



RESEARCH ARTICLE

CURRENT REHABILITATION PRACTICE IN PARKINSON'S DISEASE: A SURVEY OF BEST PRACTICE

*¹Dr. Deepika Kachhvaha, ²Dr. Anuja Chaudhary, ³Dr. K.K Singh and ⁴Dr. Manoj Kumar Mathur

¹MPT (Neurological Disorders), Maharaja Vinayak Global University, Jaipur Physiotherapy College, Jaipur Rajasthan, India

²MPT (Neurological Disorders), Assist Professor, Dept of Physiotherapy, Maharaja Vinayak Global University, Jaipur Physiotherapy College, Jaipur Rajasthan, India

³MPT (Ortho), PHD, Principal Dept of Physiotherapy, Maharaja Vinayak Global University, Jaipur Physiotherapy College, Jaipur Rajasthan, India

⁴MPT (Musculoskeletal Disorders), Assist professor, Dept of Physiotherapy, Maharaja Vinayak Global University, Jaipur Physiotherapy College, Jaipur Rajasthan, India

ARTICLE INFO

Article History:

Received 14th July, 2018

Received in revised form

17th August, 2018

Accepted 10th September, 2018

Published online 30th October, 2018

Keywords:

Delphi survey,
Parkinson's disease (PD).

ABSTRACT

Study Objectives: The main aim of this survey was to identify perceived best practice, as viewed by physiotherapists, for the physiotherapeutic management of people with PD, using a modified Delphi technique. **Design:** Survey study **Setting:** A total of 107 physiotherapists were approached to participate in the study. The survey was conducted included both the NHS and private practice Physiotherapist. **Methods:** The Delphi survey was conducted with the current practice questionnaire also being sent. The survey documents were disseminated by email and returned by either email or post (by choice of the therapist). **OUTCOME Measure:** Delphi survey. **Conclusion:** In this study, consensus revealed a focused approach to best practice outcome measurement in PD, and provided an insight into the optimal timing of measurement, the types of outcome measures that should be employed, and how the findings of outcome measures should be used. Study sought to extend these findings and assess the relevant focus of outcome measurement, factors affecting this measurement, and how it relates to current guidelines and achievable best practice.

Copyright © 2018, Dr. Deepika Kachhvaha et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Parkinson's disease (PD) is a common chronic, progressive neurodegenerative condition (Jones and Playfer, 2004), It is a movement disorder, as patients present with resting tremor, rigidity on passive movement and akinesia (bradykinesia and hypokinesia) (Lang and Lozano, 1998, Clarke, 2007), with postural instability (Jones and Playfer, 2004) & Gait disturbances (Morris *et al.*, 2010). Difficulties with self care tasks and activities of daily living are evident due to reduced dexterity and bradykinesia (Weiner and Singer, 1989), and changes to the patient's voice (Ramig *et al.*, 2004, Pinto *et al.*, 2004), reduced spontaneous facial expression (Spielman *et al.*, 2003) and micrographia of handwriting (Weiner and Singer, 1989). PD is also a complex disorder and, in addition to the motor problems, a wide range of non-motor symptoms are also frequently present including neuropsychiatric disorders (e.g. depression, dementia, hallucinations), sleep disturbances, autonomic symptoms (e.g. bladder and sexual dysfunction), gastrointestinal problems, sensory disturbances and a range of other symptoms (e.g. fatigue) (Chaudhuri *et al.*, 2006).

*Corresponding author: Dr. Deepika Kachhvaha,
MPT (Neurological Disorders), Maharaja Vinayak Global University, Jaipur
Physiotherapy College, Jaipur Rajasthan, India

The direct physical effects of PD often lead to secondary musculoskeletal complications, most notably the development of a stooped, forward flexed, kyphotic posture (Lusis, 1997). PD has classically been viewed a disease of the basal ganglia (Jones and Playfer, 2004), characterised primarily by damage to dopaminergic projections from the substantia nigra pars to the basal ganglia's striatum (Samii *et al.*, 2004), and accompanied by associated receptor destruction (Tapper, 1997). Dopamine depletion is most prominently noted within the putamen (Kish *et al.*, 1988); a region recognised as the striatal motor area (Agid, 1991), resulting in the akinesia and rigidity seen within PD (Lang and Lozano, 1998). In addition, there is the hallmark presence of Lewy bodies within neuronal cytoplasm; spherical protein granules which may alter axonal function (Goldman *et al.*, 1983), resulting in connection loss between the pars compacta and striatum. A multidisciplinary team approach is advocated, most commonly including the physician, a nurse specialist, physiotherapist, occupational therapist and speech and language therapist (Rubenis, 2007). A wide variety of other professions may also be employed based on the individual needs of the patient such as dieticians, social workers, sexologists and complementary therapists (Nijkrake *et al.*, 2007, van der Marck *et al.*, 2009). Allied health

professionals predominantly aim to maximise the performance of activities of daily living and minimise any secondary complications (Montgomery, 2004, Nijkraak *et al.*, 2007). National guidelines recommend access to physiotherapy, occupational therapy and speech and language therapy throughout the course of the disease (National Collaborating Centre for Chronic Conditions, 2006), although referral to these services is still variable and often limited (Parkinson's UK, 2008b, Hu *et al.*, 2011). Physiotherapy for PD aims to "maximise functional ability and minimise secondary complications through movement rehabilitation within context of education and support for whole person" (Deane *et al.*, 2001e). It focuses on optimising the patient's independence, safety and wellbeing, thereby enhancing quality of life (Keus *et al.*, 2004a; Keus *et al.*, 2007a). Physiotherapy is thought to target six core areas: gait, balance (and falls), transfers, body posture, reaching and grasping and physical capacity and (in) activity (Keus *et al.*, 2007a).

Therapy is individualised to suit the patient's needs and evolves over time; early intervention focuses on the prevention of inactivity and preservation/ improvement of physical capacity, mid-stage therapy aims to maintain and encourage activities of daily living, and late stage physiotherapy focuses on the prevention of complications (Keus *et al.*, 2004b). The treatment strategies employed by physiotherapists may be wide ranging, from "traditional" techniques such as exercise (Goodwin *et al.*, 2008), cueing (Nieuwboer *et al.*, 2007), and cognitive movement strategies (Kamsma *et al.*, 1995), through to more alternative methods including the Alexander technique (Stallibrass *et al.*, 2002) and martial arts (Schmitz-Hubsch *et al.*, 2006). However, guidelines particularly advocate the following: the provision of cues for the treatment of gait, posture and transfers (short term effect only), the application of cognitive movement strategies for the rehabilitation of transfers, exercise to improve or maintain balance, and flexibility and strength training to maximise physical capacity (Keus *et al.*, 2007a, Keus *et al.*, 2009).

METHODS

A total of 107 physiotherapists were approached to participate in the study. The survey was conducted included both the NHS and private practice Physiotherapist. Members of the survey panel were generated using non-random methods of sampling, in particular convenience and purposive/ judgemental sampling (Sim and Wright, 2000). The purposive aspect ensured that therapists with the correct characteristics were recruited (Bowling, 2002). A database of physiotherapists who had previously expressed an interest in participating in research related to PD was accessed. The Delphi survey was conducted with the current practice questionnaire also being sent. The survey documents were disseminated by email and returned by either email or post (by choice of the therapist). The Delphi questionnaire included a total of 83 statements divided between the areas of interest as follows: reasons for physiotherapy (9 statements), core areas of physiotherapy (17), general issues around treatment (11), gait rehabilitation (12), balance rehabilitation (7), treatment of transfers (3), treatment of posture (2), physical conditioning (6), upper limb rehabilitation (4), and outcome measurement (12) (See Appendix A for questionnaire). Ranking of agreement for each statement was recorded on a five-point Likert scale: strongly agree, agree, undecided, disagree, strongly disagree (Bowling, 2002), in line with previous Delphi surveys (Deane *et al.*,

2003a). Following each section of the survey, there was space to provide further free text information on additional aspects therapists felt important for consideration. The responses of the current practice questionnaire were collated using Microsoft Access 2003. The information was summarised using the Access query function, and descriptive statistics were produced using Microsoft Excel 2003. The ranking of the Delphi statements was collated within Microsoft Excel 2003, and the percentage of respondents falling into each category on the Likert scale was calculated for all statements.

RESULTS

This survey provided an insight into current practice and best practice physiotherapy, as perceived by physiotherapists, for people with PD. The current practice element revealed that therapy is predominantly delivered in the patient's home or an outpatient department. Seventy-eight percent of therapists reported working as part of a multidisciplinary team, and the majority of physiotherapists delivered treatment on both an individual and group basis. The average dose of physiotherapy delivered for people with PD was comparable to that reported in the PD: PEP a decade ago (Ashburn *et al.*, 2004), with a median of six sessions over eight weeks, an initial assessment lasting 60 minutes and subsequent sessions lasting 45 minutes each. With regards to best practice, there was consensus for all statements considering the reasons for physiotherapy in PD, resulting in the following framework for practice: "to maximise quality of movement, functional independence and general fitness, and minimise secondary complications whilst supporting self-management and participation, and optimising the safety of the individual". Similarly, there was consensus for the majority of statements concerning the core areas of practice. Individualised treatment delivery was identified as best practice, whilst the level of consensus surrounding specific treatment techniques varied dependent on the problem being targeted. Finally, consensus revealed a focused approach to best practice outcome measurement in PD, and provided an insight into the optimal timing of measurement, the types of outcome measures that should be employed, and how the findings of outcome measures should be used. Having established a framework for best practice in physiotherapy and identified core areas of practice, it is necessary to examine how these results are and should be gauged. In this study, consensus revealed a focused approach to best practice outcome measurement in PD, and provided an insight into the optimal timing of measurement, the types of outcome measures that should be employed, and how the findings of outcome measures should be used. Study sought to extend these findings and assess the relevant focus of outcome measurement, factors affecting this measurement, and how it relates to current guidelines and achievable best practice.

DISCUSSION

The modified Delphi study of 76 physiotherapists found that current physiotherapy practice was predominantly delivered within a primary care setting; an aspect that echoes the findings of previous surveys (Plant *et al.*, 2000). The majority of referrals occurred during the maintenance phase of PD, despite support within the literature for access throughout the course of the disease and, in particular, early referral in order to prevent deterioration. The majority of physiotherapists worked as part of a multidisciplinary team, but very few reported that the care delivered was coordinated by a single

key worker. The delivery of current practice physiotherapy for PD was variable, with therapists utilising both individual and group sessions with patients. Regarding dose, a median of six sessions was reportedly delivered over eight weeks, with a median assessment length of 60 minutes, and a median follow up session length of 45 minutes. This is comparable with physiotherapy practice reported a decade ago, which reported an average dose of one to two sessions weekly over a period of six to eight weeks (Ashburn *et al.*, 2004). The best practice element of this study found high levels of agreement surrounding the reasons for delivering physiotherapy, leading to the formulation of the following framework for physiotherapy in PD: "to maximise quality of movement, functional independence and general fitness, and minimise secondary complications whilst supporting self-management and participation, and optimising the safety of the individual". Ranking of the core areas of physiotherapy identified a focus on gait and freezing of gait, indoor and outdoor mobility, balance and falls, transfers, posture, and physical conditioning, through unanimous consensus, and there were also lower levels of consensus for addressing self care, domestic ADL and work-related activities, highlighting a blurring between the boundaries of physiotherapy and occupational therapy. Best practice treatment provision was thought to have a patient-centred approach. When considering the efficacy of specific interventions, there were high levels of consensus for treatment techniques related to gait, balance, physical conditioning and the rehabilitation of transfers, but less certainty surrounding the rehabilitation of posture and the upper limb; this was believed to be affected by the evidence available to guide practice and the clinical experience of the therapist (the latter often being shaped by the need to prioritise patient complaints due to time constraints).

Acknowledgments

We would like to thank all our well wishers who help us in this study and give us support and courage do this.

Funding: There was no funding source for this study.

Conflict of Interest: Nil.

REFERENCES

Abrams, D., Davidson, M., Harrick, J. *et al.* 2006. Monitoring the change: current trends in outcome measure usage in physiotherapy. *Manual Therapy*, 11, 1, 46-53.

Agid, Y. 1991. Parkinson's disease: pathophysiology. *Lancet*, 337, 8753, 1321-4.

Akins, R.B., Tolson, H. and Cole, B.R. 2005. Stability of response characteristics of a Delphi panel: application of bootstrap data expansion. *BMC Medical Research Methodology*, 5, 37.

Aragon, A. and Kings, J. 2010. Occupational therapy for people with Parkinson's: Best practice guidelines. London: Parkinson's UK & College of Occupational Therapists.

Ashburn, A., Fazakarley, L., Ballinger, C. *et al.* 2007. A randomised controlled trial of a home based exercise programme to reduce the risk of falling among people with Parkinson's disease. *Journal of Neurology, Neurosurgery & Psychiatry*, 78, 7, 678-84.

Ashburn, A., Jones, D., Plant, R. *et al.* 2004. Physiotherapy for people with Parkinson's Disease in the UK: An exploration

of practice. *International Journal of Therapy and Rehabilitation*, 11, 4, 160-167.

Baijens, L.W.J. and Speyer, R. 2009. Effects of therapy for dysphagia in Parkinson's disease: systematic review. *Dysphagia*, 24, 1, 91-102.

Baker, J., Lovell, K. and Harris, N. 2006. How expert are the experts? An exploration of the concept of 'expert' within Delphi panel techniques. *Nurse Researcher*, 14, 1, 59-70.

Baker, K., Rochester, L. and Nieuwboer, A. 2007. The immediate effect of attentional, auditory, and a combined cue strategy on gait during single and dual tasks in Parkinson's disease. *Archives of Physical Medicine & Rehabilitation*, 88, 12, 1593-600.

Bauman, A.E., Fardy, H.J. and Harris, P.G. 2003. Getting it right: why bother with patient-centred care? *Medical Journal of Australia*, 179, 5, 253-6.

Bilney, B., Morris, M.E. and Denisenko, S. 2003. Physiotherapy for people with movement disorders arising from basal ganglia dysfunction. *New Zealand Journal of Physiotherapy*, 31, 2, 94-100.

Black, N. 2006. Consensus development methods. In: Pope, C. and Mays, N. (eds.) *Qualitative research in health care*. 3rd ed. Oxford: Blackwell Publishing LTD, 132-141.

Bloem, B.R., Beckley, D.J., van Dijk, J.G. *et al.* 1996. Influence of dopaminergic medication on automatic postural responses and balance impairment in Parkinson's disease. *Movement Disorders*, 11, 5, 509-21.

Bodenheimer, T., Lorig, K., Holman, H. *et al.* 2002. Patient self-management of chronic disease in primary care. *JAMA*, 288, 19, 2469-75.

Bowling, A. 2002. *Research Methods in Health: Investigating Health and Health Services*, 2nd ed, Maidenhead: Oxford University Press.

Braak, H., Del Tredici, K., Rub, U. *et al.* 2003. Staging of brain pathology related to sporadic Parkinson's disease. *Neurobiology of Aging*, 24, 2, 197-211.

Canning, C.G. 2005. The effect of directing attention during walking under dual-task conditions in Parkinson's disease. *Parkinsonism & Related Disorders*, 11, 2, 95-9.

Chartered Society of Physiotherapy 2005. *Core Standards of Physiotherapy Practice*. London: Chartered Society of Physiotherapy.

Chartered Society of Physiotherapy 2008. *The Scope of Practice of Physiotherapy*. London: Chartered Society of Physiotherapy.

Chaudhuri, K.R., Healy, D.G., Schapira, A.H.V. *et al.* 2006. Non-motor symptoms of Parkinson's disease: diagnosis and management. *Lancet Neurology*, 5, 3, 235-45.

Cieza, A. and Stucki, G. 2005. Content comparison of health-related quality of life (HRQOL) instruments based on the international classification of functioning, disability and health (ICF). *Quality of Life Research*, 14, 5, 1225-37.

Comella, C.L., Stebbins, G.T., Brown-Toms, N. *et al.* 1994. Physical therapy and Parkinson's disease: a controlled clinical trial. *Neurology*, 44, 3 Pt 1, 376-8.

Cooper, K., Smith, B.H. and Hancock, E. 2008. Patient-centredness in physiotherapy from the perspective of the chronic low back pain patient. *Physiotherapy*, 94, 244-252.

Deane, K.H., Jones, D., Playford, E.D. *et al.* 2001b. Physiotherapy for patients with Parkinson's Disease: a comparison of techniques. *Cochrane Database of Systematic Reviews*, 3, CD002817.

Department of Health, 2008. *Self-referral pilots to musculoskeletal physiotherapy and the implications for*

- improving access to other AHP Services. London: Department of Health.
- Dereli, E.E. and Yaliman, A. 2010. Comparison of the effects of a physiotherapist-supervised exercise programme and a self-supervised exercise programme on quality of life in patients with Parkinson's disease. *Clinical Rehabilitation*, 24, 4, 352-62.
- Edwards, S.G.M., Playford, E.D., Hobart, J.C. et al. 2002. Comparison of physician outcome measures and patients' perception of benefits of inpatient neurorehabilitation. *BMJ*, 324, 7352, 1493.
- Elsworth, C., Dawes, H., Sackley, C. et al. 2009. A study of perceived facilitators to physical activity in neurological conditions. *International Journal of Therapy and Rehabilitation*, 16, 1, 17-24.
- Elsworth, C., Winward, C., Sackley, C. et al. 2011. Supported community exercise in people with Long-term Neurological Conditions: a phase II randomised controlled trial. *Clinical Rehabilitation*, 25, 7, 588-598.
- Fisher, B.E., Wu, A.D., Salem, G.J. et al. 2008. The effect of exercise training in improving motor performance and corticomotor excitability in people with early Parkinson's disease. *Archives of Physical Medicine & Rehabilitation*, 89, 7, 1221-9.
- Fitzpatrick, R. 2003. Evaluating the outcome of rehabilitation interventions. In: Playford, D. (ed.) *Neurological Rehabilitation of Parkinson's Disease*. London: Martin-Dunitz, 105-117.
