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Physiotherapy Intervention in Stress Urinary incontinence A review article

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Abstract - (Purpose)This review article is designed to expose physiotherapist to a assessment and management of stress urinary incontinence & treatment of SUI along with preventive roles that physiotherapy at for women with urinary incontinence. Unique concept about this article is to provide basic functions of pelvic floor muscles and support for the continence of urine.(Method) A range of database was searched to identified article that addresses physiotherapy for SUI including Cochrane library ,Medline&CINAHI.(Result)According to this article identified in our database greater & evident results have been observed in females with SUI who receives treatment for at least 3 months.(Conclusion)Plan of physiotherapy should be varied from person to person and include vital supervision.

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INTRODUCTION

Stress Urinary incontinence is defined as a loss of bladder control varying from a slight loss of urine after sneezing, coughing, or laughing, to complete in ability to control urination. It is also known involuntary urination or uncontrolled leakage of urine. It is common and distressing problem which may have a large impact on quality of life. It has identified as an important issue in geriatric care. The term enuresis is often used to refer the urine in incontinence primarily in children known as Nocturnal enuresis (Bed wetting).

Pelvic surgery, pregnancy, childbirth and menopause are major risk factors. Urinary Incontinence if a often a result of underlying medical condition but is under reported to medicinal practioners. By the international incontinence society urinary incontinence is defined as involuntary loss of urine which is objectively a demonstrable, social and hygienic problem. There are three main types of urinary incontinence:

1. Stress urinary incontinence

2. Urge incontinence

3. Mixed incontinence

Stress urinary incontinence is the state of leakage of urine from the bladder due to increase pressure on it experienced while taking any exertion such as laughing, coughing, sneezing, or lifting a baby. It capture both males and female but commonest among females, while urged incontinence is the complain of involuntary leakage accompanied by urgency. Women with stress urinary incontinence have sigficantly poorer quality life than there continent counter parts. It has been noticed 25-50 percent of female suffering from stress in incontinence urinary experiences coital dysfunction. It is the condition leaves the female with psychological morbidity particularly depression near about 25 % female take time off work because of stress incontinence.

Over several years it has been the matter of research that female suffering from stress urinary incontinence have lack of confidence to face social gesture and remains conscious about their hygiene and health. The condition has been shown to affect areas such as relationship, work, travelling, sports, and other interest of physical hobbies. Published literature on bladder problems and their management previously focus on objective assessment of bladder function, noticeably urodynamic parameters which were used as probability for the amount of sufferer of stress urinary incontinence experience and determine the level of treatments with their different outcome majors.

However, it is important to know about the feeling of women and how stress urine incontinence affects her life and those around her.

The aim of this article literature to review the current literature on physiotherapy intervention in stress urine incontinence and different measure taken by physiotherapist to manage the lifestyle as well as female health. Cause of stress urine incontinence may be so many but the physiological effects occurs due to the weakness of pelvic floor. Due to this embarrassing condition female is unable to continue her normal activities of daily life, leading low self

esteem and further growth, and the major effect i.e. social isolation.

Physiotherapist have become involved in the clinical management of stress incontinence as the presumptive underlying impairements (decreased pelvic floor muscle strength or endurance awareness of bladder). Consequently there is a growing need to understand how physiotherapy interventions impact the stress urinary symptoms and impairments by increasing functional abilities of a female. This review article is designed to expose physiotherapist to a physiotherapy assessment of SUI and treatment possibly preventive role to play against SUI. Reviewing a series of categories including the anatomy of the pelvic floor and mechanism, pathophysiology and treatment of physiotherapy for SUI.

Bladder Anatomy and Physiology: Anatomy and Physiology of the bladder are complex and various types of urinary incontinences are directly dependent on anatomy and physiology of bladder as well as associated structure. Anatomical structure of female pelvic floor involved the wirings in the bladder including detrusor muscle, internal and external sphincters, neck of bladder and proximal urethra and associated structures.

Reduced activation of the sympathetic nervous system result in relaxation of detrusor muscle and closer of sphincters and filling of the bladder. When the volume of urine in the bladder reaches to 300 to 500ml the sensation of passing the urine relayed through spinal cord to the higher centers. Voluntary voiding (micturiton) involved the parasympathetic nervous system and the voluntary somatic nervous system. Getting information from these systems results of contraction of detrusor muscle and corresponding somatic nervous activity leading to relaxation of sphincters.

Pathophysiology: Both the factors including genito urinary and non genito urinary may contribute to urinary incontinence in elders. Age related function changes in urinary tract may be the patho factor or detrusor over activity leaves to impaired bladder contractibility which decreases uretheral closer which leaves atrophy of urethal muscles and consider to be main contributing factor for stress urinary incontinence. Causes of stress urinary incontinence are as follows:

1. Mutiple vaginal deliveries
2. Complex vaginal deliveries
3. High infant birth weight
4. History of hysterectomy
5. Transition to menopause
6. Smoking
7. High body mass index
8. Constipation
9. Alzheimers disease
10. Cerebero vascular lesions
11. Diabetes
12. Hypertension
13. Recurrent urinary tract infection

There are changes in recovery phase of urinary incontinence which is termed as reversible cause of UI which oftenly described by DIAPPERS which means D for delirium, I for infection, A for aftrophy, P for pharmacological, E for endocrinal, R for restricted mobility, S for stool impaction (data adapted from references) .

Diagnosis and Evaluation

Patients with urinary incontinence should be fully diagnosed and evaluated without loop holes, not only the patients own complaints are necessary to hear but thorow evaluation of vital signs and amount of micturition should be noted to sketch the investigation and plan of treatment accordingly.

Formulating and accurate diagnosis may require the participation of clinicians, trained urologist, wide range of symptoms list depending on types and severity of urinary incontinence. Following should be evaluated

1. SUI (Stress urinary incontinence): Amount of leakage
2. Leakage related to external stimuli (coughing, sneezing)
3. Difficulty in initiating the urine stream
4. Sense of incomplete urination

PAD test is the Key out come to measure the amount of leakage of urine, which is perform by the patient and subjected to fulfill the given task by the physiotherapist in various situation. Bladder diary is important to maintain for providing the diagnosis as well as the reevaluation after treatment.

Bladder diary includes the female episodes of voiding, with following questions before executing the physiotherapy management.

A. Average number of voids-?

B. Average number of accidental episodes-?

C. How many times she changes her inner lining?

D. Maximum volume voided 300ml or more

E. Minimum volume voided less than 50ml

F. Night time micturition

Along with bladder diary patient body mass index should also be assesed by making patient comfortable prior to the examination and the procedure should briefly explained again. Physiotherapist should follow the infection control

procedure as per protocol. Examination should note the following information :

A. Any abnormal tenderness or bloating

B. Any perineal abnormalities

C. Any irritation or redness in the vaginal area

D. Any episiotomy done before

E. Any perineal descent

Final diagnosis of urinary incontinence should be established on the basis of objective examination findings, in which bladder diary proves to be very effective in useful. Diagnosis should also check the amount of leakage on lifting the child because it increases the intra abdominal pressure. It is important to note the vaginal examination and testing of muscle strength will help to form the line of treatment.

A brief explanation of the present status should be given to the patient and physiotherapist should inform about the importance of physiotherapy in urinary incontinence along with the way of treatment as the part of informed consent.

Necessity Of Pre Evaluation And Diagnosis

Importance of correct diagnosis cannot be over emphasized but complete review of person's personal history including uro dynamic assessment is required which involves flow rates, residual urine, bladder pressure. Necessity of assessment falls for planning and interventional setting prior to the physiotherapy settings.

Aims Of Physiotherapy In Stress Urinary Incontinence

1. To improve first line chief complain.

2. To increase muscle strengths.

3. To maintain hygiene

4. To maintain diet and regulate digestion

5. To improve patient confidence to face social encounters

6. To improve metabolism

7. To improve obesity if present

Physiotherapy treatment for females suffering from SUI includes pelvic floor physiotherapy, life style changes, behavioural therapy and medication. Pelvic floor physiotherapy is the important form of conservative treatment for SUI and termed as PFM which is done specifically for the contraction of LA (Levator Ani) muscle. The premise of this intervention is that strong LA muscle contraction will improve urethral closure and support of pelvic floor organs. It is assumed that contraction of urethra by its compression improved strength of PFM and also enhances the urine control during time of exertion. Its seems valuable that LA muscle contraction could increase the strength of functioning muscle as well as complete bedding of bladder. Since the LA muscle consist of both slow and fast muscle fibre specific strength training increases the muscle tone and endurance. Kegel exercises are the important pelvic floor exercises taught to the patient verbally or by manual palpation. The effectiveness of Kegel exercises in the patient SUI depends on both frequency and intensity prescribed by the physiotherapist. It is advisable to perform 15 repetitions of 2-5 contraction in exercises regime for 3 sets per day for at least 8-9 weeks. For example in women with little to moderate stress urine continence has been associated with reduction in continence. The pelvic floor regime was also accompanied by "KNACK principle. It is counter brecing technique which is taught by the clinicians to prevent the leakage during the increase abdominal pressure, the patient is taught to contract the pelvic floor muscle just before to physical stress such as sneezing coughing. According to Cochrane review of pelvic floor muscle exercises reveals greater improvement in those womens who receives our supervised kegal program for atleast for 3 to 4 months. It is also visible that physiotherapy treatment and management is effective when these exercises are based on physiological principles, because physiotherapy exercises improves endurance and muscle strength both.

It is important to mention that in adjuncts to consideration that intensity and frequency of PFME program should be followed with the correct positioning of the patient. Borello France compared the effect of PFME progression that included practice in upright position that is sitting and standing.

The main principle of physiotherapy intervention used in stress urine incontinence can be summarized as follows:

1. Pelvic floor muscle awareness should be taught to the patient.

2. Pelvic floor muscle strength and exercise in functional position should be taught.

3. Information about Knack principle should be given patient.

4. PFME should be individualized according to the grade of SUI.

5. KEGAL exercises are performed until the muscle fatigues, for atleast several times a day.

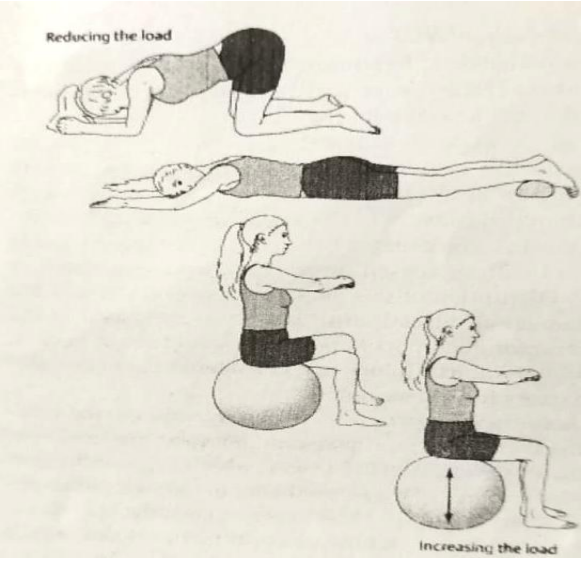
6. Pelvic floor muscle training is important while teaching uretheral closure which is an adequate support provided by the endopelvic facia and the

tonic contraction of the LA muscle which is the base of pelvic floor muscle.

Table 1. Intervention categories with evidence – based reference of justification noted

Modalities	Heat Ice PFM biofeedback • To promote strength and endurance • to increase coordination • To promote muscle relaxation PFM electrical stimulation • To improve PFM strength (if 2/5 PFM strength) • To promote sensory awareness due to sensory impairment • To reduce pain
Manual physiotherapy Procedures Exercises	Soft tissue mobilization to decrease soft tissue restriction and improve range of motion. Joint mobilization to improve range of motion. • Manual facilitation • Gravity eliminated • Anti-gravity • During functional • Down training Core stabilization • Transverse abdominal muscles • Other abdominal muscles • Multifidus muscle • Functional exercises Flexibility • Hip • Lumbopelvic

Education	Body mechanics/posture Bladder/bowel schedule Diet modification • Caffeine reduction • Carbonated beverage reduction • Increase water intake • Decrease water intake • Fiber education Relaxation techniques to decrease muscle tension SUI strategies such as PFM contraction before increase in intra-abdominal pressure UUI strategies such as inhibition techniques to suppress bladder contractions toilet strategies • For constipation such as toilet posture to promote bowel movement • Voiding without straining Soft tissue massage such as abdominal massage, scar massge, and self-stretching for introitus.



Impact Of Sui On Quality Of Life

All though both stress and urge urinary incontinence can be treated with conservative management of physiotherapy their remains of profound stigma along with the feeling and social in acceptance and humiliation related to SUI. The main draw back of SUI is recreational withdrawal and root from fear anxiety along with low self confidence and unpleasurable circumstances. The psychological impact of this condition must neither be underestimated nor be ignored.

Life impact of stress urinary continence has on daily life can differ greatly depending on the etiology and severity on the condition and individual to individual coping strategy.

Consequences Of Stress Urinary Continence If Remain Untreated

Numerous factors and medical condition can increased the rates of complications. For example obesity can be associated with stress urinary continence and is an important to control weight before starting physiotherapy treatment and if not treated properly stress urinary continence will lead to flooding of urine. Heart congestion can occur with increase abdominal pressure because of chronic stress urinary incontinence that is why it is necessary to treat SUI in its primary stages.

Diabetes is having poly urea as it symptoms and stress urinary incontinence can be causing factor of reduction of water content in the body.

Urinary tract infection may arise due to stress urinary incontinence and lead to hygiene problem because it may be a favourable atmosphere for the growth of bacteria.

Nutritional deficiency may occur due to the loss of fluid results in fatigue and cramps. Embarrassing social behavior can be another consequence for untreated SUI because passive in sufficiency on dryness and hygiene may lead to low self esteem.

Relationship Problem Due To Stress Urinary Incontenence

Relationship of couples can be significantly affected by urinary continence. Nilshon et.al 2 showed that 38% of women and 32% of men reported that female partners in continence problem impacted negatively on their relationship. Further 20% women and 17% of men reported reduced intimacy, affection and physical proximity.

Patient reveals that “I became nervous and cannot actually relax, I am anxious about smelling bad and urine leakage when we are closely intimated.

This shows that suffering from stress urinary incontinence may have an even higher cost in psychological terms than most of us can imagine.

Lifestyle And Behaviour Therapies For Stress Urinary Incontence

Behavior training is important treatment that teaches patients how to use the pelvic floor muscle to inhibit detrusor contraction. Behavioural training is meant to teach the patient how to use anal spincters and

bladder contraction at the time of urge and stress urinary continence. Visual feed back should be given to the patient for better understanding of both the muscle contraction (anal muscle and pelvic floor muscle) to prevent the leakage of urine.

Fluid Consumption Training: Doctor should recommend the amount and timings of fluid intakes by the patient during the day time and night. However one should not limit what you drink so you become dehydrated.

Patient should be taught strictly to avoid caffeinated and alcoholic beverage as it is believe that in some people dietary irritant affects bladder function.

Healthy Life Style Changes

Patient should quit smoking, alcoholism and should lose excess of body weight for controlling the stress urinary incontinence and causative factors for the leaking of urine which is coughing and sneezing one should prevent chronic cough for progression of treatment in stress urinary incontinence.

DISCUSSION

From these observation we review that plan for physiotherapy care should be individualized for each patient and should include optimum physiotherapy intervention. As outlined in table 1 these interventions include modalities to decrease pain, pelvic floor muscle exercise in detail with or without biofeed back will improve muscle strength as well as coordination between them. Physiotherapy includes PAD test which is the main outcome measure to weigh the PAD while female carries it in various activities. This test is having utmost importance though witch females her self diagnosed her underlying disease. Physiotherapy itself is a means of treatment for getting adjusted with various elements without any side effect .every patent cannot undergo surgeries but entertain physiotherapy session for better management of SUI in a very low cost.

Physiotherapy deals with SUI in three phases that is preventive ,curative and rehabilitative that is why it is considered to be very effective in the reversible of SUI that is DIAPPERS.Thus patient is subjected to perform kegal set of exercises at home as a measure of home programme. Physiotherapist have explained the patent to be aware of hygiene and diet management.

CONCLUSION

Normally women with stress urinary incontinence receives physiotherapy treatment once a week for the period of 4 to 8 weeks and follow the home treatment program along with various instruction for improving lifestyle and behaviour programs. But regular regime of physiotherapy instructor and valuable assessment of pelvic floor muscle strength should be consider in follow up. Thus physiotherapy when accompanied prescribed home exercises is likely to be successful for stress urinary incontinence treatment. Additional factors such as education, activity level, parity, smoking, child delivery, and chronic pelvic pain make affect the ability of the patient to perform pelvic floor muscles exercise correctly.

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ADVISE

It is advisible to use stabilization exercises to improve strength of core muscle along with lumbar stabilizing exercises and education to the patient for recommendation for using bladder and bowel training, fluid management and diet method for leading comfortable social encounters.

All the best for all females

REFERENCES

1. Abrams P, Cardozo L, Fall M, et al. Standardisation Sub-committee of the International Continence Society: The standadisation of terminology of lower urinary tract fuction: report from the Standardisation Sub-committee of the International Continence Society. Neurourol Urodyn, 2002, 21:167-178. [Medline] [CrossRef]
2. Wein AJ, Rovner ES: Definition and epidemiology of overactive bladder. Urology, 2002, 60: 7-12, discussion 12. [Medline] [CrossRef]
3. Cannon TW, Damaser M: Pathophysiology of the lower urinary tract: continence and incontinence. Clin Obstet Gynecol, 2004, 47: 28-35 [Medline] [CrossRef]
4. Hunskaar S, Burgio K, Diokno A, et al: Epidemiology and natural history of urinary incontinence in women. Urology, 2003, 62: 16-23 [Medline] [CrossRef]
5. Wilson L, Brown JS, Shin GP, et al.: Annual direct cost of urinary incontinence. Obstet Gynecol, 2001, 98:398-406. [Medline] [CrossRef]
6. Subak LL, Brubaker L, Chai TC, et al. Urinary Incontinence Treatment Network. High costs of urinary incontinence among women electing surgery to treat stress incontinence , Obstet Gynecol, 2008, 111: 899:907. [Medline] [CrossRef]
7. Wei JT, De Lancey JO: Functional anatomy of the pelvic floor and lower urinary tract.

Clin Obstet Gynecol, 2004, 47:3-17. [Medline] [CrossRef]

8. Sand PK, Richardson DA, Staskin DR, et al.: Pelvic floor electrical stimulation in the treatment of genuine stress incontinence: a multicenter, placebo-controlled trial. Am J Obstet Gynecol, 1995, 173: 72-79. [Medline] [CrossRef]
9. Yamanishi T, Yasuda K, Sakakibara R, et al.: Pelvic floor electrical stimulation in the treatment of stress incontinence an investigational study and a placebo controlled double-blind trial. J Urol, 1997, 158: 2127-2131. [Medline] [CrossRef]
10. Oskouei Ali E, Ghaderi F: Physiotherapy management in prenatal and postnatal women with urinary incontinence. Iran J Reprod Med, 2012. 10: 98-96.
11. Bo K, Finckenhagen HB: Is there any difference in measurement of pelvic floor muscle strength in supine and standing position? Acta Obstet Gynecol Seand, 2003, 82: 1120-1124. [Medline] [CrossRef]

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