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Urinary Incontinence

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ABSTRACT

Urinary incontinence is the complaint of involuntary leakage (loss) of urine. It has a substantial impact on health related quality of life and is associated with considerable personal and societal expenditure. The potential cause of urinary incontinence includes dysfunction of the detrusor muscle or muscles of the pelvic floor, dysfunction of the neural controls of storage & voiding and many more. A full evaluation for the urinary incontinence requires physical examination, past medical & medications history, urinalysis and assessment of quality of life. Interventions can include non-surgical options (lifestyle changes, pelvic floor muscles training, drugs) and surgical options to support the urethra or increase bladder capacity. In this article, the concept of urinary incontinence along with its treatment aspects was discussed.

Introduction

Urinary incontinence is the involuntary loss or leakage of urine. Urine is stored in urinary bladder, which is relaxed when there is no urination. During urination, the muscle of bladder (detrusor muscle) constrict, thus forcing the urine into urethra (a tube that passes the urine from the bladder to the outside of the body). Then the urethral sphincter gets relaxed (internal sphincter- involuntary & external sphincter- voluntary) so that urination can happen in normal physiological condition. But in urinary incontinence, the sphincter of the urethra gets relaxed involuntarily which leads to the involuntary leakage of urine [1]. This makes the urinary incontinence a crucial subject of medicine that has physiological, psychological and sociological complications [2].

Urinary incontinence can range from mild leakage to an overflow of urine. Although it can be embarrassing for people to talk about even with their physician, urinary incontinence can be physiologically unpleasant for the patients. It can be often emotionally demeaning, decrease self confidence and perceived body image. Urinary incontinence can be both transient (acute) incontinence and chronic incontinence as they both have significant effects on the patient despite one lasting longer than the other [3]. Urinary incontinence can occur in both the genders, but is much more frequent in women. Incontinence in men is often a consequence of prostatic enlargement or from damage to continence mechanism during surgery or radiotherapy for prostate cancer. On the other hand, incontinence in women can be a consequence of dysfunction of the bladder or pelvic floor muscles often arising during pregnancy or childbirth, or at the time of menopause [4].

Types & Etiology

The 5 types of urinary incontinence and their causes are listed below:

1. Stress Urinary Incontinence: It occurs with increased intra-abdominal pressure (eg: with sneezing, coughing, exertion) due to urethral sphincter or pelvic floor weakness. Youngsters active in sports, pregnant women (or with multiple birth pregnancy) may be prone to stress urinary incontinence.

2. Urge Urinary Incontinence: It is associated with a sense of urinary urgency due to detrusor muscle over activity. The contraction may be caused by bladder irritation or loss of neurologic control.

3. Mixed Urinary Incontinence: It is the involuntary leakage of urine caused by a combination of both stress and urgency urinary incontinence.

4. Overflow Urinary Incontinence: It is the involuntary leakage of urine from an over distended bladder due to impaired detrusor contractility and/or bladder outlet obstruction. Neurologic disease such as spinal cord injuries, multiple sclerosis & diabetes can impair the detrusor function. Bladder outlet obstruction can be caused by external compression by abdominal or pelvic masses and pelvic organ prolapse.
5. Functional Urinary Incontinence: It is due to the environmental or physical barriers to toileting. This type of urinary incontinence is sometimes referred to as toileting difficulty [5].

Complications

Urinary incontinence can lead to following complications that include urinary tract infection, renal dysfunction secondary to obstructive uropathy, cellulitis, pressure ulcers, medication side effects, sexual dysfunction, decreased physical activity, depression and social isolation [6].

History to be Obtained during Diagnosis

The history should be used to determine the type, burden, severity and duration of urinary incontinence. Patients should be asked about medical condition such as COPD, asthma (which can cause cough), heart failure (with related fluid overload & diuresis), neurologic condition like Alzheimer's disease & Parkinson's disease (which may suggest dysregulated bladder innervation) and musculoskeletal condition (which may contribute to toileting barriers) etc. The surgical history should also be assessed as the involved anatomy and innervation may have been affected. For females, a history should also be obtained which includes number of deliveries (vaginal or C-section) and also regarding the history of pregnancy. Patients should be also asked about medication and substance use (eg: diuretics, alcohol, caffeine) as they can either directly or indirectly contribute to incontinence [7].

Diagnosis

Very little laboratory testing or imaging is required for evaluation. Most laboratory and diagnostic tests are for ruling out harmful condition and sequelae. Urinalysis should be performed in all patients in order to find out any UTI, glycosuria, proteinuria and hematuria. Blood urea, nitrogen and creatinine test can be performed to find out any suspected obstruction so that renal function can be assessed.

Post-void residual volume can be done. It includes the bladder ultrasound. If there is detection of > 200ml of urine remaining in the bladder after voiding, it may indicate the overflow incontinence. Renal ultrasound can be considered to assess for hydronephrosis [8].

Treatment

Treatment for urinary incontinence can be categorized into behavioural, pharmacological, catheter or surgical.

Behavioural: It includes the lifestyle changes by the patient such as monitoring the consumption of fluids, quitting smoking & alcohol and losing weight. Another example of behavioural treatment is bladder training, where the goal is to increase the amount of time between emptying the bladder and the amount of fluid the bladder can contain. Another crucial aspect of bladder training is pelvic floor exercise (Kegel exercises) that helps to strengthen the pelvic floor muscles. The pelvic floor muscles support vital organs that affect elimination including the uterus or prostate bladder, small intestine and rectum [9].

Pharmacological: Use of pharmacological agent, specifically anticholinergic medications (Oxybutynin, Tolterdoine, Trospium, Solifenacin) which blocks the Ach, a neurotransmitter common in parasympathetic nervous system. One of the common function of Ach is to send the signals to the brain that triggers the bladder contraction. Other medications like Alpha-blockers (Terazosin, Doxazosin) and 5-alpha reductase inhibitors are also used [10].

Catheter: Catheters are thin, flexible tubes that are inserted into the bladder through the urethra to drain the bladder. It can be inserted through the urethra in the bladder (indwelling or Foley catheter) or through making an incision in the abdomen. Indwelling catheters are cost effective to other treatment of urinary incontinence.

Surgery: This is the last options to correct the urinary incontinence. Injecting bulking agents (usually collagen is injected into the tissues surrounding the urethra) into the urethra is effective for both men and

women. This helps the urethra close tightly and keeps urine from leaking out [11].

Conclusion

Urinary incontinence is the loss of control of urination (involuntary leakage of urine). It can be caused by physical activity, multiple pregnancy, weakness of urethral muscle, infections etc. It affects the physiological, psychological and sociological status of the patient. It can lead to several complications like- UTI, sexual and renal dysfunction, social isolation and many more. Hence, the patients with urinary incontinence should approach the health care professional for better treatment strategies for the management of this problem.

Abbreviations

UI: Urinary Incontinence
COPD: Chronic Obstructive Pulmonary Disease
UTI: Urinary Tract Infection
C-Section: Caesarean Section

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