinical Guideline 40, October 2006.
4. Roxberg C, Cook J, Dublin N. Anticholinergic drugs versus other medications for overactive bladder in adults Cochrane Review Issue 3, Jun 2007.