

Parkinson's Disease

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October 2013

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Jason Ovens
Head of Library & Knowledge Services

Title: The late positive potential, emotion and apathy in Parkinson's disease.

Citation: Neuropsychologia, April 2013, vol./is. 51/5(960-966), 0028-3932 (Apr 2013)

Author(s): Dietz, J, Bradley, M. M, Jones, J, Okun, M. S, Perlstein, W. M, Bowers, D

Abstract: Parkinson's disease is associated with emotional changes including depression, apathy, and anxiety. The current study investigated emotional processing in non-demented individuals with Parkinson disease (PD) using an electrophysiological measure, the centro-parietal late positive potential (LPP). Non-demented patients with Parkinson's disease (n = 17) and healthy control participants (n = 16) viewed pleasant, neutral, and unpleasant pictures while EEG was recorded from a 64-channel geodesic net. The Parkinson patients did not differ from controls in terms of early electrophysiological components that index perceptual processing (occipital P100, N150, P250). Parkinson patients, however, showed reduced LPP amplitude specifically when viewing unpleasant, compared to pleasant, pictures as well as when compared to controls, consistent with previous studies suggesting a specific difference in aversive processing between PD patients and healthy controls. Importantly, LPP amplitude during unpleasant picture viewing was most attenuated for patients reporting high apathy. The data suggest that apathy in PD may be related to a deficit in defensive activation, and may be indexed cortically using event-related potentials. (PsycINFO Database Record (c) 2013 APA, all rights reserved) (journal abstract)

Title: The Addenbrooke's Cognitive Examination for the differential diagnosis and longitudinal assessment of patients with parkinsonian disorders.

Citation: Journal of Neurology, Neurosurgery & Psychiatry, May 2013, vol./is. 84/5(544-551), 0022-3050 (May 2013)

Author(s): Rittman, Timothy, Ghosh, Boyd C, McColgan, Peter, Breen, David P, Evans, Jonathan, Williams-Gray, Caroline H, Barker, Roger A, Rowe, James B

Abstract: Objective: Differentiating idiopathic Parkinson's disease from atypical parkinsonian syndromes is challenging, especially in the early stages. We assessed whether the Revised Addenbrooke's Cognitive Examination (ACE-R) could differentiate between parkinsonian syndromes and reflect longitudinal changes in cognition in these disorders. Methods: The ACE-R was administered at baseline and after approximately 18 months to 135 patients with parkinsonian disorders: 86 with idiopathic Parkinson's disease (PD), 30 with progressive supranuclear palsy (PSP), 19 with corticobasal degeneration (CBD). We assessed differences between groups for ACE-R, ACE-R subscores and Mini Mental State Examination (MMSE) scores at baseline (analyses of variance, receiver operating characteristics curves), and the interaction between diagnosis and change in ACE-R scores between visits (analyses of variance). Results: The ACE-R verbal fluency subscore distinguished between PSP and PD with a high sensitivity (0.92) and specificity (0.87); total ACE-R score and the visuospatial subscore were less specific (0.87 and 0.84 respectively) and sensitive (0.70 and 0.73). Significant group level differences were found between PD and PSP for MMSE and ACE-R (total score and subscores for attention and concentration, fluency, language, and visuospatial function), and between PD and CBD for the ACE-R visuospatial subscore. Performance worsened between visits for ACE-R score in PD (p = 0.001) and CBD (p = 0.001); visuospatial subscore in PD (p = 0.003), PSP (p = 0.022) and CBD (p = 0.0002); and MMSE in CBD (p = 0.004). Conclusions: We propose the ACE-R, particularly the verbal fluency subscore, as a valuable contributor to the differential diagnosis of parkinsonian syndromes in the correct clinical context. The ACE-R may reflect disease progression in PD and CBD. (PsycINFO Database Record (c) 2013 APA, all rights reserved) (journal abstract)

Full Text:

Available from *Highwire Press* in [Journal of neurology, neurosurgery, and psychiatry](#)

Title: Illness beliefs and psychological outcome in people with Parkinson's disease.

Citation: Chronic Illness, 01 June 2013, vol./is. 9/2(165-176), 17423953

Author(s): Simpson, Jane, Lekwuwa, Godwin, Crawford, Trevor

Title: Surgical Management of Airway Dysfunction in Parkinson's Disease Compared With Parkinson-Plus Syndromes.

Citation: Annals of Otolaryngology, Rhinology & Laryngology, 01 May 2013, vol./is. 122/5(294-298), 00034894

Author(s): Sinclair, Catherine F., Gurey, Lowell E., Brin, Mitchell F., Stewart, Celia, Blitzer, Andrew

Abstract: Objectives: We sought to compare the laryngeal symptoms of Parkinson's disease (PD) with those of multiple system atrophy (MSA), a Parkinson-plus syndrome; to review the differences in surgical management of upper airway dysfunction between patients with PD and those with MSA; and to present a treatment algorithm for management of upper airway disorders in patients with PD and MSA. Methods: We analyzed the airway manifestations of each disease, including clinical and physiological test results and management outcomes, in a case series of 30 patients (24 with PD and 6 with MSA). Results: Vocal fold atrophy causing bowing with a midfold glottic gap was common in patients with PD. One third of patients with PD underwent vocal fold augmentation with noticeable improvement in vocal volume and phonation time. Tracheostomy was required for life-threatening sleep apnea in 50% of the patients with MSA. Systemic medications and speech therapy were integral components of the management regimen. Conclusions: Surgical management of laryngeal disorders in patients with PD should focus on restoring bulk to atrophic vocal folds to minimize glottic gaps, thus improving vocalization efficiency even in the presence of impaired respiratory effort. Conversely, the autonomic dysfunction that characterizes MSA results in upper airway obstruction, and thus surgical management focuses primarily on maintaining an adequate airway, which frequently necessitates tracheostomy.

Full Text:

Available from *ProQuest* in [Annals of Otolaryngology, Rhinology and Laryngology](#), The
Available from *EBSCOhost* in [Annals of Otolaryngology, Rhinology and Laryngology](#)

Title: Apathy Is Associated with Activities of Daily Living Ability in Parkinson's Disease.

Citation: Dementia & Geriatric Cognitive Disorders, 01 May 2013, vol./is. 35/5/6(249-255), 14208008

Author(s): Laatu, S., Karrasch, M., Martikainen, K., Marttila, R.

Abstract: Background: Neuropsychiatric symptoms and impairment in performing activities of daily living (ADL) in patients with Parkinson's disease (PD) are strong predictors of the overall caregiver burden and they increase the risk for nursing home admission of the patients. The purpose of the present study was to assess the association of neuropsychiatric symptoms and ADL functions in PD. Methods: A total of 73 community-dwelling PD patients were studied. The mean age of the patient group was 65 years and the mean disease duration was 9 years. The Neuropsychiatric Inventory was used to measure neuropsychiatric symptoms, and ADL abilities were measured by the Alzheimer's Disease Cooperative Study-Activities of Daily Living Inventory. Results: The prevalence of neuropsychiatric symptoms in patients with PD was 73%. The most common symptoms were depression, anxiety, irritability, apathy and agitation. ADL ability correlated significantly with apathy ($p < 0.002$) even when adjusted for motor symptoms. Conclusion: Apathy

was significantly associated with ADL in PD. The result indicates that more attention should be paid to identifying apathy and targeting therapeutic interventions. Copyright © 2013 S. Karger AG, Basel

Title: Survey reveals discrimination faced by individuals with Parkinson's.

Citation: Nursing Older People, 01 June 2013, vol./is. 25/5(7-7), 14720795

Author(s): Blakemore, Sophie

Full Text:

Available from *ProQuest* in [Nursing Older People](#)

Available from *EBSCOhost* in [Nursing Older People](#)

Title: Clinical digest. Vegetables containing nicotine may help reduce the risk of developing Parkinson's disease.

Citation: Nursing Standard, 29 May 2013, vol./is. 27/39(15-15), 00296570

Full Text:

Available from *EBSCOhost* in [Nursing Standard](#)

Available from *ProQuest* in [Nursing Standard](#)

Title: Feasibility of a Virtual Exercise Coach to Promote Walking in Community-Dwelling Persons with Parkinson Disease.

Citation: American Journal of Physical Medicine & Rehabilitation, 01 June 2013, vol./is. 92/6(472-485), 08949115

Author(s): Ellis, Terry, Latham, Nancy K., Deangelis, Tamara R., Thomas, Cathi A., Saint-Hilaire, Marie, Bickmore, Timothy W.

Abstract: Objective: The short-term benefits of exercise for persons with Parkinson disease (PD) are well established, but long-term adherence is limited. The aim of this study was to explore the feasibility, acceptability, and preliminary evidence of the effectiveness of a virtual exercise coach to promote daily walking in community-dwelling persons with Parkinson disease. Design: Twenty subjects with Parkinson disease participated in this phase 1, single-group, nonrandomized clinical trial. The subjects were instructed to interact with the virtual exercise coach for 5 mins, wear a pedometer, and walk daily for 1 mo. Retention rate, satisfaction, and interaction history were assessed at 1 mo. Six-minute walk and gait speed were assessed at baseline and after the intervention. Results: Fifty-five percent of the participants were women, and the mean age was 65.6 yrs. At the study completion, there was 100% retention rate. The subjects had a mean satisfaction score of 5.6/7 (with 7 indicating maximal satisfaction) with the virtual exercise coach. Interaction history revealed that the participants logged in for a mean (SD) of 25.4 (7) days of the recommended 30 days. The mean adherence to daily walking was 85%. Both gait speed and the 6-min walk test significantly improved ($P < 0.05$). No adverse events were reported. Conclusions: Sedentary persons with Parkinson disease successfully used a computer and interacted with a virtual exercise coach. Retention, satisfaction, and adherence to daily walking were high for 1 mo, and significant improvements were seen in mobility.

Title: The Beneficial Role of Intensive Exercise on Parkinson Disease Progression.

Citation: American Journal of Physical Medicine & Rehabilitation, 01 June 2013, vol./is. 92/6(523-532), 08949115

Author(s): Frazzitta, Giuseppe, Balbi, Pietro, Maestri, Roberto, Bertotti, Gabriella, Boveri, Natalia, Pezzoli, Gianni

Abstract: In the last decade, a considerable number of articles has shown that exercise is effective in improving motor performance in Parkinson disease. In particular, recent studies have focused on the efficacy of intensive exercise in achieving optimal results in the rehabilitation of patients with Parkinson disease. The effects of intensive exercise in promoting cell proliferation and neuronal differentiation in animal models are reported in a large cohort of studies, and these neuroplastic effects are probably related to increased expression of a variety of neurotrophic factors. The authors outline the relation between intensive exercises and neuroplastic activity on animal models of Parkinson disease and discuss the clinical results of different intensive strategies on motor performance and disease progression in patients with Parkinson disease.

Title: Clinical digest. NURSES URGED TO ASK PARKINSON'S PATIENTS ABOUT BRAIN DONATION.

Citation: Nursing Standard, 26 June 2013, vol./is. 27/43(14-14), 00296570

Full Text:

Available from *EBSCOhost* in [Nursing Standard](#)

Available from *ProQuest* in [Nursing Standard](#)

Title: Training conversation partners of persons with communication disorders related to Parkinson's disease-a protocol and a pilot study.

Citation: Logopedics Phoniatrics Vocology, 01 July 2013, vol./is. 38/2(82-90), 14015439

Author(s): Forsgren, Emma, Antonsson, Malin, Saldert, Charlotta

Abstract: This paper reports on the adaptation of a training programme for conversation partners of persons with Parkinson's disease, and a protocol for assessment of possible changes in conversational interaction as a result of intervention. We present data from an explorative multiple case study with three individuals with Parkinson's disease and their spouses. Repeated analysis of natural conversational interaction and measures of the participants' perception of communication as well as measures of different cognitive abilities were obtained. The results show that the communication in all three dyads was affected by both speech and language problems and that the conversation training model and the assessment protocol may work well after minor adjustments. Influence of different aspects of cognition on communication is discussed

Title: Nutritional risk and gastrointestinal dysautonomia symptoms in Parkinson's disease outpatients hospitalised on a scheduled basis.

Citation: British Journal of Nutrition, 28 July 2013, vol./is. 110/2(347-353), 00071145

Author(s): Barichella, Michela, Cereda, Emanuele, Madio, Carmen, Iorio, Laura, Pusani, Chiara, Canello, Raffaella, Caccialanza, Riccardo, Pezzoli, Gianni, Cassani, Erica

Title: Effect of electroacupuncture on function and quality of life in Parkinson's disease: a case report.

Citation: *Acupuncture in Medicine*, 01 June 2013, vol./is. 31/2(235-238), 09645284

Author(s): Arankalle, Dhananjay Vijay, Nair, Pradeep M. K.

Abstract: A 56-year-old man diagnosed in 2003 as having Hoehn & Yahr stage III Parkinson's disease (PD) came to our clinic in 2012 with slurred speech, right-sided bradykinesia, erectile dysfunction, rigidity, emotional instability and depression. His PD showed progressive signs with postural instability, moderate bilateral signs, and he rated 80% on the Schwab & England Activities of Daily Living Scale. A modified protocol of electroacupuncture was administered for a period of 5 weeks, six times per week, with each session lasting for 30 min. Assessments were based on the Berg Balance Scale (BBS) and Parkinson's Disease Questionnaire-39 (PDQ-39) items, a disease-specific measure of subjective health status. He showed improvement on the BBS, suggesting improved functional status. His quality of life showed improvement particularly on the 'activities of daily living', 'cognition' and 'communication' dimensions of the PDQ-39. Acupuncture treatments in animal experiments have generated valuable mechanistic insights that could be relevant to PD, for example, demonstrating its neuroprotective potential from stimulation of various neuroprotective agents. The literature also suggests acupuncture may play a role in the improvement of motor function and quality of life in PD. Acupuncture is tolerated well by individuals with PD and should be considered as an integrative approach for their symptomatic management.

Full Text:

Available from *EBSCOhost* in [Acupuncture in Medicine](#)

Available from *ProQuest* in [Acupuncture in Medicine](#)

Title: Impact of the Parkinson's disease medication protocol program on nurses' knowledge and management of Parkinson's disease medicines in acute and aged care settings.

Citation: *Nurse Education Today*, 01 May 2013, vol./is. 33/5(458-464), 02606917

Author(s): Chenoweth, Lynn, Sheriff, June, McAnally, Lorraine, Tait, Fiona

Abstract: Summary: Aims: To determine the impact of a Parkinson's medicine education program on nurses' knowledge and practices in two settings where people with Parkinson's disease are cared for: hospitals and residential aged care facilities. The Parkinson's Disease Medication Protocol Program aimed to increase nurse knowledge of Parkinson's medication administration and safety in care management in order to improve health outcomes, function and well-being for the person with Parkinson's. Background: The ageing demographic of the developed world is concomitant with an increase in chronic disease, with Parkinson's disease being one of the most debilitating and costly. Individually complex medication regimens and unique spectrums of symptoms require disease-specific knowledge in nurses. People with Parkinson's disease admitted to hospitals and/or living in residential aged care facilities often have multiple co-morbidities, rendering care more complex still. Nurse ignorance of Parkinson's disease medicines, their uses, side effects and administration regimens, and safe care practices, can cause unnecessary distress and dysfunction for the person. Method: The two pilot studies employed an eighteen month pre/post-test/follow up design at different time frames, using a questionnaire developed by the study team and an expert panel to evaluate nurses' self-assessed 'perceived' knowledge and actual knowledge of Parkinson's disease, Parkinson's medicines and safe care practices, and satisfaction with the targeted Parkinson's education program. Results/findings: Nurses in the hospital pilot (2006/8) revealed deficits in pre-test perceived and actual knowledge levels, which increased significantly at post-test and follow-up. In contrast, in the residential aged care pilot (2008/10) the nurses had higher perceived and actual (correct) knowledge relevant to experience at pre-test and these levels increased at follow-up. Both pilot study cohorts were very satisfied with the PDMPP as an education and support vehicle in Parkinson's management. Conclusion: These study results concur with the international literature which identifies that without targeted clinical education nurses do not necessarily have sufficient knowledge to effectively manage Parkinson's

medicines and avoid unnecessary negative outcomes arising from delays, errors and omissions, nor do they know how to provide safe and effective care for persons with Parkinson's. A well-developed and resourced Parkinson's medicine education program, such as the PDMPP, has the potential to improve deficits in clinical practice.

Title: Do swallowing exercises improve swallowing dynamic and quality of life in Parkinson's disease?

Citation: NeuroRehabilitation, 01 June 2013, vol./is. 32/4(949-955), 10538135

Author(s): Argolo, Natalie, Sampaio, Marília, Pinho, Patrícia, Melo, Ailton, Nóbrega, Ana Caline

Abstract: OBJECTIVE: To investigate the effect of motor swallowing exercises on swallowing dynamic, quality of life and swallowing complaints in Parkinson's disease (PD). DESIGN: A before-after trial. SETTING: University Medical Center. PARTICIPANTS: Parkinson's disease patients with dysphagia complaints. INTERVENTIONS: Motor swallowing exercises designed to increase the strength and range of motion of the mouth, larynx and pharyngeal structures, coordination between breathing and swallowing, and airway protection. Patients should perform the exercises twice a day, five days a week, for five weeks. MAIN OUTCOME MEASURE(S): The primary outcome was the difference before and after the intervention in number of swallowing videofluoroscopic events (Swallowing Score). The secondary outcomes were quality of life (QOL) and swallowing complaints. RESULTS: Fifteen patients concluded the study (10 man/5 woman; mean age 59.2 ± 9.17). The videofluoroscopic events with greater improvement were loss of bolus control ($P < 0.03$), piecemeal swallow ($P = 0.05$) and residue on the tongue ($P < 0.01$), valleculae ($P = 0.01$) and pyriform sinuses ($P = 0.05$). Lingual pumping and dental absence were interfering factors associated with treatment failure (beta standardized coefficient = -16.6, 26.2; $P = 0.02$, 0.002, respectively). The domains with greater improvements in QOL were fear ($P = 0.02$) and symptom frequency ($P = 0.05$). Regarding swallowing complaints, patients reported to have reduced mainly their difficulty in moving food in the mouth when chewing ($P = 0.02$). Reduction in swallowing disorders was not related with QOL improvement (cor = 0.13, [95% CI, 0.6-0.4], $P = 0.63$). CONCLUSIONS: Motor swallowing exercises may reduce swallowing disorders in PD patients without lingual pumping and dental absence and impact positively QOL and swallowing complaints in individuals with PD.

Title: Measuring mobility in patients living in the community with Parkinson disease.

Citation: NeuroRehabilitation, 01 June 2013, vol./is. 32/4(957-966), 10538135

Author(s): Johnston, Maureen, de Morton, Natalie, Harding, Katherine, Taylor, Nick

Abstract: QUESTION: Is the de Morton Mobility Index (DEMMI) valid for measuring the mobility of patients living in the community with Parkinson disease (PD)? DESIGN: A prospective cohort study comparing the DEMMI with existing mobility-related activity measures. PARTICIPANTS: 102 consecutive patients with PD (mean age 72.4 years, SD 8.3) who received multidisciplinary outpatient care in a community rehabilitation facility over 6 to 8 weeks. OUTCOME MEASURES AND ANALYSIS: The DEMMI and other measures of mobility-related activity at admission and discharge (10 metre walk test, Berg balance scale, timed up and go test, functional reach test and pull test) were used to assess convergent validity. Discriminant validity of the DEMMI was assessed by comparison to measures of other constructs, and unidimensionality was examined using Rasch analysis. RESULTS: Evidence of convergent (rho ranged from 0.47 to 0.84), discriminant (rho ranged 0.12 to 0.22), and known groups validity were obtained for the DEMMI (Mean difference 20.3 units, 95% CI 14.5 to 26.0). Rasch analysis confirmed that the DEMMI was unidimensional. CONCLUSION: The DEMMI has a broader scale width than existing mobility-

related activity measures, provides interval level measurement and is a unidimensional measure of mobility in patients with PD living in the community.

Title: Training effects of a 12-week walking program on Parkinson disease patients and community-dwelling older adults.

Citation: NeuroRehabilitation, 01 June 2013, vol./is. 32/4(967-976), 10538135

Author(s): Cheng, S.P., Yang, C.Y., Tang, F.I., Chen, I. Ju

Abstract: BACKGROUND: Introducing evidence-based exercise guidelines of Parkinson's disease (PD) into clinical practice and community settings has been highlighted. AIM: This study tested the feasibility and compared the weekly effects of a 12-week walking training program on PD patients and community-dwelling seniors. DESIGN: A prospective quasi-experimental design was used. PD patients in Hoehn and Yahr Stage I through III (PG) and community-dwelling adults older than 65 were recruited (CG). METHODS: In the outpatient department of a hospital, the information of personal data, coordination test, and walking ability of participants were collected first. They then participated in a 36-session, 12-week treadmill walking training program. RESULTS: Weekly data of step length and velocity in PG and CG were collected. The walking training program achieved significant velocity ($\chi^2 = 126.38$, $p < 0.001$) and step length ($\chi^2 = 27.27$, $p = 0.001$) improvements in PG. Differences in improvement between PG and CG in terms of velocity ($\chi^2 = 7.089$, $df = 1$, $p = 0.008$) and step length ($\chi^2 = 7.718$, $df = 1$, $p = 0.005$) were also identified. CONCLUSION: The applicability of this 12-week walking program both for PD patients and community-dwelling older adults was identified. Conducting the economic evaluation and neurology studies of the 12-week walking program and test the effects of five-week walking program are suggested.

Title: Symptom prevalence, severity and palliative care needs assessment using the Palliative Outcome Scale: A cross-sectional study of patients with Parkinson's disease and related neurological conditions.

Citation: Palliative Medicine, 01 September 2013, vol./is. 27/8(722-731), 02692163

Author(s): Saleem, Tariq Z, Higginson, Irene J, Chaudhuri, K Ray, Martin, Anne, Burman, Rachel, Leigh, P Nigel

Title: Management of medication in patients with Parkinson's disease who are nil-by-mouth.

Citation: British Journal of Hospital Medicine (17508460), 02 August 2013, vol./is. /(0-), 17508460

Author(s): Chan, Karen, Saggi, Ravijyot, Milbourn, Helen, Hayman, Matthew

Title: Long-Term Statin Use and the Risk of Parkinson's Disease.

Citation: American Journal of Managed Care, 01 August 2013, vol./is. 19/8(626-632), 10880224

Author(s): Friedman, Bitya, Lahad, Amnon, Dresner, Yizchak, Vinker, Shlomo

Abstract: Background: Recent studies have suggested a relation between statin use and the risk of Parkinson's disease (PD). However, the conclusions are inconsistent. Some studies found an increased incidence of PD among statin users; others found a decreased incidence. Others showed that PD incidence was related to baseline cholesterol levels. Objectives: To examine the association between baseline levels of low-density lipoprotein cholesterol (LDL-C), long-term statin use, and the incidence of PD. Methods: The study group consisted of a historical cohort of 94,308 men and women in Israel aged 45 years or more without PD or statin use at baseline, between

2000 and 2007. PD incidence among long-term statin users was compared with that among nonusers. The cohort was divided into 4 groups according to baseline LDL-C levels, and their relative risks of developing PD were calculated with adjustment for potential confounders (sex, age, socioeconomic status, history of ischemic heart disease, hypertension, stroke, and smoking). The association between different variables was analyzed with a Cox proportional hazards model. Results: During the study period, 1035 incident cases of PD were identified. Statin use was associated with a significant decrease in the incidence of PD (odds ratio, 0.73, 95% confidence interval, 0.60-0.88; $P = .001$). No association was found between baseline LDL-C levels and PD risk. Conclusions: Our results provide additional evidence regarding the lower incidence of PD among statin users. These findings warrant further research regarding the possible neuroprotective role of statins in PD and other neurodegenerative diseases.

Title: Medication adherence in Parkinson's.

Citation: British Journal of Nursing, 27 June 2013, vol./is. 22/12(686-689), 09660461

Author(s): Wright, Jenny, Walker, Jennie

Abstract: Parkinson's is a complex degenerative disease which affects both motor and non-motor function and as such requires regular reassessment and collaboration between the patient and the healthcare team to achieve optimal outcomes. Complex medication regimes are often prescribed to manage symptoms; however, issues such as compliance, adherence and concordance need to be considered. The Parkinson's Nurse Specialist plays a central role in understanding patient needs and ability to manage medication regimes. The nurse has a fundamental function in achieving optimal medication adherence throughout the disease trajectory.

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Available from *EBSCOhost* in [British Journal of Nursing](#)

[Deep brain stimulation in Parkinson's disease with early motor complications](#)

Overview: Parkinson's disease is a common, chronic, progressive neurological condition, estimated to affect 100–180 people per 100,000 of the UK population. Prevalence rises with age, and 1–2% of people older than 65 years may be affected. The condition is usually treated with dopaminergic drugs. Brain surgery may be considered in people who have responded poorly to drugs, who have severe side effects from medication or who have severe fluctuations in response to drugs.

One of the surgical treatments available is deep brain stimulation of the subthalamic nucleus. This involves the delivery of an electric current to a targeted area of the brain from a pulse generator, usually implanted in the chest wall, via fine cables tunnelled beneath the skin to electrodes placed in the brain.

Current advice: The NICE clinical guideline on [Parkinson's disease](#) recommends that bilateral subthalamic nucleus stimulation may be used in people with Parkinson's disease who:

- have motor complications that are refractory to best medical treatment,
- are biologically fit with no clinically significant active comorbidity,
- are levodopa responsive and
- have no clinically significant active mental health problems, for example, depression or dementia.

The NICE interventional procedure guidance on [deep brain stimulation for Parkinson's disease](#) states that evidence on the safety and efficacy of the procedure appears adequate to support its use, provided that normal arrangements are in place for consent, audit and clinical governance. It recommends that patient selection should be made with the involvement of a multidisciplinary team, and that patients should be offered the procedure only when their disease has become refractory to best medical treatment.

New evidence: A randomised controlled trial (EARLYSTIM) compared deep brain stimulation plus medical therapy with medical therapy alone in 251 patients with Parkinson's disease and recent onset of motor complications ([Schuepbach et al. 2013](#)). Patients aged 18–60 years, with Parkinson's disease for at least 4 years and an on-medication disease severity rating below stage 3 on the Hoehn and Yahr scale, were included. Patients with dementia, major depression or acute psychosis were excluded. Patients were randomised to bilateral stimulation of the subthalamic nucleus plus medical therapy, or medical therapy alone. In all patients, adjustments to stimulation and medical therapy were in accordance with European Federation of Neurological Societies guidelines, and overseen by an independent expert panel. The primary outcome was quality of life, measured by mean change from baseline to 2 years in the Parkinson's Disease Questionnaire-39 summary index score (range 0–100).

Quality of life score with stimulation improved by 7.8 points, but worsened by 0.2 points with medical therapy alone (between-group difference=8.0 points, $p=0.002$). Stimulation was also superior as measured by motor disability ($p<0.001$), activities of daily living ($p<0.001$), levodopa-induced motor complications ($p<0.001$), and time with good mobility and no dyskinesia ($p=0.01$). Serious adverse events were reported in 68 patients (54.8%) receiving stimulation (22 relating to surgical implantation or the stimulation device) and in 56 patients (44.1%) who received medical therapy alone.

Commentary: "The clinical implications of the EARLYSTIM study are unclear because this study included a highly selected group of patients with early Parkinson's disease, which has potential for bias. However, the effects on motor symptoms and quality of life are important and may change our decisions about management of early-stage Parkinson's disease.

"Whether best medical therapy was achieved for participants in this study is unclear: apomorphine or levodopa infusions may lead to similar benefits in these patients and may be preferable to many patients. Furthermore, the study reported no data on non-motor effects, which are a key determinant of quality of life. Long-term assessment is crucial to address the neuropsychological safety of early deep brain stimulation, which has been associated with worsening of cognitive function and depression.

"In terms of current guidelines, whether deep brain stimulation should be selected ahead of medical therapy in early Parkinson's disease needs risk–benefit analysis

for individual cases. Detailed information about the risks and benefits of all available treatments should be shared with patients. However, the cost to the NHS of increasing use of deep brain stimulation may be considerable, which also needs to be taken into account." – **Professor K Ray Chaudhuri, Clinical Director and Professor, National Parkinson Foundation International Centre of Excellence, King's College Hospital and King's College, London**

Title: Non-dopaminergic Treatments for Motor Control in Parkinson's Disease.

Citation: Drugs, 01 September 2013, vol./is. 73/13(1405-1415), 00126667

Author(s): Fox, Susan

Abstract: The pathological processes underlying Parkinson's disease (PD) involve more than dopamine cell loss within the midbrain. These non-dopaminergic neurotransmitters include noradrenergic, serotonergic, glutamatergic, and cholinergic systems within cortical, brainstem and basal ganglia regions. Several non-dopaminergic treatments are now in clinical use to treat motor symptoms of PD, or are being evaluated as potential therapies. Agents for symptomatic monotherapy and as adjunct to dopaminergic therapies for motor symptoms include adenosine A antagonists and the mixed monoamine-B inhibitor (MAO-BI) and glutamate release agent safinamide. The largest area of potential use for non-dopaminergic drugs is as add-on therapy for motor fluctuations. Thus adenosine A antagonists, safinamide, and the antiepileptic agent zonisamide can extend the duration of action of levodopa. To reduce levodopa-induced dyskinesia, drugs that target overactive glutamatergic neurotransmission can be used, and include the non-selective N-methyl d-aspartate antagonist amantadine. More recently, selective metabotropic glutamate receptor (mGluR) antagonists are being evaluated in phase II randomized controlled trials. Serotonergic agents acting as 5-HT antagonists, such as the atypical antipsychotic clozapine, may also reduce dyskinesia. 5-HT agonists theoretically can reduce dyskinesia, but in practice, may also worsen PD motor symptoms, and so clinical applicability has not yet been shown. Noradrenergic α antagonism using fipamezole can potentially reduce dyskinesia. Several non-dopaminergic agents have also been investigated to reduce non-levodopa-responsive motor symptoms such as gait and tremor. Thus the cholinesterase inhibitor donepezil showed mild benefit in gait, while the predominantly noradrenergic re-uptake inhibitor methylphenidate had conflicting results in advanced PD subjects. Tremor in PD may respond to muscarinic M cholinergic antagonists (anticholinergics), but tolerability is often poor. Alternatives include β -adrenergic antagonists such as propranolol. Other options include 5-HT antagonists, and drugs that have mixed binding properties involving serotonin and acetylcholine, such as clozapine and the antidepressant mirtazapine, can be effective in reducing PD tremor. Many other non-dopaminergic agents are in preclinical and phase I/II early stages of study, and the reader is directed to recent reviews. While levodopa remains the most effective agent to treat motor symptoms in PD, the overall approach to using non-dopaminergic drugs in PD is to reduce reliance on levodopa and to target non-levodopa-responsive symptoms.

Title: The Effects of a Home-Based Virtual Reality Rehabilitation Program on Balance Among Individuals with Parkinson's Disease.

Citation: Physical & Occupational Therapy in Geriatrics, 01 September 2013, vol./is. 31/3(241-253), 02703181

Author(s): Holmes, Jeffrey D., Gu, Michelle L., Johnson, Andrew M., Jenkins, Mary E.

Abstract: Background and Purpose: Recently, the Nintendo Wii has emerged as an innovation in rehabilitation. Although research findings to date have contributed to our understanding of the effects of implementing the Wii as a rehabilitation tool, evidence supporting the Wii for improving symptoms in Parkinson's disease (PD) remains limited. The purpose of this study, therefore, was to evaluate the effectiveness of a 12-week home-based exercise program designed around the Wii, in improving balance, balance confidence, and maintaining exercise adherence among individuals with PD. Methods: Fifteen participants were recruited to engage in 30 minutes of Wii activity 3x/week for 12 weeks. Results: Balance and balance confidence improved from baseline to midintervention, but reverted back to near baseline values at postintervention. Exercise adherence was maintained equally throughout the study. Conclusions: The Nintendo Wii has potential to be an effective treatment strategy for improving balance, balance confidence, and fostering programmatic adherence among individuals with PD.

Title: Positive steps in Parkinson's disease.

Citation: GM: Midlife & Beyond, 01 July 2013, vol./is. 43/7(43-48), 0268201X

Author(s): Bloomer, Alison

Abstract: This report is based on presentation s give at the 6th annual Positive Steps in Parkinson's disease meeting, which took place in March 2013 in Manchester.

Title: Younger Women More Likely to be Depressed by Urinary Incontinence.

Citation: Physical Therapy, 02 September 2013, vol./is. /(8-8), 00319023

Full Text:

Available from *EBSCOhost* in [Physical Therapy](#)

Sources Used

The following databases are searched on a regular basis in the development of this bulletin:

Amed
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