SUMMARY

Female Stress urinary incontinence is the involuntary leakage of urine during cough or exertion .It is the most common cause of urinary incontinence in women, however, it is difficult to assess the true incidence , as many women suffer in silence and consider it an inevitable consequence of child birth and aging.

Stress urinary incontinence shows increased incidence in old age, with a maximum rate of incontinence episodes between 45–49 year. It was also found to be more common in whites and in patients suffering from leiomyomata.

Factors that are thought to predispose to female stress urinary incontinence include: Chronic increase in intra-abdominal pressure, repeated pregnancy and delivery, obesity, pelvic surgery, estrogen deficiency, pelvic irradiation. pelvic organ prolapse.

The pathphysiology of stress urinary incontinence is an inter-relation between: 1- failure of the hammock mechanism of continence ,2- Intrinsic urethral Sphincter deficiency, 3- failure of the extrinsic sphincter mechanism .

The primary goals of an evaluation of women presenting with stress urinary incontinence are: 1- Provide a clinical diagnosis, 2- Determine any predisposing factors of incontinence, 3- Assess coexisting pelvic pathology, 4-Establish stress urinary incontinence severity, 5- Determine the impact on the quality of life.

History and examination alone cannot diagnose female urinary disorders, but can guide further investigations and management, history is commonly taken through the use of questionnaires with special concern to previous treatment.

Examinations should assess:

Patient's general condition and fitness for surgery, mental state, through gynecological assessment.

***Special clinical tests include*:**

Q –tip test, voiding diary, pad tests, Youssef test, Bonney' test, Pyridium test, and stress test.

Imaging investigation: including: Cystography, Ultrasound imaging and MRI.

***Urodynamic assessment* :** Which is considered the gold Standard in the diagnosis including :

A. Eye ball urodynamic:

B. **Laboratory urodynamic including:** cystometry, urethral pressure profilometry (static UUP measurement and dynamic UUP) ,uroflowmetry.

C. Video urodynamic and D. Electromyography.

Studies assessing the prevention of stress urinary incontinence are limited, however, the documented measures for prevention include: shortening of the second stage of delivery, avoidance of instrument delivery, puerperal pelvic floor muscle exercise.

Lines of management are: conservative treatment, medical treatment, and surgical treatment.

Conservative treatment

. *life style modifications***:** as weight loss, avoidance of strenuous exercise, avoidance of smoking, caffeine reduction, reduced fluid intake and relief of constipation, postural changes.

.*Behavioral therapies* **:** Non-active: as scheduled toileting, habit training, prompted voiding(monitoring, prompting, praise or reward), And active: such as bladder training (bladder drill) and pelvic muscle rehabilitation, which include; awareness of pelvic muscle function, identification and utilization of appropriate muscle group and exercise routine of successive contractions.

.*Physiotherapy:* Pelvic floor exercise: by the biofeedback mechanism and cones and electrical stimulation.

Medical treatment

A- Decreasing bladder contractility.

A*) Pure anticholinergic agents*: e.g. atropine sulphate, propantheline bromide, tolterodine tertrate, trospium chloride .

B*) Mixed anticholinergic agents*: 1- Oxybutynin chloride: Oxybutynin Immediate release, Oxybutynin extended release, S-oxybutynin, Transdermal system, Intravaginal oxybutynin, Oxybutynin bladder pump. 2- Propiverine hydrochloride.

C) *α adrenergic blockers*: blocking the sympathetic action on the α adrenergic receptors promotes relaxation of bladder neck and proximal urethra

D) *β adrenergic stimulants*: promote bladder smooth muscle relaxation.

E*) Potassium channel openers*: relax detusor smooth muscle .

F*) Calcium channel blockers*: interfere with calcium inflow or intracellular release lead to bladder smooth muscle relaxation.

G) *Prostaglandin antagonists*: multiple mechanisms exists whereby prostaglandin synthesis inhibitors might decrease bladder contractility.

H*) Tricyclic antidepressants*: used in the treatment of overactive bladder and stress incontinence.

I) *Flavoxate Hydrochloride*: its action include calcium antagonistic activity with local anesthetic properties and phosphodiesterase inhnbition.

J)*Decompressen*: it is a strong antidiuretic and it may have utility in the treatment of neurogenic bladder with caution.

K)*Afferent nerve inhibitors*: have a local anesthetic effect.

L*) Botulinum toxin A* :inhibit the acetylcholine release.

B- **Increasing outlet resistance**.

1*) α adrenergic agonists*.

2*) Ephedrine, pseudo ephedrine*.

3*) Duloxetine hydrochloride* (the most recent).

C- **Estrogens**.

* Surgical Treatment

A) Conventional surgical techniques including:

Anteriorcolporrhaphy, Marshall and Burch colposuspension,

Richardson's procedure, laparoscopic suspensions technique, and needle bladder neck suspension procedures.

B) Unconventional surgical techniques:

•**Laparoscopic slings Operations;** tension- free vaginal tape TVT, trans-obturator tape TOT, Remeex Readjustable sling, and Safyre Sling,TVT secur.

- **Injectable Periurthral Agents.**
- **Urethrophy and Urethroplasty**.
- **Non Surgical devices**:
    - External collection devices.
    - Occlusive devices.
    - Intra- urethral Devices.
- **Artificial urinary sphincter**.