



HOLISTIC REHABILITATION FOR PARKINSON'S DISEASE

Rehabilitation Science

Vijayakumar*

BAMS, MD (Y&R), M.Sc. (Psy), Ass. Professor. Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, Karnataka, India. *Corresponding Author

Sahana

M.Sc. (Psy), Ass. Professor. Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, Karnataka, India.

ABSTRACT

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by increased rigidity, hypokinesia and tremors, because of disruption of dopaminergic pathways involving the basal ganglia. PD is associated with many non-motor and neuropsychiatric disturbances. The management of PD has traditionally centred on drug therapy with levodopa viewed as the "gold standard" treatment. However, even with optimal medical management, patients with PD still experience a deterioration of body function, daily activities and quality of life. For this reason, there has been increasing support for the inclusion of complimentary therapies in an existing rehabilitation model as an adjuvant to pharmacological and neurosurgical treatment, and a call for the move towards multidisciplinary management of this multidimensional condition with a holistic perspective.

KEYWORDS

Pd-parkinson's Disease, Complimentary Therapies, Holistic Rehabilitation.

Introduction

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by increased rigidity, hypokinesia and tremors⁽¹⁾, because of disruption of dopaminergic pathways involving the basal ganglia. PD is associated with many non-motor and neuropsychiatric disturbances⁽²⁾. Parkinson's disease (PD) stands as second most common neurodegenerative disorder after Alzheimer's disease and affects approximately seven million people worldwide and one million people in the United States^(3,4). About 0.3% of the whole population in industrialized countries are affected with this disease. Elderly population is more prone to develop PD and prevalence rises from 1% in those over 60 years of age to 4% of the population over 80⁽⁵⁾. The management of PD has traditionally centred on drug therapy with levodopa viewed as the "gold standard" treatment⁽⁶⁾. However, even with optimal medical management, patients with PD still experience a deterioration of body function, daily activities and participation⁽⁷⁾. For this reason, there has been increasing support for the inclusion of rehabilitation therapies as an adjuvant to pharmacological and neurosurgical treatment⁽⁷⁾, and a call for the move towards multidisciplinary management of this multidimensional condition⁽⁸⁾.

Need of multidisciplinary approach

Rehabilitation can be defined broadly as an active goal-directed process which aims to reduce the impact of disease on the lives that individuals choose to lead. By this definition, people with deteriorating conditions such as Parkinson's disease (PD) can benefit from rehabilitation. However severe the disability, there are always ways in which a person's functional abilities can be facilitated, challenges in managing broad spectrum of impairments in PD needs to work on an evidenced based holistic rehabilitation module. Broad perspective for rehabilitation in PD, in that the first crucial step is to understand the spectrum of impairments. There is evidence that complimentary therapies as well as drugs can have remedial effects on PD impairments. One should consider abnormalities of posture and movement along with Cognitive and behavioral aspects of impairment, the neuro behavioral perspective also has wider implications: communication and mood are often the most fruitful targets for rehabilitation in PD. Restrictions in activities and in participation need to be addressed not only through remedial and compensatory therapeutic strategies but also through an integrated effort from complimentary therapies. Recently, there has been growing awareness of complimentary therapies add a critical value for rehabilitation. Although trial evidence is lacking, we would also expect benefits from complimentary therapies in rehabilitation for PD that has to be developed and evaluated, from the available evidences it indicates the benefits, particularly in subjective well-being and quality of life, although functional benefits are as yet less well documented.

Complimentary therapies for Parkinson's disease

Physiotherapy

A Cochrane Database of Systematic Review [2012] by Tomlinson et

al. documented significant benefits after physiotherapy in the velocity of walking on two or six-minute walk test, step length, Timed Up & Go, Functional Reach Test, Berg Balance Scale and clinician-rated UPDRS⁽⁹⁾. In another study on 10 Parkinson's patients, treadmill training with body support showed improvement in activities of daily living, motor performance and ambulation⁽¹⁰⁾. Hirsch MA showed effect of physical therapy as reduce in number of fall in 15 Parkinson's patients⁽¹¹⁾.

Ayurveda

Ayurveda an age old Indian system of medicine explains Parkinson's disease as Kampavata, is one of the Vata disorders (Neurological disorders), as described in ayurveda texts. Kampavata manifests as kara-pada-tale-kampah (tremors in hands and legs), deha-bhramanah (postural instability), Mati-ksheenata (Dementia) and Nidra bhangah (insomnia), which appear to be the descriptions of Parkinson's disease⁽¹²⁾.

A study on 18 Parkinson's patients showed the benefits of cleansing therapy prior to palliative therapy. 13 patients underwent both cleansing (for 28 days) and palliative therapy (56 days) and 5 patients underwent palliative therapy alone (84 days). The group that received both treatments showed significantly better improvement in activities of daily living (ADL) and in their motor performance as per UPDRS (Unified Parkinson's disease rating scale) rating. Symptomatically, they exhibited better response in tremor, bradykinesia, stiffness and cramps as compared to the latter group⁽¹³⁾.

A study to compare the individual effect of mucuna pruriens (30 gms) with synthetic levodopa and carbidopa on 8 patients with fluctuating on-periods revealed that the seed powder of mucuna pruriens could consistently induce a sustained on-period with short duration L-dopa response than levodopa and carbidopa with mean difference of 37 minutes. The quality of motor improvement was equivalent to that seen with synthetic LD/CD, but the onset of action, duration of effect, and pharmacokinetic profiles differed considerably⁽¹⁴⁾. They hypothesized that the seed powder formulation of M pruriens contains L-dopa which, at a dose of 30 g, is sufficient to consistently induce a sustained on-period in fluctuating PD patients with short duration L-dopa response.

Yoga

Thirteen patients with Parkinson's disease were enrolled in a study to evaluate the effect of yoga therapy [60 minute's session twice a week] for 18 weeks. Assessments were done after six months and then after 18 months. Results showed significant improvement in Berg Balance Scale, Motor Unified Parkinson's Disease Rating Scale, range of motion and flexibility⁽¹⁵⁾. In a controlled trial on 51 (27-yoga, 24-control), Parkinson's patients were introduced to Iyengar yoga for 12 weeks. First 2 weeks yoga sessions were every day one hour, followed by one session/ week for next 10 weeks. Results showed significant

improvement in Parkinson Disease Questionnaire (PDQ-39) and the Unified Parkinson's Disease Rating Scale (UPDRS) and Quality of life⁽¹⁶⁾.

Acupuncture

Twenty nine cases of Parkinson's disease treated with acupuncture showed significant changes in treatment group (n=29) wherein acupuncture was given on alternate days for 3 months and the control group (n=24) was on conventional drugs including L-dopa and dopaminergic receptor stimulants. The results indicated that acupuncture can reduce tremor and twitch in patients with PD⁽¹⁴⁾. In another Non-blinded controlled pilot study on 20 patients with Parkinson's disease, acupuncture were given twice a week. 85% of patients showed improvement in tremors, walking, handwriting, slowness, pain, sleep, depression and anxiety⁽¹⁸⁾.

Music therapy

Music therapy provides a unique variety of music experiences in an intentional and developmentally appropriate manner to effect changes in behavior and facilitate development of skills. Music therapy may improve mood and social interaction among patients who have sustained acute traumatic brain injury and stroke⁽¹⁹⁾. Music may also be the ideal domain for exploring the brain's ability to perform complex cognitive tasks⁽¹⁹⁾.

Modern management of Parkinson's disease (PD) aims to obtain symptom control, to reduce clinical disability, and to improve quality of life. Music acts as a specific stimulus to obtain motor and emotional responses by combining movement and stimulation of different sensory pathways. We explored the efficacy of active music therapy (MT) on motor and emotional functions in patients with PD.

Need of successful rehabilitation

It is easy for the rehabilitation process to focus predominantly on physical functioning. However, successful rehabilitation requires a broader perspective-one which allows social and psychological problems to be identified and addressed. Multidimensional approaches to address these issues would be considering physical function, Social function, Psychological function. Holistic rehabilitation for Parkinson's disease is the need of hour, which involves more than just physical function. Research and Clinical efforts to be channelized in this area for an effective management and rehabilitation of PD.

Conclusion

We conclude the issue with a set of evidences addressing the delivery of evidence-based rehabilitation in different settings. These findings suggest the effectiveness of multidisciplinary rehabilitation in persons with parkinsonism and the steps to be taken to improve the model of multidisciplinary rehabilitation. This draw attention to the need for a collaborative, cooperative approach to rehabilitation across disciplines, across settings, in people with PD. Ultimately, we believe that there is a need to redefine the role of rehabilitation in PD to include the provision of complimentary therapies to establish an effective rehabilitation through holistic approach. The application of multidisciplinary approaches is needed to optimize the health, function, and quality of life of individuals at risk for, or who already have, PD. Only then will the full potential of rehabilitation in the management of PD be realized.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest

References

1. Aquilonius S-M. Rörelsestörningar. I: [Movement disorders] Aquilonius S-M, Fagius J, red. Neurologi 4 uppl. [Neurology 4 issue] Stockholm: Liber AB; 2006. p. 258-76.
2. Harris MK, Shneyder N, Borazanci A, et al. Movement disorders. Med Clin North Am. 2009;93:371-88.
3. Yao SC, Hart AD, Terzella MJ. "An evidence-based osteopathic approach to Parkinson disease". Osteopathic Family Physician 2013;5(3):96-101.
4. de Lau LM, Breteler MM. "Epidemiology of Parkinson's disease". Lancet Neuro 2006;5(6):525-35.
5. Harris MK, Shneyder N, Borazanci A, et al. Movement disorders. Med Clin North Am. 2009; 93:371-88.
6. Rascol O, Payoux P, Ferreira J, Brefel-Courbon C. The management of patients with early Parkinson's disease. Parkinsonism & Related Disorders 2002;9(1):61-7.
7. Nijkrake MJ, Keus SH, Kalf JG, Sturkenboom IH, Munneke M, Kappelle AC, et al. Allied health care interventions and complementary therapies in Parkinson's disease. Parkinsonism & Related Disorders 2007;13(Suppl 3):S488-94.
8. Robertson D, Aragon A, Moore G, Whelan L. Rehabilitation and the interdisciplinary team. In: Player J, Hindle J editor(s). Parkinson's Disease in the Older Patient. 2nd Edition. Oxford: Radcliffe Publishing Ltd, 2008.
9. Tomlinson CL, Patel S, Meek C, Clarke CE, Stowe R, Shah L, et al. Physiotherapy

- versus placebo or no intervention in Parkinson's disease. Cochrane Database of Systematic Reviews 2012;8:DOI: 10.1002/14651858.CD002817
10. Ichiro M, Yasuyuki F, Yoshishige U, Hiroshi Y, Sonoko N, Toshio S, Et al. Treadmill Training With Body Weight Support: Its Effect on Parkinson's Disease. Arch Phys Med Rehabil 2000;81:849-852.
 11. Hirsch M, Toole T, Maitland C, Rider R. The effects of balance training and high-intensity resistance training on persons with idiopathic Parkinson's disease. Archives Physical Medicine and Rehabilitation 2003;84:1109-17.
 12. Vaidyavarashreebasavarajbasavarajeeeyam, Sri Govaradhana Sharma, editors. IstvatavyadhiNidanalakshanachikitsa Chapter. Nagpur: Gorakshayantralaya Publication; 1798 p. 100-101.
 13. Nagashayana N, Sankarankutty P, Nampootheri MR, Mohan PK, Mohanakumar KP. Association of L-DOPA with recovery following Ayurveda medication in Parkinson's disease. J Neurol Sci. 2000;176(2):124-7.
 14. R Katzenschlager, A Evans, A Manson, P N Patsalos, N Ratnaraj, H Watt, et al. Mucunapuriens in Parkinson's disease: a double blind clinical and pharmacological study. J NeurolNeurosurg Psychiatry 2004;75:1672-1677.
 15. Colgrove Y S, Sharma N, Kluding P, Potter D, Imming K, VandeHoef J, et al. Effect of Yoga on Motor Function in People with Parkinson's Disease: A Randomized, Controlled Pilot Study. J Yoga Phys Ther 2012. 2:2
 16. Parkinson's Disease & Movement Disorder Society of India Iyengar Yogashraya. Light on Yoga Research Trust: http://www.parkinsonsocietyindia.com/Yoga_Parkinson_Disease.aspx.
 17. Huang Y, Jiang XM, Li DJ. Effects on electro-scalp acupuncture on cerebral dopamine transporter in patients with Parkinson's disease. ZhongguoZhong Xi Yi Jie He ZaZhi. 2006;26(4):303-307.
 18. Wang L, He C, Liu Y, Zhu L. Effect of acupuncture on the auditory evoked brain stem potential in Parkinson's disease. J Tradit Chin Med. 2002;22(1):15-17
 19. Pacchetti, Claudio MD; Mancini, Francesca MD; Aglieri, Roberto; Fundarò, Cira MD; Martignoni, Emilia MD; Nappi, Giuseppe MD. Active Music Therapy in Parkinson's Disease: An Integrative Method for Motor and Emotional Rehabilitation. Psychosomatic Medicine: May-June 2000 - Volume 62 - Issue 3 - p 386-393