

SCIATICA AND URINARY INCONTINENCE – LONGITUDINAL ONE YEAR EVIDENCED RESEARCH WITH PHYSIOTHERAPY

ABSTRACT

Low back ache with sciatica can be associated with urinary incontinence among geriatric subjects while the patient was functionally rehabilitated in 12 weeks duration, nocturia persists. various means of core strengthening exercises were adopted. Previous habits such as smoking, alcohol, ageing, sedentary life style, BPH, atrophy of pelvic floor could probably be the factors as evidenced. This research carries physiotherapist challenging role in a patient with LBA and urinary incontinence in one year regular physiotherapy care among a patient; outcome were discussed with due research support. Findings of this study with how much a subject can benefit having sciatica and urinary incontinence also points at where further studies can be continued.

Comment [U1]: Abstract part could be read again and some lines are incomplete in it. Please complete it.

Comment [U2]: Duration whereas

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Comment [U5]: Always give the full form with short form in brackets. Further you can use the short form. Benign Prostate Hypertrophy (BPH)

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KEY WORDS:

UTI – Urinary Tract Infection, BPH – Benign Prostate Hypertrophy, LBA – Low Back Ache, ADL – Activities of Daily Living, VAS – Visual Analogue Scale

Comment [U8]: Please give the full forms of abbreviations used in the study

INTRODUCTION

Subjects above 40 years are one in every 5 individuals with 13 million US citizens have urinary incontinence (National association of continence 2020). Urinary incontinence in men between (60 – 64 years) 11% to 51% in 85 years old black men had highest incontinence 21%. The clinical conditions associated with urinary incontinence includes onset of menopause, stroke, alzheimers, multiple sclerosis, prostate enlargement, pelvic floor atrophy, dementia, Parkinson disease, pregnancy. Moore and lucas 2010 have recorded male urinary incontinence secondary to sphincter weakness mostly following prostate surgery. Also with

Comment [U9]: So many paragraphs are overlapping and found in inappropriate place, the whole paper should be in sequence. Please go through the introduction again and complete the sentences.

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an increasing number of elderly population, urinary incontinence steadily increase (Perry et al 2000). Detrusor over activity in 75% of men with BPH and can occur in the absence of obstruction (Abrams 1985). Huckabay et al 2005 found 35% of men leaked only after removal of filling catheter. Various types of urinary incontinence are urge, stress, overflow, functional and mixed.

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Details to be collected from urinary incontinence subjects were;

Nature of incontinence, Duration, Evaluation, Cause, Number of pads used, surgical procedure used.

The following are the investigations done routinely

a) Urine analysis for infection, b) Blood-for kidney, calcium, glucose, c) Medical history, physical examination, rectal and pelvic examination in women, urological examination in men along with

1) Post void residual measurement with ultrasound , 2) Urodynamic study, 3) Cystogram , 4) Cystoscopy , 5) Sacral nerve stimulator.

Medications used in the treatment of urinary tract infection includes magnesium supplements, antibiotic, anticholernigic, oxybutylmirabegron (to relax urinary bladder)hormone replacement therapy (Anger et al,2006).

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Knowledge of potential causes, clinical influences, habits, Benign prostate hypertrophy related to sciatica were vital in deciding the course of therapy for a geriatric subject beyond musculoskeletal ailments.

Further urinary incontinence though a common feature among a geriatric male, selection of suitable modality such as core strengthening can provide better outcome in improving Neuromuscular strength, and an improved urinary continence. However as paucity of research in this topic, findings of this study makes more literally informative and a newer clinical situation, informs clinician of how to go about in decision making with history, clinical correlation, Investigation, Interdisciplinary care and how much prognosis can be obtained.

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AIMS AND OBJECTIVES OF THIS RESEARCH

- a. Analyse factors influencing urinary incontinence

- b. Core muscle strengthening on urinary incontinence
- c. Clinical conditions associated with urinary incontinence

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MATERIALS AND METHODOLOGY

76 years old retired professor, mesomorph, was a smoker, alcoholic, h/o BPH underwent surgery of the colon in 2019 may, developed Low back ache (LBA) with right leg pain from June 2019, was treated with Interferential therapy (IFT), Intermittent pelvic traction (IPT) elsewhere as low back pain aggravated along with increased urinary incontinence, was an NSAID as self-medication, attending the author since Dec 2019 till Feb 2020.

TREATMENT, CLINICAL PROGNOSIS AND RESULTS

PHYSICAL CONDITION OF THE PATIENT	TO DATE	TREATMENT
His physical condition as on December 2019: I. <u>Right sciatic pain:</u> VAS 8/10	February 2020: Has reduced significantly with pain VAS 2/10	Rx: Core strengthening exercises were gradually progressed with.
II. <u>Transfer and mobility:</u> Partially dependent for transfers & needs monitoring for mobility	Has become independent for self – care, ADL & Walking	Rx: With pain reduction using hot pack, exercises.
III. <u>Ambulation:</u> Needs assistance & ambulant with Antalgic gait	Able to walk unaided improved cadence walks daily for 4,000 steps/daily	Rx: Sideways, reverse walking along with proprioceptive exercises in high sitting were increased and also part of home programme
IV. <u>Posture:</u> Mild hyper thoracic kyphosis, flexion at hips & knees	His posture and self – esteem has improved adequately	Rx: Shoulder bracing, Spinal extension exercises. Stretching & Strengthening exercises were done

Comment [U20]: The data shows the three months time period. You can add the later follow up conducted in the period of one year by adding the one or more columns in the tables entitled treatment, clinical prognosis and results if possible.

Please explain it as the longitudinal studies track the same sample/cases at different points in time. Your title and data time period should be matched to prove that it is on longitudinal scale.

And if you are still working on the same data, please mention in the methodology part and write down every specific detail in methodology with clarity.

Please mention in the methodology section that you have taken the ethical consent from the subject to write the case study.

Comment [U21]: The scales used in study as VAS, ADL, Incontinence impact questionnaire on Quality of life, Oswestry scale and others should be discussed in detail in the methodology section.

If pads tests were done for urine leakage, please write down the details of leakage from first visit to the follow up visits.

Any tool or instrument used in the study should be mentioned very simply and clearly in the methodological section of study.

V. <u>Upper extremities.</u> <u>Contralateral Leg Trunk:</u> With no deficit recorded in range & motor power	Both contralateral leg & trunk has shown better functionally	Rx: PNF irradiation technique were used
VI. <u>Urinary bladder:</u> Residual urine was measured between 75ml, nocturnal urination with increased frequency	With reduction of residual urine and decreased urgency, Nocturia continues	Rx: Kegels and core strengthening exercises
VII. <u>Lumbar spine:</u> Has hypo lordosis, Anterior tilt of pelvis, sciatic pain	An altered better lumbar lordosis, decreased low back and sciatic pain	Rx: Along with core Strengthening, hamstring stretching were added
VIII. <u>ROM of hip:</u> Abduction and Hip extension were painful he was not able to sleep on right lateral position	An improved range of hip and knee with pain and motor power were recorded	Rx: Passive stretching of knee, hip flexors using PNF technique to strengthen the antagonist were done with pelvic stabilization, he was able to sleep by right side.

RESULTS & CLINICAL PROGNOSIS:

The subject has shown adequate improvement clinically in terms of low back ache, fear of falls, balance, an improved posture, gait, improved cadence, duration of walking, improved independence in ADL (Activities of daily living) with weekly thrice frequency from December 2019 till February 2020 and each session lasting for 20 – 25 minutes.

1. Incontinence impact questionnaire on Quality of life (QOL) prior to therapy following 3 months of specific physiotherapy from 71% to 43% improved by 39%.
2. Oswestry scale in December 2019 to February 2020 – 67% to 21%, improved by 3 fold.
3. As he could drive four wheeler and walks independently for 4000 steps daily. Level of confidence and esteem bit nocturia remains with marginal reduction in frequency of night time urgency for urination.

Comment [U22]: A Table on ADL activities can be prepared by putting the time period in the rows section and improved ADL scores or its percentages in the columns sections, visit wise or time period wise to explain it more clearly. Then give a thorough explanation of all the results of scales.

In the same way, Incontinence impact questionnaire on Quality of life (QOL) and Oswestry scale tables can be prepared and explained in the results section. Then, write the details regarding the tables. Description of 1, 2 and 3 in RESULTS & CLINICAL PROGNOSIS section should be explained in details as these are the scientific basis of paper.

DISCUSSION

This subject who originally has sudden loss of 8 kilogram body weight in a month developed acute low back ache with right sciatica, who was treated elsewhere with a course of pelvic traction and interferential therapy, where an aggravated LBA and UI occurred

a) Metastatic causes were medical ruled out by physician

b) Clinical examination did not indicated disc lesion but atrophy of right gastrocnemius, quadriceps and gluteal muscles were recorded and were in accordance.

c) Along with bilateral hamstring tightness, low back ache, anteverted pelvic tilt, thoracic kyphosis were only treated with specific exercise means for 12 weeks duration

d) Where as nocturia continues along with disturbed sleep patterns despite daytime continence has improved with core strengthening exercises and kegels exercise

e) As the subject previously requires manual support for walking, could walk for 4,000 steps daily with an improved confidence, gait and posture.

By using core strengthening PNF and proprioceptive techniques low back pain, walking independently for 4,000 steps / daily, improved self confidence, self care less fear of fall and improved posture were recorded and discussed in this research. With an improved QOL from LBA with sciatica by more than 3 fold where as incontinence has only shown 39% better. But the inadequate improvement from urinary incontinence, especially night awakening, which can be supported with following researches. Moore and Lucas 2010 have recorded male urinary incontinence secondary to sphincter weakness mostly following prostate surgery. Also an increasing number of elderly population, urinary incontinence steadily increase (Perry et al, 2000). Detrusor over activity in 7.5% of men with BPH (Benign prostate Hypertrophy) and can occur in the absence of obstruction (Abrams et al, 1985). Incontinence post following TURP varies from 1 – 5%, where as post Prostatectomy incontinence ranges from 8 – 77% (Klinger et al, 2006). Diminished sleep quality thereby decreasing his quality of life. When we analyse probable reasons which includes 1. Ageing, as the research subject is above 70 years which is supported by (Perry et al 2000) who has recorded saying UI increases steadily with increasing age. Secondly this study subject was a smoker and an alcoholic earlier which may have an influence he faces now. A sedentary life style with longer hours of sitting, lack of physical activity could add up to incontinence as his job earlier

Comment [U23]: I think there is no need to underline the discussion part. The whole study is important to read.

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was in teaching involving long hours of preparation of lecturer, evaluation could play a role.

Genetic influence cannot be retrieved as both his parents died early before their age of 70.

1. RECENT TRENDS IN UI TREATMENT:

Arun Sahai et al 2007 Botulinum for treating idiopathic DOA - randomised double blinded trial where QOL using incontinence impact questionnaire short forms was used, after 200U Botulinum toxin A among 16 patients, 4 weeks and 12 weeks and concludes that beneficial effects could persist for at least 24 weeks. Ostrowski et al 2015 have Post Prostatectomy Incontinence (PPI) for identified artificial urinary sphincter as the gold standard treatment for SUI in male. Noordhoff et al 2019, where adjustable continence balloons for Stress urinary incontinence (SUI) after Transurethral prostate resection (TURP) have found 50% reduction in daily pad use and improved IPS Score in 6 and 12 months.

2. ROLE OF PHYSIOTHERAPY IN UI WITH EVIDENCE:

Nice UK 2006 as electrical stimulation has weak evidence in urinary incontinence for men. 58 men post Prostatectomy incontinence patients where pelvic floor therapy along with electrical stimulation after a week's post-surgery, Incontinence improved greatly Moore et al 1999. Wille et al 2003, where 139 Post Prostatectomy patients were at random allotted in PFT, PFT+ES, PFT plus ES+ biofeedback, the treatment was started after catheter removal and continued for 3 months, with over all incontinence improved in all groups to 59% at 3 months, 86% at 12 months and no significant difference amongst three groups, meaning (Electrical Stimulation) E.S and biofeedback can be omitted.

CONCLUSION

Urinary incontinence among geriatric male patients are under researched. As it can be influenced by various factors such as habits of alcoholism, lack of physical activities, and previous history of smoking.

As low back ache, fear of falling, an improved gait and posture were positive outcome of this research whereas nocturia continues, disturbing the subjects quality of life a negative prognosis, which needs further continued treatment.

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In the discussion part, write all the scales results while correlating to the previous done studies.

Write down the ADL improvement scores, kegels strengthening of muscles, other physiotherapy sessions exercises which exhibited improvement and shows the association of all these score results with prior conducted studies.

The discussion part should be consistent, systematic and match in accordance with the results. Further it should be correlated with the previous conducted studies in coherence. It should be discussed precisely with accurate expression of details.

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Limitations of this study are multiple physiotherapy concepts were used but for me patients benefits such as pelvic stabilization for urinary incontinence, proprioceptive exercises for balance, core strengthening for posture and low back ache.

Future prospective for his clinical prognosis where planning a course of:

1) TENS / IFT with kegels

2) Using biofeedback with kegels

3) If these two modalities are ineffective an urologist guidelines for Botulinum injection and other course of treatment to be deployed.

As challenging scenario where fewer positive clinical prognosis recorded in this research with low back and sciatica related disorders, with exercises only as a therapy tool with urinary incontinence rehabilitation however we were not able to record adequate improvement, apart from having analysed uncontrollable various factors for lack of positive prognosis, other electrical therapy such as IFT, TENS, Biofeedback be further researched as continuation this study.

EXECUTIVE SUMMARY

Geriatric subjects undergo multiple challenges from various system, whereas urinary incontinence can be highly a disturbing, distraction leading to a diminishing self confidence and significant degree of disability. Habits such as Smoking, Alcoholism, Sedentary life style with lesser physical activities were highly related to urinary incontinence. As urinary incontinence (UI) can disturb quality of sleep, needs family support decreases social interactions further adds psychosocial dimensions influencing subjects Quality of life.

Sciatica, a common geriatric entity with low back ache and radicular symptoms down the leg can further diminish living standard of a subject if found to have along with UI. In this research various factors which can influence sciatica, UI were discussed along with one year longitudinal specific physiotherapy. Clinical prognosis on sciatica, QOL, UI were presented with due evidence. However as nocturnal diuria persists for which future perspective therapy were discussed. This presentation gets significant as more geriatric population with UI and sciatica but less research were carried out. Findings of this research can be validated and strengthened using other qualitative variables as well larger sample size.

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Comment [U45]: illnesses

Comment [U46]: Similar content should be added in introduction and discussion part too.

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REFERENCES

- 1) National Association of Incontinence 2020. United States. www.nafc.org
- 2) Moore KC, Lucas MG. Management of male urinary incontinence. *Indian J Urol*. 2010 Apr;26(2):236-44. PMID: 20877603; PMCID: PMC2938549.
- 3) Perry S, Shaw C, Assassa P, Dallosso H, Williams K, Brittain KR, Mensah F, Smith N, Clarke M, Jagger C, Mayne C, Castleden CM, Jones J, McGrother C. An epidemiological study to establish the prevalence of urinary symptoms and felt need in the community: the Leicestershire MRC Incontinence Study. Leicestershire MRC Incontinence Study Team. *J Public Health Med*. 2000 Sep;22(3):427-34. doi: 10.1093/pubmed/22.3.427. PMID: 11077920.
- 4) Abrams PH. Investigation of postprostatectomy problems. *Urology*. 1985 Feb;15(2):209-12. doi: 10.1016/0090-4295(80)90424-0. PMID: 7355551.
- 5) Huckabay C, Twiss C, Berger A, Nitti VW. A urodynamics protocol to optimally assess men with post-prostatectomy incontinence. *Neurourol Urodyn*. 2005;24(7):622-6. PMID: 16208638.
- 6) Anger JT, Saigal CS, Pace J, Rodríguez LV, Litwin MS; Urologic Diseases of America Project. True prevalence of urinary incontinence among female nursing home residents. *Urology*. 2006 Feb;67(2):281-7. 2005.08.062. PMID: 16461078.
- 7) Klingler, H. Christoph; Marberger, Michael | Incontinence after radical prostatectomy: surgical treatment options, *Current Opinion in Urology*: March 2006 - Volume 16 - Issue 2 - p 60-64
- 8) Coyne KS, Matza LS, Thompson CL, Kopp ZS, Khullar V. Determining the importance of change in the overactive bladder questionnaire. *J Urol*. 2006 Aug;176(2):627-32; discussion 632. doi: 10.1016/j.juro.2006.03.088. PMID: 16813906.
- 9) Sahai A, Khan MS, Dasgupta P. Efficacy of botulinum toxin-A for treating idiopathic detrusor overactivity: results from a single center, randomized, double-blind, placebo controlled trial. *J Urol*. 2007 Jun;177(6):2231-6.. PMID: 17509328.
- 10) Ostrowski I, Śledź E, Ciechan J, Golabek T, Bukowczan J, Przydacz M, Wiatr T, Stangel-Wojcikiewicz K, Chłosta PL. Current interventional management of male

Comment [U49]: Write the number of the references in brackets where there are referred in the study.

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stress urinary incontinence following urological procedures. Cent European J Urol. 2015;68(3):340-7.. Epub 2015 Sep 26. PMID: 26568879; PMCID: PMC4643709.

- 11) Noordhoff TC, Finazzi-Agrò E, Scheepe JR, Blok BFM. Outcome and complications of adjustable continence therapy (ProACT™) in the treatment of urinary incontinence after transurethral resection of the prostate: A multicenter study. Neurourol Urodyn. 2019 Apr;38(4):1111-1119. Epub 2019 Mar 8. PMID: 30848845; PMCID: PMC6850145.
- 12) Urinary Incontinence: The management of urinary incontinence in women. 25 oct 2006 – NICE Guidelines.
- 13) Moore KN, Griffiths D, Hughton A. Urinary incontinence after radical prostatectomy: a randomized controlled trial comparing pelvic muscle exercises with or without electrical stimulation. BJU Int. 1999 Jan;83(1):57-65.
- 14) Wille, S., Sobottka, A., Heidenreich, A., & Hofmann, R. (2003). Pelvic floor exercises, electrical stimulation and biofeedback after radical prostatectomy: results of a prospective randomized trial. The Journal of urology, 170(2), 490-493.
- 15) Sahai A, Khan MS, Dasgupta P. Efficacy of botulinum toxin-A for treating idiopathic detrusor overactivity: results from a single center, randomized, double-blind, placebo controlled trial. J Urol. 2007 Jun;177(6):2231-6.