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Parkinson’s Disease Current Awareness Bulletin

March 2018

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Title: Home-based step training using videogame technology in people with Parkinson's disease: a single-blinded randomised controlled trial.

Citation: Clinical Rehabilitation; Mar 2018; vol. 32 (no. 3); p. 299-311

Author(s): Jooeun Song; Paul, Serene S.; Caetano, Maria Joana D.; Smith, Stuart; Dibble, Leland E.; Love, Rachelle; Schoene, Daniel; Menant, Jasmine C.; Sherrington, Cathie; Lord, Stephen R.; Canning, Colleen G.; Allen, Natalie E.

Objectives: To determine whether 12-week home-based exergame step training can improve stepping performance, gait and complementary physical and neuropsychological measures associated with falls in Parkinson's disease.

Design: A single-blinded randomised controlled trial.

Setting: Community (experimental intervention), university laboratory (outcome measures).

Subjects: Sixty community-dwelling people with Parkinson's disease. Interventions: Home-based step training using videogame technology.

Main measures: The primary outcomes were the choice stepping reaction time test and Functional Gait Assessment. Secondary outcomes included physical and neuropsychological measures associated with falls in Parkinson's disease, number of falls over six months and self-reported mobility and balance.

Results: Post intervention, there were no differences between the intervention (n = 28) and control (n = 25) groups in the primary or secondary outcomes except for the Timed Up and Go test, where there was a significant difference in favour of the control group (P = 0.02). Intervention participants reported mobility improvement, whereas control participants reported mobility deterioration--between-group difference on an 11-point scale = 0.9 (95% confidence interval: -1.8 to -0.1, P = 0.03). Interaction effects between intervention and disease severity on physical function measures were observed (P = 0.01 to P = 0.08) with seemingly positive effects for the low-severity group and potentially negative effects for the high-severity group.

Conclusion: Overall, home-based exergame step training was not effective in improving the outcomes assessed. However, the improved physical function in the lower disease severity intervention participants as well as the self-reported improved mobility in the intervention group suggest home-based exergame step training may have benefits for some people with Parkinson's disease.

Title: Long-term effects of Lee Silverman Voice Treatment on daily voice use in Parkinson's disease as measured with a portable voice accumulator.

Citation: Logopedics, phoniatrics, vocology; Feb 2018 ; p. 1-10

Author(s): Körner Gustafsson, Joakim; Södersten, Maria; Ternström, Sten; Schalling, Ellika

Abstract: This study examines the effects of an intensive voice treatment focusing on increasing voice intensity, LSVT LOUD® Lee Silverman Voice Treatment, on voice use in daily life in a participant with Parkinson's disease, using a portable voice accumulator, the VoxLog. A secondary aim was to compare voice use between the participant and a matched healthy control. Participants were an individual with Parkinson's disease and his healthy monozygotic twin. Voice use was registered with the VoxLog during 9 weeks for the individual with Parkinson's disease and 2 weeks for the control. This included baseline registrations for both participants, 4 weeks during LSVT LOUD for the individual with Parkinson's disease and 1 week after treatment for both participants. For the participant with

Parkinson's disease, follow-up registrations at 3, 6, and 12 months post-treatment were made. The individual with Parkinson's disease increased voice intensity during registrations in daily life with 4.1 dB post-treatment and 1.4 dB at 1-year follow-up compared to before treatment. When monitored during laboratory recordings an increase of 5.6 dB was seen post-treatment and 3.8 dB at 1-year follow-up. Changes in voice intensity were interpreted as a treatment effect as no significant correlations between changes in voice intensity and background noise were found for the individual with Parkinson's disease. The increase in voice intensity in a laboratory setting was comparable to findings previously reported following LSVT LOUD. The increase registered using ambulatory monitoring in daily life was lower but still reflecting a clinically relevant change.

Title: A neuroscience perspective of the gut theory of Parkinson's disease.

Citation: The European journal of neuroscience; Feb 2018

Author(s): Smith, Lisa M; Parr-Brownlie, Louise C

Abstract: Parkinson's disease is caused by complex interactions between environmental factors and a genetic predisposition. Environmental factors include exposure to pesticides and toxins, heavy metals and accumulation of iron and/or manganese in the brain. However, accumulating evidence indicates that gut-brain health and function is impaired in Parkinson's disease, often a decade before motor symptoms are diagnosed. We present the gut-brain theory of Parkinson's disease and summarise the peripheral and central nervous system pathology, gastrointestinal symptoms experienced by many Parkinson's patients, the route by which gut-brain dysfunction may occur, and changes in gut microbiota that are associated with disease expression. Finally, we consider future gut-based treatments to prevent or slow down the progression of Parkinson's disease and explore whether this knowledge may highlight biomarkers to be included in complex algorithms in the future to assess a person's risk for developing Parkinson's disease. This article is protected by copyright. All rights reserved.

Title: Spinal cord stimulation therapy for gait dysfunction in advanced Parkinson's disease patients.

Citation: Movement disorders : official journal of the Movement Disorder Society; Feb 2018

Author(s): Samotus, Olivia; Parrent, Andrew; Jog, Mandar

Background: Benefits of dopaminergic therapy and deep brain stimulation are limited and unpredictable for axial symptoms in Parkinson's disease. Dorsal spinal cord stimulation may be a new therapeutic approach. The objective of this study was to investigate the therapeutic effect of spinal cord stimulation on gait including freezing of gait in advanced PD patients.

Methods: Five male PD participants with significant gait disturbances and freezing of gait underwent midthoracic spinal cord stimulation. Spinal cord stimulation combinations (200-500 μs/30-130 Hz) at suprathreshold intensity were tested over a 1- to 4-month period, and the effects of spinal cord stimulation were studied 6 months after spinal cord stimulation surgery. Protokinetics Walkway measured gait parameters. Z scores per gait variable established each participant's best spinal cord stimulation setting. Timed sit-to-stand and automated freezing-of-gait detection using foot pressures were analyzed. Freezing of Gait Questionnaire (FOG-Q), UPDRS motor items, and activities-specific balance confidence scale were completed at each study visit.

Results: Spinal cord stimulation setting combinations of 300-400 μs/30-130 Hz provided gait improvements. Although on-medication/on-stimulation at 6 months, mean step length, stride velocity, and sit-to-stand improved by 38.8%, 42.3%, and 50.3%, respectively, mean UPDRS, Freezing of Gait Questionnaire, and activities-specific balance confidence scale scores improved by 33.5%, 26.8%, and 71.4%, respectively. The mean number of freezing-of-gait episodes reduced significantly from 16 presurgery to 0 at 6 months while patients were on levodopa and off stimulation.

Conclusions: By using objective measures to detect dynamic gait characteristics, the therapeutic potential of spinal cord stimulation was optimized to each participant's characteristics. This pilot study demonstrated the safety and significant therapeutic outcome of spinal cord stimulation in advanced PD patients, and thus a larger and longer clinical study will be conducted to replicate these results. © 2018 International Parkinson and Movement Disorder Society.

Title: Flavor perception and the risk of malnutrition in patients with Parkinson's disease.

Citation: Journal of neural transmission (Vienna, Austria: 1996); Feb 2018

Author(s): Roos, Dareia S; Oranje, Oscar J M; Freriksen, Anneleen F D; Berendse, Henk W; Boesveldt, Sanne

Abstract: Flavor perception involves both olfactory and gustatory function. In patients with Parkinson's disease (PD), hyposmia is a frequent finding, as well as an increased risk of malnutrition. We performed a pilot study to investigate the relationship between flavor perception and risk of malnutrition in PD patients. 63 PD patients participated to perform an olfactory (Sniffin' Sticks) and gustatory (Taste Strips) task, and a questionnaire to establish nutritional risk (MUST), which includes BMI measurements. The relationship between olfactory and gustatory function and BMI was analyzed using partial correlations, corrected for disease duration, and regression analysis. Patients displayed a high prevalence of hyposmia (68.3%), and a low prevalence (6.3%) of hypogeusia. A small, but significant correlation was found between olfactory function and BMI ($r = 0.261$, $p = 0.038$), and not for gustatory function and BMI ($r = 0.137$, $p = 0.284$). Hyposmia, and not hypogeusia, may contribute to weight loss in Parkinson's disease, and hence increase the risk of malnutrition.

Title: Voice quality outcomes of idiopathic Parkinson disease medical treatment: a systematic review.

Citation: Clinical otolaryngology : official journal of ENT-UK ; official journal of Netherlands Society for Oto-Rhino-Laryngology & Cervico-Facial Surgery; Feb 2018

Author(s): Lechien, Jerome R; Blecic, Serge; Huet, Kathy; Delvaux, Véronique; Piccaluga, Myriam; Roland, Virginie; Harmegnies, Bernard; Saussez, Sven

Introduction: To investigate voice quality (VQ) impairments in idiopathic Parkinson's disease (IPD) and to explore the impact of medical treatments and L-Dopa challenge testing on voice.

Methods: Relevant studies published between January 1980 and June 2017 describing VQ evaluations in IPD were retrieved using PubMed, Scopus, Biological Abstracts, BioMed Central, and Cochrane databases. Issues of clinical relevance, including IPD treatment efficiency and voice quality outcomes, were evaluated for each study. The grade of recommendation for each publication was determined according to the Oxford Centre for Evidence-Based Medicine evidence levels.

Results: The database research yielded 106 relevant publications, of which 33 studies met the inclusion criteria, for a total of 964 IPD patients. Data were extracted by 3 independent physicians who identified 21, 11, and 1 trials with IIIb, IIb, and IIa evidence levels, respectively. The main VQ assessment tools used were acoustic testing (N=27), aerodynamic testing (N=10), subjective measurements (N=8), and videolaryngostroboscopy (N=3). The majority of trials (N=32/33) identified subjective or objective VQ improvements after medical treatment (N=10) or better VQ evaluations in healthy subjects compared to patients with IPD (N=22). Especially, our analysis supports that VQ overall improves during the L-Dopa challenge testing, making the VQ evaluation an additional tool for the IPD diagnosis. The methodology used to assess subjective and objective VQ substantially varied from one study to another. All of the included studies took into consideration the patient's clinical profile in the VQ analysis.

Conclusion: The majority of studies supported that VQ assessments remain useful as outcome measures of the effectiveness of medical treatment and could be helpful for the IPD diagnosis based on L-Dopa challenge testing. Further controlled studies using standardized and transparent methodology for measuring acoustic parameters are necessary to confirm the place of each tool in both IPD diagnosis and treatment evaluation. This article is protected by copyright. All rights reserved.

Title: Relevance of sleep quality on caregiver burden in Parkinson's disease.

Citation: Neurological sciences: official journal of the Italian Neurological Society and of the Italian Society of Clinical Neurophysiology; Feb 2018

Author(s): Bartolomei, Luigi; Pastore, Andrea; Meligrana, Lucia; Sanson, Elena; Bonetto, Nicola; Minicuci, Giacomo Maria; Marsala, Sandro Zambito; Mesiano, Tiziana; Bragagnolo, Lorenzo; Antonini, Angelo

Abstract: Parkinson's disease (PD) is a neurodegenerative disorder which affects the quality of life of patient and their family. Sleep disorders appear in 80-90% of PD patients and have a great impact on the PD well-being. We examined the relationship of patients' sleep quality and depression on burden, mood, quality of life, and quality of sleep of their caregivers. A multicenter, regional (Veneto), observational, cross-sectional study that included 55 patient-caregiver pairs was conducted. Patients were assessed using Parkinson's Disease Sleep Scale (PDSS) and Epworth Sleepiness Scale (ESS) for sleep disorders, Beck Depression Inventory (BDI) as a measure of depression, and Parkinson's Disease Questionnaire (PDQ-39) as a measure of quality of life. Caregivers were evaluated by the Caregiver Burden Inventory (CBI) a measure of burden, BDI, SF-36 Health Survey as measures of HRQoL, and Medical Outcomes Study-Sleep Scale (MOS-SS) for quality of sleep. CBI, HRQoL, MOS-SS, and BDI scores displayed no association with patients' age, cognition (Mini Mental State Examination (MMSE) and Frontal Assessment Battery (FAB)), disease duration, and Hoehn and Yahr (H&Y), and UPDRS III scales whereas were significantly correlated with patients' quality of sleep, depression, and quality life. CBI and HRQoL were also associated respectively with patients' ESS and L-dopa daily dose. This study underscores the presence of a significant relationship between patient and caregiver quality of life. Interestingly, sleep quality and depression rather than motor disability best predicted caregivers' well-being.

Title: Dance therapy for Parkinson's disease: A randomised feasibility trial.

Citation: International Journal of Therapy & Rehabilitation; Feb 2018; vol. 25 (no. 2); p. 64-72

Author(s): Rocha, Priscila; Aguiar, Lorenna; McClelland, Jodie A.; Morris, Meg E.

Citation: International Journal of Therapy & Rehabilitation; Feb 2018; vol. 25 (no. 2); p. 64-72

Background/Aims: To examine the feasibility of two dance programmes for people with Parkinson's disease directed towards improving mobility, balance, gait, and quality of life.

Methods: A pilot randomised controlled trial was conducted in Australia. People with idiopathic Parkinson's disease who scored I-IV on the modified Hoehn and Yahr scale were randomly allocated to one of two groups: Argentine tango or mixed-genre (incorporating several dance styles) therapeutic dancing. Dance classes were conducted for 1 hour, once a week for 8 weeks. Concurrently, participants completed a home dance programme. They received a video with 40 minutes of dance steps to be performed at home once a week. In-person group classes comprised a 10-minute warm-up, 45 minutes of dancing routines, and a 5-minute cool-down. Feasibility was the primary outcome, quantified by the number of people agreeing to participate, completion of pre- and post-intervention assessments, attendance, compliance with the classes, and adverse events. Secondary outcomes included mobility, balance, gait, motor disability, and quality of life.

Findings: A total of 42 people were screened and 21 participated in the classes. Of these, 18 returned for reassessments. The average compliance with the eight group dance classes was 70% (six classes). No adverse events occurred. Among the secondary outcome variables, statistically significant improvements occurred in mobility, balance, and motor disability in the tango group. Freezing of gait improved for the mixed-dance group.

Conclusions: Argentine tango and mixed-genre therapeutic dancing classes accompanied by home programmes are feasible and safe for people in the early to mid stages of Parkinson's disease.

Title: Feasibility of a cognitive strategy training intervention for people with Parkinson's disease.

Citation: Disability & Rehabilitation; May 2018; vol. 40 (no. 10); p. 1127-1134

Author(s): Foster, Erin R.; Spence, Daniel; Toglia, Joan

Purpose: To investigate the feasibility of a novel client-centered cognitive strategy training intervention for people with Parkinson's disease (PD).

Materials and methods: This was a case series of seven people with PD without dementia but with subjective cognitive decline. The intervention involved ≥5 treatment sessions at the participant's home. Participant acceptance and engagement were assessed by the Credibility/Expectancy Questionnaire (CEQ), Client Satisfaction Questionnaire (CSQ), enjoyment and effort ratings, and homework completion. Logistical information was tracked, and the Canadian Occupational Performance Measure (COPM) was an exploratory outcome measure. Data analysis was descriptive.

Results: CEQ scores were positive and increased over time. CSQ scores were high (M=30.8, SD=0.75), with all participants rating all items positively. Almost all (95%) effort and enjoyment ratings were 埵 (Much), and homework completion rates averaged 84% (SD=18).

Intervention duration was 6-15 weeks (M=9.2, SD=2.8), with treatment sessions averaging 1.7 h (SD=0.5). Group and most individual COPM ratings improved ≥2 points.

Conclusions: These findings support the feasibility of the intervention for people with PD. It was acceptable, engaging, and promising in terms of its effect on self-identified functional cognitive problems.

Title: Severely Affected by Parkinson Disease: The Patient’s View and Implications for Palliative Care.

Citation: American Journal of Hospice & Palliative Medicine; Apr 2018; vol. 35 (no. 4); p. 579-585

Author(s): Strupp, Julia; Kunde, Anne; Galushko, Maren; Voltz, Raymond; Golla, Heidrun

Introduction: People severely affected by Parkinson disease (PD)/atypical parkinsonism (AP) comprise a heterogeneous group with distinct needs, which so far remain largely unexamined. The aim of our study was to analyze reasons for feeling severely affected and document unmet needs in a patient subgroup severely affected by PD/AP using solely a subjective inclusion criterion.

Methods: Patients feeling severely affected by PD/AP were recruited via a magazine published by the German Parkinson Association. A questionnaire was sent out nationwide. Besides analyzing the closed-ended questions, a subsample of 40% was analyzed regarding the open-ended questions using content analysis. Correlations between subjectively felt severe affectedness and objective criteria were calculated.

Results: Eight hundred fourteen questionnaires were analyzed. Sample characteristics were: mean age 70 years; 60.3% male; time since diagnosis up to 37 years; and Hoehn and Yahr score (if known) 3 (44.6%), followed by 4 (23.9%). Significant associations were observed between subjectively felt severe affectedness and Hoehn and Yahr ($P \le .05$), poorer health ($P \le .01$), higher nursing care level ($P \le 0.01$), and having no children ($P \le .05$). Most common reasons for feeling severely affected were mobility impairment (34.9%), coordination problems (17.0%), speech problems (12.2%), and limited day-to-day activities (7.8%). Most often expressed unmet needs were support in everyday life (28.1%), medical treatment (15.2%), help with financial services (11.6%), and social integration (9.9%).

Conclusions: To meet the complex needs, an integrated multidisciplinary and multiprofessional approach is indicated befitting palliative care principles. Herein, home-based services seem of special importance for patients in advanced disease stages.

Title: 200 Years of Parkinson's disease: what have we learnt from James Parkinson?

Citation: Age & Ageing; Mar 2018; vol. 47 (no. 2); p. 209-214

Author(s): MCDONALD, CLAIRE; GORDON, GAVIN; HAND, ANNETTE; WALKER, RICHARD W.; FISHER, JAMES M.

Abstract: 2017 marks 200 years since James Parkinson's published his 'Essay on the Shaking Palsy'. Although now most famous for describing the condition that came to bear his name, Parkinson had a wide range of interests and his influence spread beyond medicine. In this review, we provide a biography of James Parkinson's remarkable life. Parkinson's paper not only comprehensively described the symptoms of Parkinson's disease (PD), but challenged his peers to better understand the pathophysiology of the PD. Key observation over the next 2 centuries, included the recognition of the link between the substantia nigra and PD and the discoveries of dopamine deficiency in patients with PD. We review the subsequent development of pharmacological and surgical therapies. Despite great progress over the last 200 years, Parkinson's hopes for a 'cure if employed early enough' or that 'some remedial process may ere long be discovered by which at least the progression of the disease may be stopped' remain apposite today and we reflect on the challenges ahead for the next century.

Title: Trunk Exercises Improve Gait Symmetry in Parkinson Disease: A Blind Phase II Randomized Controlled Trial.

Citation: American Journal of Physical Medicine & Rehabilitation; Mar 2018; vol. 97 (no. 3); p. 151-159

Author(s): Hubble, Ryan P.; Naughton, Geraldine; Silburn, Peter A.; Cole, Michael H.

Objective: Deficits in step-to-step symmetry and trunk muscle activations have been linked to falls in Parkinson disease. Given such symptoms are poorly managed with anti-parkinsonian medications, alternate therapies are needed. This blind phase II randomized controlled trial sought to establish whether exercise can improve step-to-step symmetry in Parkinson disease.

Design: Twenty-four Parkinson disease patients with a falls history completed baseline assessments of symptom severity, balance confidence, mobility, and quality of life. Step-to-step symmetry was assessed by deriving harmonic ratios from three-dimensional accelerations collected for the head and trunk. Patients were randomly assigned to either 12 wks of exercise and falls prevention education or falls prevention education only. Both groups repeated the baseline tests 12 and 24 wks after the initial assessment. The Australian and New Zealand Clinical Trials Registry number is ACTRN12613001175763.

Results: At 12 wks, the exercise group had statistically significant and clinically relevant improvements in anterior-posterior step-to-step trunk symmetry. In contrast, the education group recorded statistically significant and clinically meaningful reductions in medial-lateral and vertical step-to-step trunk symmetry at 12 wks.

Conclusions: Given that step-to-step symmetry improved for the exercise group and declined for the education group after intervention, active interventions seem more suited to increasing independence and quality of life for people with Parkinson disease.

Title: Exercise Therapy for a Patient With Parkinson Disease and Back Pain: A Case Report.

Citation: Journal of Chiropractic Medicine; Mar 2018; vol. 17 (no. 1); p. 72-74

Author(s): Rosarion, Christina L.

Objective: The purpose of this report is to describe an exercise intervention for an elderly patient with Parkinson disease with a chief complaint of lower back pain.

Clinical Features: The patient was an 85-year-old man who had been diagnosed with Parkinson disease and kyphosis. Back pain was preventing him from carrying out activities of daily living. He was referred for physical therapy for treatment to reduce lower back pain and increase function. An initial examination consisted of testing flexibility and range of motion and administering a pain severity scale and a Lower Extremity Functional Index (LEFI); the patient's initial LEFI score was 14/80.

Intervention and Outcome: Clinical observation was made during each of the patient's physical therapy sessions. After 5 weeks, the patient's LEFI score improved to 30/80. The patient reported that he had no more reoccurring back pain, was able to move much easier, and was able walk more efficiently and with better posture.

Conclusion: The patient in this case responded positively to a 5-week course of physical therapy that included exercise therapy. His back pain diminished and his function increased after the course of care.

Title: Speech and Communication Changes Reported by People with Parkinson's Disease.

Citation: Folia Phoniatrica et Logopaedica; Feb 2018; vol. 69 (no. 3); p. 131-141

Author(s): Schalling, Ellika; Johansson, Kerstin; Hartelius, Lena

Background: Changes in communicative functions are common in Parkinson's disease (PD), but there are only limited data provided by individuals with PD on how these changes are perceived, what their consequences are, and what type of intervention is provided.

Aim: To present self-reported information about speech and communication, the impact on communicative participation, and the amount and type of speech-language pathology services received by people with PD.

Methods: Respondents with PD recruited via the Swedish Parkinson's Disease Society filled out a questionnaire accessed via a Web link or provided in a paper version.

Results: Of 188 respondents, 92.5% reported at least one symptom related to communication; the most common symptoms were weak voice, word-finding difficulties, imprecise articulation, and getting off topic in conversation. The speech and communication problems resulted in restricted communicative participation for between a quarter and a third of the respondents, and their speech caused embarrassment sometimes or more often to more than half. Forty-five percent of the respondents had received speech-language pathology services.

Conclusions: Most respondents reported both speech and language symptoms, and many experienced restricted communicative participation. Access to speech-language pathology services is still inadequate. Services should also address cognitive/linguistic aspects to meet the needs of people with PD.

Title: Hyperbaric oxygen treatment for Parkinson's disease with severe depression and anxiety: A case report.

Citation: Medicine; Mar 2018; vol. 97 (no. 9); p. e0029

Author(s): Xu, Jin-Jin; Yang, Si-Tong; Sha, Ying; Ge, Yuan-Yuan; Wang, Jian-Meng

Rationale: Patients with Parkinson's disease (PD) frequently suffer from psychiatric disorders, and treating these symptom whereas managing the motor symptoms associated with PD can be a therapeutic challenge.

Patient Concerns: We report a case of PD patient with severe depression and anxiety that refused to be treated with dopaminagonists or SSRIs, the most common treatments for PD patients suffering from psychiatric symptoms.

Diagnoses: Parkinson's disease with severe depression and anxiety.

Interventions: This man was treated with hyperbaric oxygen treatment for 30 days.

Outcomes: Clinical assessment scores for depression and anxiety, including Unified Parkinson's Disease Rating ScaleI (UPDRS I), UPDRS II, Hanmilton Depression Rating Scale, and Hamiliton Anxiety Rating Scale, were improved following the hyperbaric oxygen treatment.

Lessons: Hyperbaric oxygen treatment may be a potential therapeutic method for PD patient suffering from depression and anxiety. Further research is needed to validate this finding and explore a potential mechanism.

Title: The launch of opicapone for Parkinson's disease: negatives versus positives.

Citation: Expert opinion on drug safety; Mar 2018; vol. 17 (no. 3); p. 331-337

Author(s): Castro Caldas, Ana; Teodoro, Tiago; Ferreira, Joaquim J

Abstract: Opicapone is a novel, third generation COMT inhibitor approved for the treatment of Parkinson's disease. Safety and tolerability data is critical to determine the benefit-harm balance and anticipate therapeutic adherence. Areas covered: This review evaluates the tolerability and safety profile of opicapone. These data were extracted from all published clinical trials, including preclinical, phase I, phase II and phase III studies as well as postmarketing data. Opicapone was safe and well tolerated, with frequencies of treatment-emergent adverse events similar to placebo. Expert opinion: Opicapone have shown a good safety and tolerability profile. This adds to its proven efficacy and convenient once-daily administration, supporting a role of opicapone as a first-line therapy for motor complications in Parkinson's disease patients.

Title: Genetics and Treatment Response in Parkinson's Disease: An Update on Pharmacogenetic Studies.

Citation: Neuromolecular medicine; Mar 2018; vol. 20 (no. 1); p. 1-17

Author(s): Politi, Cristina; Ciccacci, Cinzia; Novelli, Giuseppe; Borgiani, Paola

Abstract: Parkinson's disease (PD) is a complex neurodegenerative disorder characterized by a progressive loss of dopamine neurons of the central nervous system. The disease determines a significant disability due to a combination of motor symptoms such as bradykinesia, rigidity and rest tremor and non-motor symptoms such as sleep disorders, hallucinations, psychosis and compulsive behaviors. The current therapies consist in combination of drugs acting to control only the symptoms of the illness by the replacement of the dopamine lost. Although patients generally receive benefits from this symptomatic pharmacological management, they also show great variability in drug response in terms of both efficacy and adverse effects. Pharmacogenetic studies highlighted that genetic factors play a relevant influence in this drug response variability. In this review, we tried to give an overview of the recent progresses in the pharmacogenetics of PD, reporting the major genetic factors identified as involved in the response to drugs and highlighting the potential use of some of these genomic variants in the clinical practice. Many genes have been investigated and several associations have been reported especially with adverse drug reactions. However, only polymorphisms in few genes, including DRD2, COMT and SLC6A3, have been confirmed as associated in different populations and in large cohorts. The identification of genomic biomarkers involved in drug response variability represents an important step in PD treatment, opening the prospective of more personalized therapies in order to identify, for each person, the better therapy in terms of efficacy and toxicity and to improve the PD patients' quality of life.

Title: Big data in Parkinson's disease: using smartphones to remotely detect longitudinal disease phenotypes.

Citation: Physiological measurement; Mar 2018

Author(s): Prince, John; Arora, Siddharth; De Vos, Maarten

Objective: To better understand the longitudinal characteristics of Parkinson's disease (PD) through the analysis of finger tapping and memory tests collected remotely using smartphones.

Approach: Using a large cohort (312 PD subjects and 236 controls) of participants in the mPower study, we extract clinically validated features from a finger tapping and memory test to monitor the longitudinal behaviour of study participants. We investigate any discrepancy in learning rates associated with motor and non-motor tasks between PD subjects and healthy controls. The ability of these features to predict self-assigned severity measures is assessed whilst simultaneously inspecting the severity scoring system for floor-ceiling effects. Finally, we study the relationship between motor and non-motor longitudinal behaviour to determine if separate aspects of the disease are dependent on one another.

Main Results: We find that the test performances of the most severe subjects show significant correlations with self-assigned severity measures. Interestingly, less severe subjects do not show significant correlations, which is shown to be a consequence of floor-ceiling effects within the mPower self-reporting severity system. We find that motor performance after practise is a better predictor of severity than baseline performance suggesting that starting performance at a new motor task is less representative of disease severity than the performance after the test has been learnt. We find PD subjects show significant impairments in motor ability as assessed through the Alternating Finger Tapping (AFT) test in both the short and long term analyses. In the AFT and memory tests we demonstrate that PD subjects show a larger degree of longitudinal performance variability in addition to requiring more instances of a test to reach a steady state performance than healthy subjects.

Significance: Our findings pave the way forward for objective assessment and quantification of longitudinal learning rates in PD. This can be particularly useful for symptom monitoring and assessing medication response. This study tries to tackle some of the major challenges associated with self-assessed severity labels by designing and validating features extracted from big datasets in PD, which could help identify digital biomarkers capable of providing measures of disease severity outside of a clinical environment.

Title: Are dementia with Lewy bodies and Parkinson's disease dementia the same disease?

Citation: BMC medicine; Mar 2018; vol. 16 (no. 1); p. 34

Author(s): Jellinger, Kurt A; Korczyn, Amos D

Background: Dementia with Lewy bodies (DLB) and Parkinson's disease dementia (PDD), which share many clinical, neurochemical, and morphological features, have been incorporated into DSM-5 as two separate entities of major neurocognitive disorders with Lewy bodies. Despite clinical overlap, their diagnosis is based on an arbitrary distinction concerning the time of onset of motor and cognitive symptoms, namely as early cognitive impairment in DLB and later onset following that of motor symptoms in PDD. Their morphological hallmarks - cortical and subcortical α-synuclein/Lewy body plus β-amyloid and tau pathologies - are similar, but clinical differences at onset suggest some dissimilar profiles. Based on recent publications, including the fourth consensus report of the DLB Consortium, a critical overview is provided herein.

Discussion: The clinical constellations of DLB and PDD include cognitive impairment, parkinsonism, visual hallucinations, and fluctuating attention. Intravitam PET and postmortem studies have revealed a more pronounced cortical atrophy, elevated cortical and limbic Lewy body pathologies, higher Aβ and tau loads in cortex and striatum in DLB compared to PDD, and earlier cognitive defects in DLB. Conversely, multitracer PET studies have shown no differences in cortical and striatal cholinergic and dopaminergic deficits. Clinical management of both DLB and PDD includes cholinesterase inhibitors and other pharmacologic and non-drug strategies, yet with only mild symptomatic effects. Currently, no disease-modifying therapies are available.

Conclusion: DLB and PDD are important dementia syndromes that overlap in many clinical features, genetics, neuropathology, and management. They are currently considered as subtypes of an α-synuclein-associated disease spectrum (Lewy body diseases), from incidental Lewy body disease and non-demented Parkinson's disease to PDD, DLB, and DLB with Alzheimer's disease at the most severe end. Cognitive impairment in these disorders is induced not only by α-synuclein-related neurodegeneration but by multiple regional pathological scores. Both DLB and PDD show heterogeneous pathology and neurochemistry, suggesting that they share important common underlying molecular pathogenesis with Alzheimer's disease and other proteinopathies. While we prefer to view DLB and PDD as extremes on a continuum, there remains a pressing need to more clearly differentiate these syndromes and to understand the synucleinopathy processes leading to either one.

Title: Using tube feeding and levodopa-carbidopa intestinal gel application in advanced Parkinson's disease.

Citation: British journal of nursing (Mark Allen Publishing); Mar 2018; vol. 27 (no. 5); p. 259-262

Author(s): Lex, Katharina Maria; Kundt, Firuzan Sari; Lorenzl, Stefan

Abstract: The inability to achieve adequate nutrition and weight loss are serious problems for patients with advanced Parkinson's disease (PD). To ensure the optimal intake of nutrition and fluids and to administer levodopa-carbidopa intestinal gel (LCIG) (which patients need to increase or maintain their mobility as long as possible), different artificial feeding tubes can be used. Although percutaneous endoscopic gastrostomy (PEG) tubes are frequently used in medical practice, there is little research that addresses key questions, including if and when to administer artificial fluids, nutrition and/or LCIG via tubes. Weight gain through tube feeding is only possible for some patients; nurses should keep in mind that tube insertion and feeding may lead to frequent adverse events. Administering LCIG via tubes is usually advisable as it seems to enhance patients' mobility and therefore has positive outcomes in terms of the quality of life of patients and their families (Lim et al, 2015). The authors aimed to examine the use and consequences of providing nutrition and LCIG via gastrostomy tubes in PD patients with advanced disease.

Title: Effects of happy and sad facial expressions on the perception of time in Parkinson's disease patients with mild cognitive impairment.

Citation: Journal of clinical and experimental neuropsychology; Mar 2018; vol. 40 (no. 2); p. 123-138

Author(s): Mioni, Giovanna; Grondin, Simon; Meligrana, Lucia; Perini, Francesco; Bartolomei, Luigi; Stablum, Franca

Introduction: Parkinson's disease (PD) is a movement disorder caused by deterioration of the dopaminergic system. Previous studies have demonstrated temporal as well as emotional facial recognition impairment in PD patients. Moreover, it has been demonstrated that emotional facial expressions alter temporal judgments. In the present study, we investigate the magnitude of temporal distortions caused by the presentation of emotional facial expressions (happiness, sadness, and neutral) in PD patients with mild cognitive impairment (PD-MCI) and controls.

Method: Seventeen older adults with PD-MCI and 22 healthy older adults took part in the present study. Participants were tested with a time bisection task with standard intervals lasting 400 ms and 1600 ms. Moreover, a complete neuropsychological evaluation was conducted to characterize the sample.

Results: Differences between groups were observed indicating a general underestimation of time in PD-MCI patients. Temporal impairments in PD-MCI patients seem to be caused mainly by a dysfunction at the level of reference memory. The effect of emotional facial expressions on time perception was evident in both PD patients and controls, with an overestimation of perceived duration when happiness was presented and an underestimation when sadness was presented.

Conclusion: Overall, our results indicate that reduced cognitive abilities might be responsible for the lower temporal ability observed in PD-MCI patients. Moreover, similar effects of emotional stimuli were observed in both PD-MCI patients and controls.

Title: Pharmacological interventions for psychosis in Parkinson's disease patients.

Citation: Expert opinion on pharmacotherapy; Mar 2018 ; p. 1-7

Author(s): Friedman, Joseph H

Introduction: Psychosis is a common problem for people treated for Parkinson's disease. The syndrome is quite stereotypic, with hallucinations being the most common, followed by delusions. While the hallucinations are usually not very bothersome, the delusions are typically paranoid in nature. Treatment is often, but not always, required. Areas covered: This article reviews the therapeutic approaches of this syndrome focusing on drug treatments used once contributory factors have been removed. This includes a review of the evidence supporting the use of clozapine and, most recently, pimavanserin, the first drug with antipsychotic efficacy that has no effect on dopamine. Treatment with second generation antipsychotic drugs and cholinesterase inhibitors are also reviewed.

Expert opinion: Clozapine and pimavanserin have proven efficacy for Parkinson's disease psychosis (PDP), without impairing motor function. In clozapine's favor are its antipsychotic benefits seen within 1 week and its effectiveness in improving tremor in PD. However, this is counterbalanced by the need for blood monitoring, despite the extremely low doses used, and sedation. Pimanvanserin is well tolerated, without sedation or other significant side effects. Its onset of benefit, however takes 4-6 weeks. While quetiapine is also frequently used, its efficacy is not supported by double blinded, randomized trials.

Title: Mild Cognitive Impairment in Parkinson's Disease-What Is It?

Citation: Current neurology and neuroscience reports; Mar 2018; vol. 18 (no. 4); p. 17
Author(s): Weil, Rimona S; Costantini, Alyssa A; Schrag, Anette E

Purpose Of Review: Mild cognitive impairment is a common feature of Parkinson's disease, even at the earliest disease stages, but there is variation in the nature and severity of cognitive involvement and in the risk of conversion to Parkinson's disease dementia. This review aims to summarise current understanding of mild cognitive impairment in Parkinson's disease. We consider the presentation, rate of conversion to dementia, underlying pathophysiology and potential biomarkers of mild cognitive impairment in Parkinson's disease. Finally, we discuss challenges and controversies of mild cognitive impairment in Parkinson's disease.

Recent Findings: Large-scale longitudinal studies have shown that cognitive involvement is important and common in Parkinson's disease and can present early in the disease course. Recent criteria for mild cognitive impairment in Parkinson's provide the basis for further study of cognitive decline and for the progression of different cognitive phenotypes and risk of conversion to dementia. Improved understanding of the underlying pathology and progression of cognitive change are likely to lead to opportunities for early intervention for this important aspect of Parkinson's disease.

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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