(International Print/Online Journal)

SJIF IMPACT FACTOR: 4.617
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 2, Issue 5, Page No: 24-27
September-October 2019

IJMSCR

A case report of Impact of frequent falls in a Chronic Parkinson's patient with physiotherapy follow up for nine years

[1]Dr.S.S.Subramanian, M.P.T (Orthopedics), M.S (Education), M. Phil (Education), Ph.D (Physiotherapy)., Principal, Sree Balaji College Of physiotherapy,Chennai – 100.
[2]Dr.Annie Thomas PT,PhD.,Professor and Head, Department of Physiotherapy,St John's Medical College,Bangalore-34

Corresponding Author
Dr.Annie Thomas
PT,PhD.,Professor and Head, Department of Physiotherapy,St John's Medical College,Bangalore-34

Type of Publication: Case Report
Conflicts of Interest: Nil

ABSTRACT

Global increase in elderly population and associated health care requires an economic planning and preventive care strategies in geriatric rehabilitation provided with cases like Parkinson's disease, Stroke etc. Increased life expectancy with systemic ailments involved and problems with ageing need a revisit by geriatric healthcare professionals. **Aims and objectives of this** study where to analyze a nine year follow up (2010-2019) on a subject with dyskinesia, (Parkinson's disease) were falls, its causes and impact evaluated with clinical and functional outcome with specific physiotherapy measures. **Materials and Methods** of this research where the subject continued his prescribed medication and his daily routine. For the initial 5 years period the subject was attending the centre and later domiciliary physiotherapy was given since the last two years with a frequency of 30-35 minutes of each session the nature of exercises were balance training, Proprioceptive exercises, core strengthening, irradiation techniques and incentive Spirometry. **Results:** The prognosis of the case was analyzed with Falls Efficacy scale and Barthel Index and the result was a negative prognosis with an increased falls, dependency for ADL was recorded. **Conclusion:** The falls prevention, promoting physical activities, custom based regular specific physiotherapy among geriatric subjects should be major component of elderly care as findings of the study points out, as nature PD is progressive along with ageing.

Keywords: P.D – Parkinson's Disease, BMI – Body Mass Index, OA – Osteoarthrosis, QOL – Quality of Life, Dyskinesia – Slowness of Movements

INTRODUCTION

Parkinson's disease is a chronic neuro degenerative disorder affecting over four millions people worldwide (Dorsey etal 2007). With profound impact to the QOL of its survivors (Parkinson Survey group 2000). Motor and non motor symptoms in P.D (Psychological depression, insomnia and depression) can interfere negatively with the ability of the individuals to interact with the environment they live in (Rascol etal 2000) contributing to lower levels of social interaction, isolation and depression (Olanow etla 2001). People PD experience movement disorders such as bradykinesia, tremor, rigidity and postural instability which may vary over time and between individuals (Soh etal 2013). Approximately one in four people aged 65 years and over fall annually (Lord etal 1994) and 5% of falls resulting in fractures or hospitalization (Rubenstein 2002) Structured exercise programs can prevent falls (Gillespie etal 2012) increase muscle strength (Liu & Latham 2009) and enhance balance in older people (Howe etal2011).The physiotherapist as a member with in multidisciplinary team in the rehabilitation of P.D (Robertson etal 2003) with the purpose of maximizing functional ability and minimizing secondary complications through movement rehabilitation with in the context of education and support for the whole person (Plant etal 2000 & Deane etal 2001). With studies on wide range of physiotherapy technique are currently used in P.D, but few on with little in treatment effects, this original research with focus on of patient centric therapy, factors causing falls and its impact among P.D with evidence are key components of this presentation

Aim & Objectives

Aim

To analyze the influence of frequent falls in Parkinson patients

Objectives

1. To analyze factors influencing prognosis in P.D

2. Efficacy of physiotherapy and impact on functional activities in relation with frequent falls in chronic P.D

Methodology:

A 76 year old professional Surgeon from TamilNadu government service gradually noticed slowness of walking with left hand pill rolling movement being a non alcoholic ,non smoker, non diabetic/hypertensive and with a mesomorphic nature of BMI of 23 kg/m2 getting treated with T.Syndopa 110mg since 2008 . This case report is taken after due consent of the subject with 9 years follow up with specific physiotherapeutic measures from January 2010- July 2019 .His major complaints were slowness of movements, increasing falls, difficulty in walking .The Radiographic investigations reported as degenerative changes in cervical spine, right shoulder Causalities and right knee OA changes. The physiotherapy evaluation shows a postrural changes in standing like forward head posture, mobile thoracic kyphosis ,flexed hips and knee joints. The Range of motion restrictions was visible in Spine and due to the pain in extremities mainly the hips, knees and feet .A Grade II edema noted over feet .Balance in sitting was poor and noted as leaning to right side, poor standing balance in unilateral stance with manual hand support finds it difficult .Early Left hemiparesis with hypertonicity and hyper reflexia were recorded. He was Ambulant with quadripod for short distance under supervision. He was in need of assistance for bed mobility and physical transfer's,.He was partially dependent for self care activities..With occasional irrelevant replies and talks cognition also was affected.With balance impairment falls were reported of two per week since the last six months with slow reaction time and higher fatigue levels. NMRI brain (2010) has shown age related cortical atrophy and multiple hypo density areas of various parts.

The physiotherapy measures focused on balance training, Proprioceptive techniques and core strengthening irradiation (PNF) techniques and Spirometry to increases vital capacity at the center where the author practices till 2015 .Later with an increased frequency of falls after a brief period of physical inactivity as part of his foreign trip, is getting treated at his home with a thrice a week frequency since 2016 till July 2019. Each session lasts for 25-30minutes. hoehn and yahr staging, UPDRS scale on ADL, berthel index and falls efficacy scale were evaluated once at the beginning 2010 and again in 2019 the results were analyzed as below with evidence.

Results:

Table on pre and post scores of Hoehn & Yahr Staging of Parkinson's disease, UPDRS scale on ADL, Falls Efficacy Scale, Barthel Index of ADL

Test	Hoehn & Yahr Staging of Parkinson's Disease	UPDRS Scale on ADL	Falls Efficacy Scale	Barthel Indexof ADL
Pre	1.5	14	33	12/20
Post	4	38	62	17/20

Discussion:

9 Years Clinical Prognosis of the Subject: From 2010 the subject was regularly attending the center for physiotherapy with weekly twice frequency till 2014. He was ambulant, partially dependant for self care was continuing his clinical consultation at a private nursing home and kept busy with regular social activities. 2014 the above trend continued till his visit to a foreign country in December 2014 for six months period for domestic reasons, where an

Volume 2, Issue 5; September-October 2019; Page No.24-27

increased physical in activity was more recorded. From may 2015 onwards after his return, was found to have generalized stiffness, oedema of the feet,, increased dyskinesia, from 2016 an increased frequency of falls were recorded from them on was getting treated at his home for physiotherapy . Level of dependency for bed mobility, ambulation and self care has increased, stopped social activities.

Falls Among Parkinson's Disease Subjects: People with PD experience mobility decline early in the disease process, despite advances in medical management (Shulman etal 2010) and recent RCTS have shown with evidence that regular, task specific physical activity can improve walking (Tomlison etal 2012), balance (Mehrholz etal 2012) muscle strength (Lima etal 2013) and may reduce falls (Canning etal 2015) P.D with a disease duration of 7.7 years, a study suggests minimally supervised exercises likely to be adhered in people with P.D and shows that exercise program was effective in preventing Falls among milder disease but not more severe disease (Allen etal 2015). This subject who was regularly adherent with specific physiotherapeutic measures, but as the above studies claim duration of having P.D has negative impact on frequency of falls are supportive evidence.

Adherence to Exercises: Regular exercise is associated with better QOL, physical function and mobility as well as less care giver burden (Oguh etal 2014) but these long terms physical activities due to changes will be achieved only by regular sustained participation (Allen etal 2015).

Factors Influencing Adherence with Exercises which includes level of supervision, the setting for exercise (Eg: Group Vs Individual; or Home Vs Facility) and the type of exercises performed. With less to minimal physical activity for 6 months period of the subject with P.D might have had a negative impact on his QOL

Pain a common problematic non motor symptom among people with PD as was reported among 84% of people (Raggi etal 2014) and are twice as likely to experience chronic pain as people with PD (Natalie etal 2015). Hence effective treatment for pain could improve exercises adherence (Hoffmann etal 2016)

Exercises may stimulate neuroplastic changes, activate dopaminergic pain inhibitory pathways with evidence from human and animal studies have shown that, hence exercises could improve pain modulation and better adherence among people with PD (Eduardo etal 2013) its worthy that the subject with pain over knee and shoulders from his age of 41 years, so chronic pain with P.D could further decrease QOL

Conclusion:

This research presentation where subject in P.D the role of physiotherapy on reducing pain, falls with its impact on their quality of life and the importance of exercises and adherence to home exercises were presented with evidence. However larger sample size and using multicenter study, analyzing various means of exercises are recommended as further continuation and to valid outcome of this study findings.

References:

1. Dorsey ER, Constantinescu R, Thompson JP, Biglan KM, Holloway RG, Kieburtz K, Marshall FJ, Ravina BM, Schifitto G, Siderowf A, Tanner CM. Projected number of people with Parkinson disease in the most populous nations, 2005 through 2030. Neurology. 2007 Jan 30;68(5):384-6. Epub 2006 Nov 2.
2. Rascol O, Brooks DJ, Korczyn AD, De Deyn PP, Clarke CE, Lang AE. A five-year study of the incidence of dyskinesia in patients with early Parkinson's disease who were treated with ropinirole or levodopa. N Engl J Med. 2000 May 18;342(20):1484-91.
3. Olanow CW, Watts RL, Koller WC. An algorithm (decision tree) for the management of Parkinson's disease (2001): treatment guidelines. Neurology. 2001 Jun; 56(11 Suppl 5):S1-S88.
4. Soh SE, McGinley JL, Watts JJ, et al. Determinants of health-related quality of life in people with Parkinson's disease: a path analysis. Qual Life Res. 2013;22: 1543e1553
5. Lord SR, Ward JA, Williams P, et al. Physiological factors associated with falls in older community-dwelling women. J Am Geriatr Soc. 1994;42:1110–7.
6. Rubenstein L, Jospehson K. The epidemiology of falls and syncope. Clin Geriatr Med. 2002;18:141–58.
7. Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, et al. Interventions for preventing falls in older people

Volume 2, Issue 5; September-October 2019; Page No.24-27

living in the community. Cochrane Database Syst Rev. 2012;9:CD007146.
8. Liu CJ, Latham NK. Progressive resistance strength training for improving physical function in older adults. Cochrane Database Syst Rev. 2009 Jul 8;(3):CD002759.
9. Howe TE, Shea B, Dawson LJ, Downie F, Murray A, Ross C, Harbour RT, Caldwell LM, Creed G. Exercise for preventing and treating osteoporosis in postmenopausal women. Cochrane Database Syst Rev. 2011 Jul 6;(7):
10. Robertson D. Developing and delivering services. In: Playford D, ed. Neurological rehabilitation of Parkinson's disease. Martin Dunitz, 2003.
11. Plant R, Jones D, Walton G, Ashburn A, Lovegreen B, Handford F, et al. Physiotherapy for people with Parkinson's disease: UK best practice short report. Institution of Rehabilitation, University of Northumbria, 2000.
12. Deane K, Jones DE, Playford ED, Ben-Shlomo Y, Clarke CE. Physiotherapy versus placebo or no intervention in Parkinson's disease. Cochrane Database Syst Rev2001;3:CD002817.
13. Shulman LM, Gruber-Baldini AL, Anderson KE, Fishman PS, Reich SG, Weiner WJ. The clinically important difference on the Unified Parkinson's Disease Rating Scale. Arch Neurol 2010;67:64-70.
14. Tomlinson, systematic reviewer, Smitaa Patel, statistician. Physiotherapy intervention in Parkinson's disease: systematic review and meta-analysis. BMJ. 2012; 345: e5004**.**
15. Mehrholz J, Hädrich A, Platz T, Kugler J, Pohl M. Electromechanical and robot-assisted arm training for improving generic activities of daily living, arm function, and arm muscle strength after stroke. Cochrane Database Syst Rev. 2012 Jun 13;(6)
16. Lima LO, Scianni A, Rodrigues-de-Paula F. Progressive resistance exercise improves strength and physical performance in people with mild to moderate Parkinson's disease: a systematic review. J Physiother. 2013 Mar;59(1):7-13.
17. Canning CG, Sherrington C, Lord SR, Close JC, Heritier S, Heller GZ, Howard K, Allen NE, Latt MD, Murray SM. Exercise for falls prevention in Parkinson disease: a randomized controlled trial. Neurology. 2015 Jan 20;84(3):304-12.
18. Allen, david, Nate. On underestimation of global vulnerability to tree mortality and forest die-off from hotter drought in the Anthropocene. www.esajournals.org, 2015, Volume 6(8), Article 129: PP:1-59
19. Oguh O, Eisenstein A, Kwasny M, Simuni T. Back to the basics: regular exercise matters in Parkinson's disease: results from the National Parkinson Foundation QII registry study. Parkinsonism Relat Disord. 2014 Nov;20(11):1221-5.
20. Raggi A, Leonardi M, Covelli V, et al. Concordance between severity of disease, prevalence of nonmotor symptoms, patient-reported quality of life and disability and use of medication in Parkinson's disease. Neurol Sci. 2012;33:847
21. Natalie E. Allen, Niamh Moloney1, Vanessa van Vliet and Colleen G. Canning. The Rationale for Exercise in the Management of Pain in Parkinson's Disease. Journal of Parkinson's Disease 5 (2015) 229–239
22. Hoffmann TC, Maher CG, Briffa T, et al. Prescribing exercise interventions for patients with chronic conditions. CMAJ 2016;188:510–8
23. Eduardo Matta Mello Portugal., Thais Cevada, Renato Sobral Monteiro-Junior, Thiago Teixeira Guimarães a Ercole da Cruz Rubini a, e, h, i Eduardo Lattari a, b Charlene Blois Andrea Camaz Deslandes. Neuroscience of Exercise: From Neurobiology Mechanisms to Mental Health. Neuropsychobiology 2013; 68:1–14

Volume 2, Issue 5; September-October 2019; Page No.24-27