Parkinson's Disease
Current Awareness Bulletin

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Title: Effect of virtual reality on balance and gait ability in patients with Parkinson's disease: a systematic review and meta-analysis.

Author(s): Wang, Bo; Shen, Min; Wang, Yan-xue; He, Zhi-wen; Chi, Shui-qing; Yang, Zhao-hui

Objective: The aim of this study was to evaluate the effectiveness of virtual reality interventions for improving balance and gait in people with Parkinson's disease.

Design: This is a systematic review and meta-analysis of randomized controlled trials.

Methods: Databases of MEDLINE, Cochran Central Register of Controlled Trials, EMBASE, PEDro, Web of Science and China Biology Medicine disc were searched from their inception up to 1 March 2019. Two reviewers individually appraised literatures for inclusion, extracted data and evaluated trial quality.

Results: A total of 12 studies with a median PEDro score of 6.4 and involving 419 participants were included. This review first demonstrated significant improvements in Berg Balance Scale (mean difference = 2.69; 95% confidence interval = 1.37 to 4.02; $p < 0.0001$), Timed Up and Go Test (mean difference = −2.86; 95% confidence interval = −5.60 to −0.12; $p = 0.04$) and stride length (mean difference = 9.65; 95% confidence interval = 4.31 to 14.98; $p = 0.0004$) in Parkinson patients who received virtual reality compared with controls. However, there was no significant difference in gait velocity and walk distance.

Conclusion: This systematic review and meta-analysis supports the use of virtual reality to enhance the balance of patients with Parkinson's disease. However, the review does not find any definite effect upon gait by the use of virtual reality.

Title: A study of the validity of the Six-Spot Step Test in ambulatory people with Parkinson's disease.

Author(s): Brincks, John; Callesen, Jacob; Johnsen, Erik; Dalgas, Ulrik

Objective: The aim of this study was to evaluate the concurrent and divergent validity of the Six-Spot Step Test in mild to moderately impaired people with Parkinson's disease.

Design: Cross-sectional cohort study. Setting: Outpatient clinics. Subjects: Fifty-eight people with Parkinson's disease.

Main measure: The Six-Spot Step Test, the Timed "Up and Go" test, the mini-Balance Evaluation Systems Test (mini-BESTest), and postural sway were tested on the same day, and the Spearman's Rank Correlation Coefficient (ρ) was used for data analysis.

Results: Subjects had a median age of 68 years (Q1–Q3: 62–73), a median Hoehn and Yahr score of 2.5 (Q1–Q3: 2–3), a median Six-Spot Step Test score of 7.9 seconds (Q1–Q3: 6.5–9.2), a median Timed "Up and Go" test score of 7.0 seconds (Q1–Q3: 5.6–7.9), a median mini-BESTest score of 22.5 (Q1–Q3: 19.8–25.0), and a median postural sway score of 27.9 mm2 (Q1–Q3: 15.0–53.5) and 22.5 mm/s (Q1–Q3: 14.6–39.8). Statistical significant correlations were found between the Six-Spot Step Test and the Timed "Up and Go" test (ρ = 0.81) and the mini-BESTest (ρ = –0.64), whereas no significant relations were identified between the Six-Spot Step Test and postural sway (ρ = 0.18, $P > 0.05$).

Conclusion: In patients with Parkinson's disease, the Six-Spot Step Test showed promising concurrent validity to other recommended clinical tests for encompassing balance capacity

and capacity of functional mobility, making it a reasonable and easily administered alternative to existing assessment tools when measuring walking agility. As expected, weak correlates to postural sway revealed that the Six-Spot Step test is not a valid measure of standing balance.

Title: Blue Light Therapy Glasses in Parkinson's Disease: Patients' Experience.

Author(s): Smilowska, Katarzyna; van Wamelen, Daniel J.; Schoutens, Antonius M. C.; Meinders, Marjan J.; Bloem, Bastiaan R.

Background: Blue light glasses have been introduced as a possible new treatment option to treat sleep disturbances in patients with Parkinson disease (PD). Assessing patient attitudes represents a key step in the road towards formal testing and introduction into clinical practice. Specifically, we aimed to assess how patients experience the use of blue light glasses, aiming to optimise compliance in upcoming clinical trials where these glasses will be tested for efficacy.

Methods: We invited 58 PD patients who had used the blue light glasses for at least one week on a daily basis to complete an online survey about their experiences and self-reported impact. For this purpose, the System Usability Scale was used, supplemented with additional questions about (side)effects. A total of 31 patients (53%) replied.

Results: 74% of respondents reported subjective improvements in night-time sleep, daytime sleepiness, depressive symptoms, motor functioning, or a combination thereof. The median score for the System Usability Scale (SUS; 0–100 range, higher scores indicating better performance) was 70.0. A total of 26 patients (84%) had an overall positive attitude towards the technique, with patients rating the glasses with an average score of 6.9 ± 2.0 (SD) out of 10. Except for one patient, all responders would like to continue using the glasses, mostly because they considered it a useful aid.

Conclusion: Blue light therapy appears to have a positive effect on sleep, mood, and motor symptoms in PD. PD patients had an overall positive attitude towards blue light glasses as treatment for sleep disorders.

Title: Satisfaction with Care in Late Stage Parkinson's Disease.

Author(s): Rosqvist, Kristina; Hagell, Peter; Iwarsson, Susanne; Nilsson, Maria H.; Odin, Per

Abstract: In late stage Parkinson's disease (PD) (i.e., Hoehn and Yahr (HY) stages IV-V), both motor and nonmotor symptoms (NMS) are pronounced, and the patients become increasingly dependent on help in their daily life. Consequently, there is an increasing demand on health-care and social care resources for these patients and support for their informal caregivers. The aim of this study was to assess satisfaction with care in late stage PD patients and to identify factors associated with satisfaction with care. Moreover, to assess their informal caregivers' satisfaction with support and to identify factors associated with caregivers' satisfaction with support. Factors potentially associated with satisfaction with care/support were assessed in 107 late stage PD patients and their informal caregivers (n=76) and entered into multivariable logistic regression analyses. Fifty-eight (59%) of the patients and 45 (59%) of the informal caregivers reported satisfaction with their overall care/support. Patients satisfied with their care reported higher independence in activities of

daily living (ADL) (Katz ADL index; P=0.044), less depressive symptoms (Geriatric Depression Scale, GDS-30; P=0.005), and higher individual quality of life (QoL) (Schedule for the Evaluation of Individual Quality of Life Questionnaire, SEIQoL-Q; P=0.036). Multivariable logistic regression analyses identified depressive symptoms (P=0.015) and independence in ADL (P=0.025) as independently associated with satisfaction with care. For informal caregivers, the analyses identified patients' HY stage (P=0.005) and caregivers' QoL (Alzheimer's Carers Quality of Life Inventory, ACQLI; P=0.012) as independently associated with satisfaction with caregiver support. The results indicate that an effective both pharmacological and nonpharmacological PD therapy is important, to adequately treat motor and NMS (e.g., depressive symptoms) in order to improve depressive symptoms and patient independence in ADL. This may benefit not only the patients, but also their informal caregivers.

Title: Mild cognitive impairment in Parkinson's disease: Characterization and impact on quality of life according to subtype.

Author(s): Vasconcellos, Luiz Felipe R; Pereira, João S; Charchat-Fichman, Helenice; Greca, Denise; Cruz, Manuela; Blum, Ana Lara; Spitz, Mariana

Aim: Mild cognitive impairment (MCI) was initially described as a risk factor for Alzheimer's disease. Because of differences in baseline cognitive abilities, MCI in Parkinson's disease (PD; PD-MCI) requires distinct neuropsychological criteria for diagnosis and follow up. In addition to representing a risk factor for PD-related dementia, PD-MCI results in higher morbidity, which can be reduced through early detection. The aim of the present study was to gather data regarding MCI subtypes from neuropsychological profiles and clinical features in PD patients, to evaluate its impact on patients' quality of life according to subtype, and to compare the data with a control (Co) group.

Method: A total of 149 individuals were selected: 81 controls and 60 patients diagnosed with PD according to the United Kingdom Parkinson's Disease Society Brain Bank criteria. All individuals were submitted to neurological and neuropsychological assessments.

Results: The amnestic subtype of MCI was the most common in both the PD and Co groups. PD patients showed greater impairment in MCI than the Co group. The amnestic subtype of PD-MCI was associated with a lower quality of life compared with the non-amnestic group.

Conclusions: The PD group showed worse cognitive performance than the Co group. The amnestic subtype of PD-MCI was associated with the greatest impairment of quality of life. Geriatr Gerontol Int 2019; 19: 497–502.

Title: The Effect of High-Frequency Repetitive Transcranial Magnetic Stimulation on Advancing Parkinson's Disease With Dysphagia: Double Blind Randomized Clinical Trial.

Author(s): Khedr, Eman M.; Mohamed, Khaled O.; Soliman, Radwa Kamel; Hassan, Asmaa M. M.; Rothwell, John C.

Abstract: We investigate if rTMS has a therapeutic role in the treatment of dysphagia in patients with Parkinson's disease (PD). Material and Methods. Thirty-three patients with PD and dysphagia were randomly classified with ratio 1:2 to receive sham or real rTMS (2000

pulses; 20 Hz; 90% resting motor threshold; 10 trains of 10 seconds with 25 seconds between each train) over the hand area of each motor cortex (5 minutes between hemispheres) for 10 days (5 days per week) followed by 5 booster sessions every month for 3 months. Assessments included the Unified Parkinson's Disease Rating Scale part III (UPDRS), Instrumental Activities of Daily Living (IADL), and Arabic–Dysphagia Handicap Index (A-DHI) before, after the last session, and 3 months later. Video-fluoroscopy measures of pharyngeal transit time (PTT) and time to maximal hyoid elevation (H1-H2) were taken before and after the treatment sessions. Results. There were no significant differences between groups. There was a significant improvement on all rating scales (analysis of variance) after real rTMS with a significant time × group interaction. In particular, there was a significant and long-lasting (3 months) effect of time on all subitems of the A-DHI (functional, $P = .0001$; physical, $P = .0001$; emotional, $P = .02$) but not in the sham group. This was associated with significant improvement in H1-H2 ($P = .03$) and PTT ($P = .01$) during solid swallows in the real rTMS but not the sham group. Conclusion. Real rTMS improves dysphagia in PD as documented by A-DHI scores and by video-fluoroscopy.

Title: ParkinSong: A Controlled Trial of Singing-Based Therapy for Parkinson's Disease.

Author(s): Tamplin, Jeanette; Morris, Meg E.; Marigliani, Caterina; Baker, Felicity A.; Vogel, Adam P.

Background: Communication impairment is one of the most common symptoms of Parkinson's disease (PD), significantly affecting quality of life. Singing shares many of the neural networks and structural mechanisms used during speech and, thus, has potential for therapeutic application to address speech disorders.

Objective: To explore the effects of an interdisciplinary singing-based therapeutic intervention (ParkinSong) on voice and communication in people with PD.

Methods: A controlled trial compared the effects of the ParkinSong intervention with an active control condition at 2 dosage levels (weekly vs monthly) over 3 months, on voice, speech, respiratory strength, and voice-related quality-of-life outcomes for 75 people living with PD. The interdisciplinary ParkinSong model comprised high-effort vocal and respiratory tasks, speech exercises, group singing, and social communication opportunities.

Results: ParkinSong intervention participants demonstrated significant improvements in vocal intensity ($P = .018$), maximum expiratory pressure ($P = .032$), and voice-related quality of life ($P = .043$) in comparison to controls. Weekly ParkinSong participants increased vocal intensity more than monthly participants ($P = .011$). Vocal intensity declined in nontreatment control groups. No statistical differences between groups on maximum phonation length or maximum inspiratory pressure were observed at 3 months.

Conclusions: ParkinSong is an engaging intervention with the potential to increase loudness and respiratory function in people with mild to moderately severe PD.

Title: Predictors of Penetration-Aspiration in Parkinson's Disease Patients With Dysphagia: A Retrospective Analysis.

Author(s): Gaeckle, Maren; Domahs, Frank; Kartmann, Angelika; Tomandl, Bernd; Frank, Ulrike

Objective: Penetration-aspiration is considered the most severe sign of dysphagia, with aspiration pneumonia as one of its consequences. More than half of Parkinson's disease (PD) patients suffer from dysphagia, and aspiration pneumonia is among the primary causes of mortality in PD patients. However, the identification of predictors of penetration-aspiration in PD patients remains an understudied topic. The purpose of this study was to identify predictors of penetration-aspiration in patients with PD.

Methods: The data of 89 PD patients with dysphagia who underwent routinely conducted videofluoroscopic studies of swallowing (VFSS) were included in this retrospective study. The occurrence of penetration-aspiration was defined as scores ≥3 on the Penetration-Aspiration Scale (PAS). Four commonly reported signs of dysphagia in PD patients were evaluated as possible predictors. Furthermore, the relationships between the occurrence of penetration-aspiration and liquid bolus volume as well as clinical severity of PD (modified Hoehn and Yahr scale) were examined.

Results: Logistic regression showed that a delayed initiation of the pharyngeal swallow (odds ratio [OR] = 7.47, P =.008) and a reduced hyolaryngeal excursion (OR = 5.13, P =.012) were predictors of penetration-aspiration. Moreover, there was a strong, positive correlation between increasing liquid bolus volume and penetration-aspiration (γ = 0.71, P <.001). No correlation was found between severity of PD and penetration-aspiration (γ = 0.077, P =.783).

Conclusion: Results of the present study allow for a better understanding of penetration-aspiration risk in PD patients. They are useful for treatment planning in order to improve safe oral intake and adequate nutrition.

Title: The Effects of a Choral Singing Intervention on Speech Characteristics in Individuals With Parkinson's Disease: An Exploratory Study.

Author(s): Higgins, Ashley N.; Richardson, Kelly C.

Abstract: The purpose of this exploratory study was to examine speech characteristics in individuals with Parkinson's disease (PD) before and after participation in an 11-week choral singing intervention. Speech characteristics were analyzed using an acoustic measure of vowel space area (VSA) and a standardized speech intelligibility metric. Participants included five males and five females with PD. VSA was derived for the corner vowels (/i/, /u/, /æ/ /ɑ/) produced during a sentence-level task. VSA was expressed as an irregular quadrilateral formed by the first and second formants of these corner vowels. A validated speech intelligibility instrument was administered pre- and posttreatment. VSA significantly increased posttreatment, which suggests greater tongue excursion during vowel articulation. Speech intelligibility scores significantly increased posttreatment, thus reflecting improved speech communication. Results suggest that choral singing may be a viable speech treatment for some individuals with PD. A large-scale randomized controlled trial is warranted.

Title: FEASIBILITY OF A WEARABLE TECHNOLOGY BASED VIRTUAL CLINIC FOR PEOPLE WITH PARKINSON'S...British Geriatrics Society Spring Meeting. 10-12 April 2019, Cardiff, Wales.

Author(s): Evans, L A; Mohamed, B; Thomas, E C

Title: Measuring Hand Dexterity in People With Parkinson's Disease: Reliability of Pegboard Tests.

Author(s): Proud, Elizabeth L.; Bilney, Belinda; Miller, Kimberly J.; Morris, Meg E.; McGinley, Jennifer L.

Importance: Knowledge regarding the reliability of pegboard tests when used to measure dexterity in people with Parkinson's disease (PD) is currently limited.

Objective: To examine the test--retest and interrater reliability of the 9-Hole Peg Test (9HPT) and Purdue Pegboard Test (PPT) in people with PD.

Design: Cross-sectional observational study. For test--retest reliability, tests were completed on 2 days, 1 wk apart, in the "on" phase and "end-of-dose" period of participants' medication cycle. For interrater reliability, occupational therapists and physical therapists rated prerecorded pegboard test performance of participants with PD.

Setting: Test--retest reliability was determined in participants' homes or in a university department. Interrater reliability was determined in a university department or a hospital setting.

Participants: Test--retest reliability was determined with volunteers diagnosed with PD (N = 30). Interrater reliability was determined with a convenience sample of occupational and physical therapists (N = 11).

Outcomes and Measures: The 9HPT and PPT are commonly used measures of manual dexterity. Results: PPT subtests showed higher test--retest reliability (intraclass correlation coefficients [ICCs] ≥ .90) in both phases of the medication cycle compared with the 9HPT (ICCs = .70--.81).Minimal detectable change scores indicated acceptablemeasurement error for both tools. Interrater reliability for recorded performance of each measure was very good (ICCs > .99), with no calculable measurement error.

Conclusions and Relevance: Although both tools showed adequate test--retest and interrater reliability, results suggest that the PPT may be a more reliable measure of dexterity loss in people with PD. What This Article Adds: This study informs the clinical measurement of the loss of manual dexterity in people with PD, a frequent problem reported by people living with this disorder.

Title: Exercise Training Guidelines for Multiple Sclerosis, Stroke, and Parkinson Disease: Rapid Review and Synthesis.

Author(s): Kim, Yumi; Lai, Byron; Mehta, Tapan; Thirumalai, Mohanraj; Padalabalanarayanan, Sangeetha; Rimmer, James H.; Motl, Robert W.

Abstract: The translation of knowledge from exercise training research into the clinical management of multiple sclerosis, stroke, and Parkinson disease requires evidence-based guidelines that are uniformly recognizable by healthcare practitioners and patients/clients. This article synthesized resources that reported aerobic and resistance training guidelines for people with multiple sclerosis, stroke, and Parkinson disease. Systematic searches yielded 25 eligible resources fromelectronic databases andWeb sites or textbooks of major organizations.Datawere extracted (exercise frequency, intensity, time, and type) and synthesized into three sets of recommendations. Exercise guidelines for multiple sclerosis

consistently recommended 2-3 d/wk of aerobic training (10-30 mins at moderate intensity) and 2-3 d/wk of resistance training (1-3 sets between 8 and 15 repetition maximum). Exercise guidelines for stroke recommended 3-5 d/wk of aerobic training (20-40 mins at moderate intensity) and 2-3 d/wk of resistance training (1-3 sets of 8-15 repetitions between 30% and 50% 1 repetition maximum). Exercise guidelines for Parkinson disease recommended 3-5 d/wk of aerobic training (20-60 mins at moderate intensity) and 2-3 d/wk of resistance training (1-3 sets of 8-12 repetitions between 40% and 50% of 1 repetition maximum). This harmonization of exercise guidelines provides a prescriptive basis for healthcare providers, exercise professionals, and people with multiple sclerosis, stroke, and Parkinson disease regarding exercise programming.

Title: Living with Parkinson's—past, present and future: a qualitative study of the subjective perspective.

Author(s): Maffoni, Marina; Pierobon, Antonia; Frazzitta, Giuseppe; Callegari, Simona; Giardini, Anna

Background: the social impact of Parkinson's is difficult to capture in quantitative research given the condition's variable presentation, so qualitative research is needed to support a person-centred approach.

Aims: to describe how people with Parkinson's experience living with their condition over time.

Methods: 27 audio-recorded verbatim-transcribed interviews were analysed through the grounded theory method.

Findings: past, present and future were the core categories that emerged. Past is the dimension of regretted memories of past life overturned by the communication of diagnosis. Present is the time dimension in which patients concretely experience the hindrances associated with the condition (loss of autonomy, submissive acceptance and social embarrassment), and the resources (search for autonomy, serene or in-progress acceptance, and social support). Future is characterised by both positive visions of tomorrow and negative ones (worry, resignation, denial).

Conclusion: these results, highlighting what living with Parkinson's means over time, may contribute to a better tailoring of nursing practice to the person's needs and rhythm, in a perspective of continuous adaptation.

Title: Addressing sexuality and intimacy in people living with Parkinson's during palliative care and at the end of life.

Author(s): Wright, Jenny

Abstract: Sexuality and intimacy are poorly researched in both people living with Parkinson's and in older people. Triggers for discussion usually centre on sexual dysfunction and hypersexuality in relation to Parkinson's. However, there are many more factors that impact on physical and emotional connectedness. Despite highlighting this unmet need there are limited tools or comprehensive assessments available to help improve quality of life. Further research is required within this field, with emphasis on health professionals'

education and on highlighting to patients that they have permission for this topic to be discussed and actioned.

Title: Effects of dance therapy on cognitive and mood symptoms in people with Parkinson's disease: A systematic review and meta-analysis.

Author(s): Zhang, Qi; Hu, Jianan; Wei, Lijiao; Jia, Yibo; Jin, Yi

Abstract: To investigate whether the dance therapy was more beneficial than non-dance therapy on cognitive and mood symptoms in patients with Parkinson's disease (PD). MEDLINE, CINAHL, Embase and the Cochrane Central Register of Controlled Trials were searched from inception to December 11, 2018. Risk of bias for the included trials was assessed using criteria in the Cochrane Handbook for Systematic Reviews of Interventions. Seven randomized controlled trials were identified on cognitive and mood symptoms in patients with PD. There were significant differences in favor of dance in executive function (WMD = 1.17, 95% CI:0.39 to 1.95, P = 0.003; I 2 = 0%, P = 0.45), but not in outcomes of global cognitive function, depression and apathy. Dance therapy is beneficial in improving executive function for adults with PD. However, there are no positive effects were founded on global cognitive function, depression and apathy for PD.

Title: Relationship between Freezing of Gait and Anxiety in Parkinson's Disease Patients: A Systemic Literature Review.

Author(s): Witt, Ivan; Ganjavi, Hooman; MacDonald, Penny

Abstract: Freezing of gait (FOG) is experienced by a significant number of patients with Parkinson's disease (PD). The pathophysiology of this disabling motor symptom remains unclear, and there are no effective therapies. Anxiety has previously been posited as a contributing factor to gait freezing. There have been few studies directly investigating this topic, and a comprehensive literature review is lacking. The objective of this paper was to systematically review the evidence associating anxiety with the presence, severity, and progression of FOG in PD patients. The PubMed, EMBASE, and PsycINFO databases were searched up to September 19, 2018, for English-language, peer-reviewed articles that explored anxiety and FOG as outcome measures in a PD population base. Review articles, case reports, and articles that assessed gait disorders other than FOG were excluded, yielding a total of 26 articles in the final analysis. Of these 26 studies, 16 had a significant relationship between anxiety outcome measure and either presence or severity of FOG. There was great variability among studies in terms of outcome measures for both FOG and anxiety. Despite this heterogeneity, most studies relate anxiety and FOG. Standardized, high-validity outcome measures of anxiety and FOG are needed. Future exploration should aim to clarify the role of anxiety in FOG as a causal factor, pathophysiological marker, and manifestation of a common pathophysiological process versus a consequence of FOG itself. Clarifying the relationship between anxiety and FOG could reveal anxiety reduction as a therapy for FOG.

Title: Aging With a Progressive Neurologic Disease: Rehabilitation Management of the Adult Aging With Parkinson Disease or Multiple Sclerosis.

Author(s): Karpatkin, Herb; Cohen, Evan

Abstract: The confluence of an aging population and increasing life expectancy of people with neurodegenerative diseases such as Parkinson disease and multiple sclerosis means that there is a growing segment of the population who are aging with a neurodegenerative disease. As such, rehabilitation professionals must be prepared for the combined challenges of age- and disease-related changes in physical function. First, a review of age- and disease-related problems experienced by older adults with Parkinson disease or multiple sclerosis will be presented, followed by a description of clinical practices that might be implemented by rehabilitation professionals to best address the problems experienced by these unique populations.

Title: Changing views of the pathophysiology of Parkinsonism.

Author(s): Wichmann, Thomas

Abstract: Studies of the pathophysiology of parkinsonism (specifically akinesia and bradykinesia) have a long history and primarily model the consequences of dopamine loss in the basal ganglia on the function of the basal ganglia/thalamocortical circuit(s). Changes of firing rates of individual nodes within these circuits were originally considered central to parkinsonism. However, this view has now given way to the belief that changes in firing patterns within the basal ganglia and related nuclei are more important, including the emergence of burst discharges, greater synchrony of firing between neighboring neurons, oscillatory activity patterns, and the excessive coupling of oscillatory activities at different frequencies. Primarily focusing on studies obtained in nonhuman primates and human patients with Parkinson's disease, this review summarizes the current state of this field and highlights several emerging areas of research, including studies of the impact of the heterogeneity of external pallidal neurons on parkinsonism, the importance of extrastriatal dopamine loss, parkinsonism-associated synaptic and morphologic plasticity, and the potential role(s) of the cerebellum and brainstem in the motor dysfunction of Parkinson's disease. © 2019 International Parkinson and Movement Disorder Society.

Title: Chronic Insomnia in Patients With Parkinson Disease: Which Associated Factors Are Relevant?

Author(s): Sobreira-Neto, Manoel Alves; Pena-Pereira, Márcio Alexandre; Sobreira, Emmanuelle Silva Tavares; Chagas, Marcos Hortes Nisihara; de Almeida, Carlos Maurício Oliveira; Fernandes, Regina Maria França; Tumas, Vitor; Eckeli, Alan Luiz

Background: Insomnia complaints are frequent in Parkinson disease (PD), affecting up to 55% of patients. Factors related to insomnia in PD are multifactorial and may be associated with the degenerative process of the disease, comorbidities related to aging, and medication use. The aim of this study is to determine the factors associated with the presence of chronic insomnia in patients with PD.

Method: A cross-sectional study was performed involving 63 consecutive patients with PD from an outpatient clinic. Participants underwent clinical interviews with neurologists and a psychiatrist and were assessed with standardized scales (Epworth Sleepiness Scale, Parkinson's Disease Questionnaire, Pittsburgh Sleep Quality Index and, for individuals with a diagnosis of restless legs syndrome(RLS)/Willis-Ekbom disease (WED), the International RLS/WED grading scale) and video-polysomnography.

Results: The main factors associated with chronic insomnia in PD were the habit of staying in bed without sleeping, large rapid eye movement (REM) sleep latency, high Pittsburgh Sleep Quality Index scores, and absence of obstructive sleep apnea (OSA).

Conclusion: Insomnia in PD is related to specific factors including inadequate sleep habits, REM sleep latency, absence of OSA, and quality of sleep.

Title: Functional MRI to Study Gait Impairment in Parkinson's Disease: a Systematic Review and Exploratory ALE Meta-Analysis.

Citation: Current neurology and neuroscience reports; Jun 2019; vol. 19 (no. 8); p. 49

Author(s): Gilat, Moran; Dijkstra, Bauke W; D'Cruz, Nicholas; Nieuwboer, Alice; Lewis, Simon J G

Purpose of Review: Whilst gait impairment is a main cause for disability in Parkinson's disease (PD), its neural control remains poorly understood. We performed a systematic review and meta-analysis of neuroimaging studies of surrogate features of gait in PD.

Findings: Assessing the results from PET or SPECT scans after a period of actual walking as well as fMRI during mental imagery or virtual reality (VR) gait paradigms, we found a varying pattern of gait-related brain activity. Overall, a decrease in activation of the SMA during gait was found in PD compared to elderly controls. In addition, the meta-analysis showed that the most consistent gait-related activation was situated in the cerebellar locomotor region (CLR) in PD. Despite methodological heterogeneity, the combined neuroimaging studies of gait provide new insights into its neural control in PD, suggesting that CLR activation likely serves a compensatory role in locomotion.

Title: Decreased serum ferritin may be associated with increased restless legs syndrome in Parkinson's disease (PD): a meta-analysis for the diagnosis of RLS in PD patients.

Citation: The International journal of neuroscience; Jun 2019 ; p. 1-9

Author(s): Li, Kelu; Liu, Bin; Wang, Fang; Bao, Jianjian; Wu, Chongmin; Huang, Xiaodong; Hu, Fayun; Xu, Zhong; Ren, Hui; Yang, Xinglong

Objective: Restless legs syndrome (RLS) is one of the most common non-motor symptoms of Parkinson's disease (PD), but its pathogenesis in a PD background is unclear. Abnormal iron metabolism may be involved, in which case it may be a marker of RLS risk. Here, the literature was systematically searched and meta-analyzed to compare iron metabolism markers between PD patients with or without RLS.

Method: The databases PubMed, Embase, Chinese National Knowledge Infrastructure, Wanfang, Web of Science, and SinoMed were searched for case-control and observational studies examining RLS-related changes in iron metabolism in PD, in terms of serum iron, serum ferritin and hemoglobin. Eligible studies were meta-analyzed using Stata 12.0.

Results: Meta-analysis of 11 case-control studies showed that serum ferritin concentration was lower in PD patients with RLS than in those without RLS. (95%CI -0.32 to -0.03, p = 0.018). In contrast, levels of serum iron or hemoglobin did not differ significantly between PD patients with or without RLS.

Conclusion: This meta-analysis may provide the first reliable pooled estimate of the correlation between abnormal iron metabolism and RLS in PD. The available evidence indicates that levels of ferritin, but not of serum iron or hemoglobin, correlate significantly with RLS in PD, with lower ferritin levels correlating to greater prevalence of RLS.

Title: Updates and advances in the treatment of Parkinson disease.

Author(s): Hayes, Michael W; Fung, Victor Sc; Kimber, Thomas E; O'Sullivan, John D

Abstract: Parkinson disease (PD) is a complex neurodegenerative disorder that can present heterogeneously with a combination of motor and non-motor symptoms. α-synuclein, a neuronal protein, can undergo aberrant conformational change resulting in the intra-neuronal accumulation of toxic oligomers that form Lewy bodies, the pathological hallmark of PD. There is evidence that pathological α-synuclein exhibits prion-like behaviour in its mode of transmission through the nervous system. The choice of initial dopaminergic treatments should be individually tailored but long term outcomes appear to be equivalent. There is level A evidence supporting the benefit of three different device-assisted therapies in treating troublesome motor fluctuations and dyskinesias. Stem cell transplantation as currently being trialled is predominantly a symptomatic therapy targeting only limited regions of the brain affected by PD, and will need to be proven to be not only as effective but as safe as currently available device-assisted therapies. New modes of treatment including active immunisation against oligomeric α-synuclein and drugs that alter cellular metabolism show some promise. The inability to effectively treat a range of non-motor, non-dopaminergic symptoms remains a major therapeutic challenge.

Title: A systematic review of MEG-based studies in Parkinson's disease: The motor system and beyond.

Author(s): Boon, Lennard I; Geraedts, Victor J; Hillebrand, Arjan; Tannemaat, Martijn R; Contarino, Maria Fiorella; Stam, Cornelis J; Berendse, Henk W

Abstract: Parkinson's disease (PD) is accompanied by functional changes throughout the brain, including changes in the electromagnetic activity recorded with magnetoencephalography (MEG). An integrated overview of these changes, its relationship with clinical symptoms, and the influence of treatment is currently missing. Therefore, we systematically reviewed the MEG studies that have examined oscillatory activity and functional connectivity in the PD-affected brain. The available articles could be separated into motor network-focused and whole-brain focused studies. Motor network studies revealed PD-related changes in beta band (13-30 Hz) neurophysiological activity within and between several of its components, although it remains elusive to what extent these changes underlie clinical motor symptoms. In whole-brain studies PD-related oscillatory slowing and decrease in functional connectivity correlated with cognitive decline and less strongly with other markers of disease progression. Both approaches offer a different perspective on PD-specific disease mechanisms and could therefore complement each

other. Combining the merits of both approaches will improve the setup and interpretation of future studies, which is essential for a better understanding of the disease process itself and the pathophysiological mechanisms underlying specific PD symptoms, as well as for the potential to use MEG in clinical care.

Title: Exercise Interventions for Individuals with Neurological Disorders: A Systematic Review of Systematic Reviews.

Author(s): Lai, Chien-Hung; Chen, Hung-Chou; Liou, Tsan-Hon; Li, Wei; Chen, Shih-Ching

Abstract: Fall prevention requires a multifaceted approach that should include individual risk assessment and intervention strategies. Exercise interventions may mitigate most risk factors for falls (e.g., balance impairment, gait impairment, and muscle weakness). Numerous systematic reviews (SRs) or meta-analyses have assessed the effectiveness of exercise interventions among people with various types of neurological disorders; however, the evidence obtained has not been synthesized into an overview. Therefore, the present SR assessed SRs of exercise intervention for fall prevention among people with neurological disorders. The research sources were the Cochrane Database of Systematic Reviews, PubMed, and Embase. Eligible studies were selected, and data were extracted independently by two reviewers. A total of 15 studies (6 SRs and 9 meta-analyses) were included. These SRs examined in this study have demonstrated that exercise interventions reduced the number, frequency, and rate of falls among people with neurological disorders, including cognitive impairment, dementia, and Parkinson disease. Furthermore, the current study presented insufficient evidence regarding the effectiveness of exercise interventions for fall prevention among people with stroke, multiple sclerosis (MS), and diabetes mellitus with polyneuropathy (DMP). Therefore, additional investigations are necessary to evaluate the effectiveness of exercise for fall prevention among people with MS, stroke, and DMP.

Title: Levodopa-induced skin disorders in patients with Parkinson disease: a systematic literature review approach.

Author(s): Bougea, Anastasia; Spantideas, Nikolaos; Katoulis, Alexandros; Stefanis, Leonidas

Abstract: The use of levodopa for treatment of Parkinson's disease is a well-established clinical practice. Data about the true incidence and severity of cutaneous complications associated with the use of levodopa are largely lacking. Aim of this review was to evaluate the quality of evidence referring to the skin disorders caused by levodopa treatment for Parkinson's disease. Thirty of 1084 studies were included; 8 randomized controlled trials and 22 case reports in a total of 2749 patients. Malignant melanoma was the most frequent oral levodopa-related skin disorder followed by allergic cutaneous reactions, alopecia, vitiligo, skin hyperpigmentation, Laugier-Hunziker syndrome, Henoch-Schönlein syndrome, pseudobullous morphea and scleroderma-like illness. Naranjo scores ranged from 2 to 8. Regarding levodopa clinical trials, the most frequent skin complication was peripheral edema, followed by malignant melanoma. Although evidence is not robust, melanoma is the most frequent and possible fatal levodopa-associated skin disorder, while other skin allergic or immunological reactions are less common and reversible. Although levodopa treatment may induce melanogenesis and promote melanomagenesis, existing evidence does not

support an association between levodopa therapy and induction or progression of malignant melanoma. The suggested association with melanoma may reflect the well-documented association of Parkinson's disease with melanoma rather than the exposure to the drug. Nevertheless, until a solid conclusion can be drawn, the use of levodopa in the context of malignant melanoma should be considered with caution. Well-designed prospective studies are needed to determine the cause and effect relationship between levodopa and skin disorders.

Title: Effects of an Intensive Exercise-Based Swallowing Program for Persons With Parkinson's Disease and Complex Medical History: A Single-Case Experiment.

Author(s): Jenks, Jocelyn; Pitts, Laura L

Purpose: Dysphagia treatments to address the deterioration of oropharyngeal and respiratory functions in Parkinson's disease (PD) are few and rarely researched in persons with complex medical histories. This research note explored the effects of an intensive exercise-based swallowing program (ISP) that incorporated lingual and respiratory exercises for persons with PD and complex medical history.

Method: A single-case experiment was conducted across a 4-week ISP of lingual training and expiratory muscle strengthening for 2 participants (67-year-old man and 61-year-old woman). Probes included tongue strength and maximum expiratory pressure. Generalization measures included the Mann Assessment of Swallowing Ability (Mann, 2002), Timed Water Test (Hughes & Wiles, 1996), Repetitive Saliva Swallow Test (Oguchi et al., 2000), Functional Oral Intake Scale (Crary, Carnaby Mann, & Groher, 2005), and Swallowing Quality of Life questionnaire (McHorney et al., 2002).

Results: Gains occurred in tongue strength and maximum expiratory pressure (p ≤ .002) with large effect sizes (d ≥ 1.3) as well as Mann Assessment of Swallowing Ability and Timed Water Test performance. Repetitive Saliva Swallow Test performance and Functional Oral Intake Scale improved for 1 participant, whereas the other maintained function. Swallowing Quality of Life questionnaire remained largely unchanged; however, participants indicated they became more aware of their swallowing difficulties at posttreatment.

Conclusions: Persons with PD and complex medical history demonstrated increased lingual and expiratory muscle strength following a brief intensive program, which further generalized to select clinical swallowing measures. Findings suggest an overall positive and potentially additive or synergistic effect of an ISP. Future research may refine optimal candidacy and regimens for ISPs, which may help to maximize clinically meaningful returns, especially considering the increased demands of an intensive program.

Title: Occupation and Parkinson disease in the Women's Health Initiative Observational Study.

Author(s): Burstyn, Igor; LaCroix, Andrea Z; Litvan, Irene; Wallace, Robert B; Checkoway, Harvey

Introduction: There is a lack of consistent study findings on associations between workplace exposures and the risk of Parkinson disease (PD) and a paucity of such data on women. We assessed PD risk among occupational groups to derive insights about potential occupation-specific exposures in a large cohort of women.

Methods: The Women's Health Initiative Observational Study (WHI-OS) is a prospective cohort that enrolled 91 627 postmenopausal women, 50 to 79 years of age, from 01 October 1993 through 31 December 1998, at 40 clinical centers across the United States, with average follow-up interval of 11 years. These women reported up to three paid jobs, held the longest since age 18; these jobs were coded and duration of employment calculated. We defined a case by self-report of doctor-diagnosed PD (at baseline or follow-up), death attributed to PD, or taking medication consistent with PD.

Results: Among 2590 PD cases, we found evidence of excess risk among "counselors, social workers, and other community and social service specialists," and there was a suggestion of increased in risk among postsecondary teachers, and "building and grounds cleaning and maintenance" workers. There was also evidence of a deficit in risk among women who worked in sales. Results according to ever-employed and job duration were similar, except for evidence of excess risk among "health technologists and technicians" with more than 20 years of employment. Longer duration of life on a farm was associated with higher risk.

Conclusion: Our findings paint a largely reassuring picture of occupational risks for PD among US women.

Title: Genetic analysis of Mendelian mutations in a large UK population-based Parkinson's disease study.

Author(s): Tan, Manuela M X; Malek, Naveed; Lawton, Michael A; Hubbard, Leon; Pittman, Alan M; Joseph, Theresita; Hehir, Jason; Swallow, Diane M A; Grosset, Katherine A; Marrinan, Sarah L; Bajaj, Nin; Barker, Roger A; Burn, David J; Bresner, Catherine; Foltynie, Thomas; Hardy, John; Wood, Nicholas; Ben-Shlomo, Yoav; Grosset, Donald G; Williams, Nigel M; Morris, Huw R

Abstract: Our objective was to define the prevalence and clinical features of genetic Parkinson's disease in a large UK population-based cohort, the largest multicentre prospective clinico-genetic incident study in the world. We collected demographic data, Movement Disorder Society Unified Parkinson's Disease Rating Scale scores, and Montreal Cognitive Assessment scores. We analysed mutations in PRKN (parkin), PINK1, LRRK2 and SNCA in relation to age at symptom onset, family history and clinical features. Of the 2262 participants recruited to the Tracking Parkinson's study, 424 had young-onset Parkinson's disease (age at onset ≤ 50) and 1799 had late onset Parkinson's disease. A range of methods were used to genotype 2005 patients: 302 young-onset patients were fully genotyped with multiplex ligation-dependent probe amplification and either Sanger and/or exome sequencing; and 1701 late-onset patients were genotyped with the LRRK2 'Kompetitive' allele-specific polymerase chain reaction assay and/or exome sequencing (two patients had missing age at onset). We identified 29 (1.4%) patients carrying pathogenic mutations. Eighteen patients carried the G2019S or R1441C mutations in LRRK2, and one patient carried a heterozygous duplication in SNCA. In PRKN, we identified patients carrying deletions of exons 1, 4 and 5, and P113Xfs, R275W, G430D and R33X. In PINK1, two patients carried deletions in exon 1 and 5, and the W90Xfs point mutation. Eighteen per cent of patients with age at onset ≤30 and 7.4% of patients from large dominant families carried pathogenic Mendelian gene mutations. Of all young-onset patients, 10 (3.3%) carried biallelic mutations in PRKN or PINK1. Across the whole cohort, 18 patients (0.9%) carried pathogenic LRRK2 mutations and one (0.05%) carried an SNCA duplication. There is a significant burden of LRRK2 G2019S in patients with both apparently sporadic and familial disease. In young-onset patients, dominant and recessive mutations were equally common. There were no differences in clinical features between LRRK2 carriers and non-carriers.

However, we did find that PRKN and PINK1 mutation carriers have distinctive clinical features compared to young-onset non-carriers, with more postural symptoms at diagnosis and less cognitive impairment, after adjusting for age and disease duration. This supports the idea that there is a distinct clinical profile of PRKN and PINK1-related Parkinson's disease. We estimate that there are approaching 1000 patients with a known genetic aetiology in the UK Parkinson's disease population. A small but significant number of patients carry causal variants in LRRK2, SNCA, PRKN and PINK1 that could potentially be targeted by new therapies, such as LRRK2 inhibitors.

Title: Determinants of exercise behaviour in persons with Parkinson's disease.

Citation: Disability and rehabilitation; Jul 2019 ; p. 1-7

Author(s): Zaman, Andrew; Ellingson, Laura; Sunken, Alyssa; Gibson, Erin; Stegemöller, Elizabeth L

Background: Exercise shows promise for improving physical and cognitive functioning, quality of life, and mood in individuals with Parkinson's disease (PD). Structured interviews have suggested potential factors influencing participation in exercise in this population, but no studies have examined if they predict exercise behaviour.

Methods: Thirty persons with PD completed the International Physical Activity Questionnaire and a semi-structured interview. Time spent exercising was calculated by summing responses for recreation, sport, and leisure-time physical activity. Predictors of exercise were assessed via interview. In addition, participants were asked about what types of exercise they engaged in and what types of exercise they would be interested in trying. Regression analyses were used to identify the factors that predicted time spent exercising, as well as determining factors in low vs. high exercisers (≥ 150 min per week).

Results: Positive predictors of exercise were being male (β= -0.52, $p = 0.01$; $\chi 2 = 4.84$, $p = 0.03$), married ($\beta = 0.32$, $p = 0.03$; $\chi 2 = 5.60$, $p = 0.02$), and enjoyment of exercise ($\beta = 0.36$, $p = 0.02$). Fear of falling ($\beta = -0.41$, $p = 0.01$; $\chi 2 = 4.29$, $p = 0.04$), negative perception of health ($\beta = -0.41$, $p = 0.02$), perception of PD symptoms ($\chi 2 = 12.45$, $p < 0.001$), bad weather ($\chi 2 = 5.06$, $p = 0.02$), and lack of an exercise partner ($\chi 2 = 13.39$, $p < 0.001$) were negative predictors of exercise.

Conclusions: Results from this study suggest that exercise programmes should work to make activities enjoyable, safe, and adaptable to the abilities of the individual. Programmes should also include social engagement. Implications for rehabilitation Parkinson's exercise programmes should be enjoyable. Parkinson's exercise programmes should include both social engagement and social support. Parkinson's exercise programmes should be safe and adaptable to the abilities of the participants. Parkinson's exercise programmes should aim to improve balance and reduce fear of falling. Individual exercise programmes can also be successful, many people with PD exercise alone with the most common form being walking.

Title: The relationship between inflammatory bowel disease and Parkinson's disease: true or fiction?

Citation: Scandinavian journal of gastroenterology; Jul 2019 ; p. 1-4

Author(s): Carmona-Abellan, Mar; Rodríguez-Lago, Iago; Cabriada, Jose Luis; Gómez-Esteban, Juan Carlos

Abstract: Gastrointestinal (GI) symptoms can precede by many years the motor symptoms of Parkinson's disease (PD) and these patients can show some degree of inflammation associated with abnormal aggregates of alpha-synuclein in the GI tract. The abnormal accumulation of alpha-synuclein and the spreading of the aggregates from the gut to the brain might be promoted by inflammation, rising the hypothesis of a possible relationship between inflammatory bowel disease and PD. Many population-based studies have explored this association, but they have found conflicting results. It is essential to clarify this hypothesis and to try to elucidate the milestones of this relationship. There is no clear concordance between the results and the interpretation of different previous findings, probably due to many confounding factors such as drugs with anti-inflammatory activity, surgery, genetic predisposition and also selection bias. If there is a real association between both diseases, gastroenterologists and neurologists should be able to detect possible triggers of the disease or on the other hand, protective factors, that may be considered in clinical practice.

Title: Unmet needs of people with Parkinson's disease: A cross-sectional study.

Author(s): Lee, JuHee; Kim, YonJi; Kim, SungHae; Kim, Yielin; Lee, Young Joo; Sohn, Yongho

Aims: To identify the type and extent of unmet needs in people with Parkinson's disease and to examine the impact of health locus of control and family support on these needs.

Design: A cross-sectional study.

Methods: This study was conducted from October 2015 - February 2016 in Korea. Data were collected through questionnaires focusing on unmet needs, health locus of control, family support and clinical features.

Results: Therapeutic needs represented the highest percentage of unmet needs in people with Parkinson's disease (85.05%), followed by social/spiritual/emotional needs (82.72%). Physical needs were the lowest reported score (75.01%). Unmet needs were more frequent those with more severe non-motor symptoms. Also, higher family support, internal locus of control and doctor locus of control were correlated with more unmet needs.

Conclusion: Understanding factors that determine the type and degree of unmet needs in people with PD is important to provide appropriate nursing care. The findings of this study can be used for providing nursing interventions reflecting unmet needs and reduce their unmet needs to improve the overall well-being of people with PD. This article is protected by copyright. All rights reserved.

Title: Does transcranial direct current stimulation improve functional locomotion in people with Parkinson's disease? A systematic review and meta-analysis.

Author(s): Lee, Hyo Keun; Ahn, Se Ji; Shin, Yang Mi; Kang, Nyeonju; Cauraugh, James H

Purpose: The purpose of this meta-analysis was to investigate the treatment effects of transcranial direct current stimulation (tDCS) on functional locomotion in people with Parkinson's disease (PD).

Methods: A systematic literature search identified 18 qualified studies that used tDCS protocols as functional locomotion rehabilitation interventions for people with PD. All

included studies used either a randomized control trial or crossover designs with a sham control group. Meta-analysis quantified both (a) short-term treatment effects: change in functional locomotion between baseline and immediate posttests on 18 comparisons and (b) long-term treatment effects: change in functional locomotion between baseline and delayed retention tests on six comparisons. Moreover, we performed moderator variable analyses for comparing effect sizes between tDCS targeting multiple brain regions and tDCS targeting a single brain region.

Results: Random effects model meta-analyses revealed a significant short-term treatment effect (effect size = 0.359; P = 0.001), whereas no significant long-term treatment effects were identified (effect size = 0.164; P = 0.314). In addition, tDCS protocols that targeted multiple brain regions showed relatively more positive effects on functional locomotion than protocols that targeted a single brain region.

Conclusions: These meta-analytic findings indicate that tDCS protocols may show immediate positive effects on functional locomotion in people with PD. However, given the relatively low effect size, exploring more appropriate tDCS protocols (i.e., targeting multiple motor and prefrontal regions and medication condition) should be a focus in future studies.

Title: Predictors of motor complications in early Parkinson's disease: A prospective cohort study.

Author(s): Kelly, Mark J; Lawton, Michael A; Baig, Fahd; Ruffmann, Claudio; Barber, Thomas R; Lo, Christine; Klein, Johannes C; Ben-Shlomo, Yoav; Hu, Michele T

Objective: The objective of this study was to identify clinical predictors of motor complications (dyskinesia and motor fluctuations) of levodopa in a prospectively recruited PD cohort using longitudinal analysis.

Methods: An inception cohort (Oxford Discovery) of 734 patients was followed to a maximum of 10 years from diagnosis using a discrete-time survival analysis. A subset analysis was used to validate an online dyskinesia-risk calculator developed from the results of the Stalevo Reduction in Dyskinesia Evaluation PD trial.

Results: A total of 186 cases of dyskinesia and 254 cases of motor fluctuations were observed. Dyskinesia incidence increased with time (risk per 100 participants [95% confidence interval] 13 [11-16] 6.5 years from diagnosis). Motor complication predictors were grouped as medication predictors, disease predictors and patient predictors. Baseline nonmotor feature severity, low mood, anxiety, and age at symptom onset were associated with motor complications among a number of previously identified predictors. Replication of the Stalevo Reduction in Dyskinesia Evaluation PD calculator was reasonable with the area under the curve for dyskinesia risk score as a predictor of dyskinesia being 0.68 (95% confidence interval, 0.55-0.81).

Conclusions: This study quantifies risk of motor complications, finds consistent predictors, and demonstrates the novel finding that nonmotor features of PD, particularly low mood and anxiety, are significant risk factors for motor complications. Further validation of dyskinesia risk scores are required as well as evidence to determine if the routine use of such scores can be clinically valuable in enhancing patient care and quality of life. © 2019 The Authors. Movement Disorders published by Wiley Periodicals, Inc. on behalf of International Parkinson and Movement Disorder Society.

Title: Muscle-targeted nutritional support for rehabilitation in patients with parkinsonian syndrome.

Author(s): Barichella, Michela; Cereda, Emanuele; Pinelli, Giovanna; Iorio, Laura; Caroli, Diana; Masiero, Irene; Ferri, Valentina; Cassani, Erica; Bolliri, Carlotta; Caronni, Serena; Maggio, Marcello; Ortelli, Paola; Ferrazzoli, Davide; Maras, Antonios; Riboldazzi, Giulio; Frazzitta, Giuseppe; Pezzoli, Gianni

Objective: We evaluated the efficacy of muscle-targeted nutritional support on the functional outcomes of multidisciplinary intensive rehabilitation treatment (MIRT) in patients with Parkinson disease (PD) or parkinsonism.

Methods: We conducted a pragmatic, bicentric, randomized (1:1), assessor-blind controlled trial (Protein, Leucine and Vitamin D Enhancing Rehabilitation [PRO-LEADER]; April 2017 to January 2018) in cognitively intact patients with PD or parkinsonism and undergoing a 30-day MIRT. Patients (n = 150) received a standard hospital diet with or without a whey protein-based nutritional supplement enriched with leucine and vitamin D twice daily. The primary efficacy endpoint was the increase in the distance walked during a 6-minute walking test (6MWT). Secondary endpoints were changes in 4-meter walking speed, Timed Up and Go test (TUG), Berg balance scale, handgrip strength, Self-assessment Parkinson's Disease Disability Scale, body weight, and skeletal muscle mass (SMM).

Results: Nutritional support resulted in greater increase in the distance walked during 6MWT (mean 69.6 meters [95% confidence interval (CI) 60.7-78.6]) than no support (51.8 meters [95% CI 37.0-66.7]): center-adjusted mean difference, 18.1 meters (95% CI 0.9-35.3) (p = 0.039). Further adjustment for changes in dopaminergic therapy and SMM yielded consistent results: mean difference, 18.0 meters (95% CI 0.7-35.2) (p = 0.043). A meaningful effect was also found for the following secondary endpoints: 4-meter walking speed (p = 0.032), TUG (p = 0.046), SMM, and SMM index (p = 0.029). Six patients discontinued the nutritional therapy due to mild side effects.

Conclusion: The consumption of a whey protein-based nutritional formula enriched with leucine and vitamin D with MIRT improved lower extremity function and preserved muscle mass in patients with PD or parkinsonism.

Clinicaltrials.Gov IDENTIFIER: NCT03124277.

Classification of Evidence: This study provides Class I evidence that for patients with parkinsonism undergoing intensive rehabilitation, a whey protein-based nutritional formula enriched with leucine and vitamin D increased distance walked on the 6MWT.

Title: Evidence-Based Evaluation of the Ethics of Sham Surgery for Parkinson's Disease.

Author(s): Polgar, Stephen; Mohamed, Sheeza

Abstract: The stated purpose of sham or placebo surgery is to enable the implementation of surgical placebo-controlled trials (SPTs) for evaluating the safety and efficacy of surgical interventions. Exposing the participants to the burdens and harms of sham surgery has been justified on the grounds of the absolute necessity for controlling large placebo effects and observer bias, assumed to be associated with surgical procedures. In the present review, we argue that evidence obtained from SPTs of cellular therapies for the treatment of Parkinson's

disease (PD) has failed to demonstrate either large and consistent placebo effects or decisive methodological advantages for relying on sham surgical controls. We outline several alternative assessment strategies and designs available to establish the efficacy of cellular therapies. It is concluded that the evidence evaluated in the present analysis indicated that use of sham surgery in the context of developing novel surgical procedures for PD is not necessary, and therefore, unethical under a utilitarian model.

Title: Suicide in Parkinson's disease: A systematic review.

Citation: CNS & neurological disorders drug targets; Jul 2019

Author(s): Berardelli, Isabella; Belvisi, Daniele; Nardella, Adele; Falcone, Giulia; Lamis, Dorian A; Fabbrini, Giovanni; Berardelli, Alfredo; Girardi, Paolo; Pompili, Maurizio

Background: Psychiatric disorders and suicide have been reported in patients suffering from Parkinson's disease. The aims of the present paper were to determine whether patients with Parkinson's disease have an increased rate of suicide and to identify the clinical features possibly associated with suicide risk in Parkinson's disease. We also revised the studies on suicide risk in Parkinson's disease patients after deep brain stimulation.

Methods: We performed a MedLine, Excerpta Medica, PsycLit, PsycInfo and Index Medicus search to identify all articles published on this topic from 1970 to 2017. The following search terms were used: suicide OR suicide attempt OR suicidal ideation OR suicide risk AND Parkinson's disease AND Parkinson's disease and deep brain stimulation.

Results: The studies we identified that assessed the suicide rate associated with Parkinson's disease yielded contrasting results, although an increase in suicidal ideation did emerge. The studies on the effect of deep brain stimulation on suicide risk in Parkinson's disease also reported controversial findings. Psychiatric symptoms, including depression, appear to be associated with suicide risk in patients with Parkinson's disease on medical and after surgical treatment.

Conclusions: It is unclear whether there is an increased risk of suicide among patients with Parkinson's disease and whether suicide risk is increased by deep brain stimulation. Further studies designed to assess suicidality in this condition are therefore warranted.

Sources Used:

The following databases are searched on a regular basis in the development of this bulletin: Amed, British Nursing Index, Cinahl, Medline

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