Parkinson's Disease
Current Awareness Bulletin

May 2022

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1. Dance Rhythms Improve Motor Symptoms in Individuals with Parkinson's Disease: A Randomized Clinical Trial

Item Type: Journal Article

Authors: Amaro Moratelli, Jéssica; Hames Alexandre, Kettlyn; Boing, Leonessa; Swarowsky, Alessandra; Corrêa, Clynton Lourenço and de Azevedo Guimarães, Adriana Coutinho

Publication Date: 2022

Journal: Journal of Dance Medicine & Science 26(1), pp. 2-7

Abstract: Background: Evidence-based practices involving dance modalities found in binary (two-beat rhythm) or quaternary (four-beat rhythm) show that dance positively influences the motor aspects of disease. Aim: This randomized clinical trial aimed to analyze the effect of two dance rhythm (binary and quaternary) on the balance, gait, and mobility in individuals with Parkinson's disease (PD). Methods: Thirty-one individuals with PD were randomized into the binary group (n = 18) and the quaternary group (n = 13). Both groups participated in different dance rhythms lasting 12 weeks, twice a week, for 45 minutes. Results: The binary group showed a significant difference in balance ($p = 0.003$), freezing of gait ($p = 0.007$), as well as in the motor aspects of MDS-Unified Parkinson's Disease Rating Scale (MDS-UPDRS), with emphasis on the total values with a score change of 3.23. In the quaternary group, significant differences were found in balance ($p = 0.021$) with a score change of -2.54 and in the motor aspects of the MDS-UPDRS Part III where the total values stood out with a change of 3.54. Discussion: When comparing the possible effects of binary and quaternary rhythms on the motor symptoms of individuals with PD, it was demonstrated that binary rhythm improved balance, freezing gait, and UPDRSIII. As for the quaternary rhythm, the benefits were in balance and the UPDRSIII. Conclusion: The binary and the quaternary rhythm dance protocols positively influenced the motor symptoms of individuals with PD after 12 weeks of intervention.

2. Stereopsis and Eye Movement Abnormalities in Parkinson's Disease and Their Clinical Implications

Item Type: Journal Article

Authors: Ba, Fang; Sang, Tina T.; He, Wenjing; Fatehi, Jaleh; Mostofi, Emanuel and Zheng, Bin

Publication Date: 2022

Journal: Frontiers in Aging Neuroscience 14, pp. 1-11

Abstract: Background: Parkinson's disease (PD) is not exclusively a motor disorder. Among non-motor features, patients with PD possess sensory visual dysfunctions. Depth perception and oculomotor deficits can significantly impact patients' motor performance. Stereopsis and eye behavioral study using 3D stimuli may help determine their implications in disease status. Objective: The objective of this study is to investigate stereopsis and eye movement abnormalities in PD with reliable tools and their correlation with indicators of PD severity. We hypothesize that patients with PD exhibit different eye behaviors and that these differences

may correlate to the severity of motor symptoms and cognitive status. Methods: Control and PD participants were first evaluated for visual acuity, visual field, contrast acuity, and stereo perception with 2D and Titmus stereotests, followed by the assessment with a 3D active shutter system. Eye movement behaviors were assessed by a Tobii X2-60 eye tracker. Results: Screening visual tests did not reveal any differences between the PD and control groups. With the 3D active shutter system, the PD group demonstrated significantly worse stereopsis. The preserved cognitive function was correlated to a more intact stereo function. Patients with PD had longer visual response times, with a higher number of fixations and bigger saccade amplitude, suggesting fixation stabilization difficulties. Such changes showed a positive correlation with the severity of motor symptoms and a negative correlation with normal cognitive status. Conclusion: We assessed stereopsis with a 3D active shutter system and oculomotor behaviors with the Tobii eye tracker. Patients with PD exhibit poorer stereopsis and impaired oculomotor behaviors during response time. These deficits were correlated with PD motor and cognitive status. The visual parameters may potentially serve as the clinical biomarkers for PD.

3. Association of sleep disturbance with Parkinson disease: evidence from the Women's Health Initiative

Item Type: Journal Article

Authors: Beydoun, Hind A.; Naughton, Michelle J.; Beydoun, May A.; Shadyab, Aladdin H.; Brunner, Robert L.; Chen, Jiu-Chiuan ScD; Espeland, Mark; Shumaker, Sally A.; Zonderman, Alan B. and Chen, Jiu-Chiuan

Publication Date: 2022

Journal: Menopause (10723714) 29(3), pp. 255-263

Abstract: Objective: To examine the association of sleep disturbance with Parkinson disease (PD) during 10+ years of follow-up among postmenopausal women, 50 to 79 years of age at baseline. Methods: Longitudinal data on 130,502 study-eligible women (mean ± standard deviation baseline age=63.16±7.20 y) from the Women's Health Initiative Clinical Trials and Women's Health Initiative Observational Study were analyzed. The cohort was followed for 15.88±6.50 years, yielding 2,829 (2.17%) PD cases. Sleep disturbance (habitual sleep duration, insomnia symptoms, obstructive sleep apnea risk factors, sleep aids among those with WHI Insomnia Rating Scale scores (WHIIRS)>9) was measured at baseline and one follow-up time by September 12, 2005. Cox proportional hazards models evaluated relationships controlling for sociodemographic, lifestyle, and health characteristics. Results: PD was significantly associated with long sleep duration (≥9 h) versus a benchmark of 7 to 8 hours (hazard ratio HR]=1.296, 95% confidence interval CI]: 1.153-1.456), WHIIRS (>9 vs ≤9) (HR=1.114, 95% CI:1.023-1.214), and use of sleep aids (yes vs no) (HR=1.332, 95% CI:1.153-1.539) among those with WHIIRS>9. Compared with 7 to 8 hours, short (<7 h) sleep duration was unrelated to PD. Finally, the presence of obstructive sleep apnea risk factors was not associated with PD. Conclusions: Among postmenopausal women, sleep disturbance was associated with approximately 10% to 30% increased PD risk after ~16 years follow-up. Prospective cohort studies with objective exposures and adjudicated outcomes that include men and women of diverse backgrounds are required to confirm and extend these findings.

4. Effect of Treadmill Training Interventions on Spatiotemporal Gait Parameters in Older Adults with Neurological Disorders: Systematic Review and Meta-Analysis of Randomized Controlled Trials

Abstract: Objective: Treadmill interventions have been shown to promote 'normal' walking patterns, as they facilitate the proper movement and timing of the lower limbs. However, prior reviews have not examined which intervention provides the most effective treatment of specific gait impairments in neurological populations. The objective of this systematic review was to review and quantify the changes in gait after treadmill interventions in adults with neurological disorders. Data Sources: A keyword search was performed in four databases: PubMed, CINAHL, Scopus, and Web of Science (January 2000-December 2021). We performed the search algorithm including all possible combinations of keywords. Full-text articles were examined further using forward/backward search methods. Study Selection: Studies were thoroughly screened using the following inclusion criteria: study design: Randomized Controlled Trial (RCT); adults >=55 years old with a neurological disorder; treadmill intervention; spatiotemporal gait characteristics; and language: English. Data Extraction: A standardized data extraction form was used to collect the following methodological outcome variables from each of the included studies: author, year, population, age, sample size, and spatiotemporal gait parameters including stride length, stride time, step length, step width, step time, stance time, swing time, single support time, double support time, or cadence. Data Synthesis: We found a total of 32 studies to be included in our systematic review through keyword search, out of which 19 studies included adults with stroke and 13 studies included adults with PD. We included 22 out of 32 studies in our meta-analysis that examined gait in adults with neurological disorders, which only yielded studies including Parkinson's disease (PD) and stroke patients. A meta-analysis was performed among trials presenting with similar characteristics, including study population and outcome measure. If heterogeneity was >50% (denoted by I2), random plot analysis was used, otherwise, a fixed plot analysis was performed. All analyses used effect sizes and standard errors and a p 2 = 11.5%) and step length (z = 2.25 *, I2 = 74.3%) in adults with stroke was significant. We also found a significant effect of treadmill intervention on paretic step length (z = 2.34 *, I2 = 0%) and stride length (z = 6.09 *, I2 = 45.5%). For the active control group, including adults with PD, we found that overground physical therapy training had the largest effect on step width (z = -3.75 *, I2 = 0%). Additionally, for PD adults in treadmill intervention studies, we found the largest significant effect was on step length (z = 2.73 *, I2 = 74.2%) and stride length (z = -2.54 *, I2 = 96.8%). Conclusion: Treadmill intervention with sensory stimulation and body weight support treadmill training were shown to have the largest effect on step length in adults with PD and stroke.

5. Co-evolution of machine learning and digital technologies to improve monitoring of Parkinson's disease motor symptoms

Item Type: Journal Article

Authors: Chandrabhatla, Anirudha S.; Pomeraniec, I. Jonathan and Ksendzovsky, Alexander

Publication Date: Mar 18 ,2022

Journal: Npj Digital Medicine 5(1), pp. 32

Abstract: Parkinson's disease (PD) is a neurodegenerative disorder characterized by motor impairments such as tremor, bradykinesia, dyskinesia, and gait abnormalities. Current protocols assess PD symptoms during clinic visits and can be subjective. Patient diaries can help clinicians evaluate at-home symptoms, but can be incomplete or inaccurate. Therefore, researchers have developed in-home automated methods to monitor PD symptoms to enable data-driven PD diagnosis and management. We queried the US National Library of Medicine PubMed database to analyze the progression of the technologies and computational/machine learning methods used to monitor common motor PD symptoms. A sub-set of roughly 12,000 papers was reviewed that best characterized the machine learning and technology timelines that manifested from reviewing the literature. The technology used to monitor PD motor symptoms has advanced significantly in the past five decades. Early monitoring began with in-lab devices such as needle-based EMG, transitioned to in-lab accelerometers/gyroscopes, then to wearable accelerometers/gyroscopes, and finally to phone and mobile & web application-based in-home monitoring. Significant progress has also been made with respect to the use of machine learning algorithms to classify PD patients. Using data from different devices (e.g., video cameras, phone-based accelerometers), researchers have designed neural network and non-neural network-based machine learning algorithms to categorize PD patients across tremor, gait, bradykinesia, and dyskinesia. The five-decade co-evolution of technology and computational techniques used to monitor PD motor symptoms has driven significant progress that is enabling the shift from in-lab/clinic to in-home monitoring of PD symptoms. Copyright © 2022. This is a U.S. government work and not under copyright protection in the U.S.; foreign copyright protection may apply.

6. The pathophysiology of Parkinson's disease tremor

Item Type: Journal Article

Authors: Dirkx, Michiel F. and Bologna, Matteo

Publication Date: Apr 15 ,2022

Journal: Journal of the Neurological Sciences 435, pp. 120196

Abstract: Tremor is one of the primary motor symptoms of Parkinson's disease (PD), and it is characterized by a highly phenomenological heterogeneity. Clinical and experimental observations suggest that tremor in PD cannot be interpreted merely as an expression of dopaminergic denervation of the basal ganglia. Accordingly, other neurotransmitter systems and brain areas are involved. We here review neurochemical, neurophysiological, and neuroimaging data as the basis of the presence of a dysfunctional network underlying tremor

in PD. We will discuss the role of altered oscillations and synchronization in two partially overlapping central motor circuitries, e.g., the cerebello-thalamo-cortical and the basal ganglia-cortical loops. We will also emphasize the pathophysiological consequences of the abnormal interplay between the two systems. While there are many currently unknown and controversial aspects in the field, we will highlight the possible translational and practical implications of research advances in understanding tremor pathophysiology in PD. A better understanding of this issue is likely facilitating future therapeutic approaches to PD patients based on medications and invasive and non-invasive stimulation techniques. This article is part of the Special Issue "Tremor" edited by Daniel D. Truong, Mark Hallett, and Aasef Shaikh.

7. Similarities, differences and overlaps between frailty and Parkinson's disease

Item Type: Journal Article

Authors: Ebina, Junya; Ebihara, Satoru and Kano, Osamu

Publication Date: Apr ,2022

Journal: Geriatrics & Gerontology International 22(4), pp. 259-270

Abstract: Parkinson's disease is a neurodegenerative disorder clinically characterized by bradykinesia, rest tremor, rigidity, and postural and gait disturbances, which are frequently observed in older people. It also shows non-motor symptoms, such as depression, anxiety, cognitive impairment and dementia. The number of patients is gradually increasing worldwide. Aging is a risk factor for the onset of Parkinson's disease, and various physiological effects of aging influence its progression. Frailty is a geriatric syndrome in which the reversible and vulnerable status between robustness and disability is affected by various physiological stressors with aging. Frailty consists of physical, psychological and social aspects. Furthermore, sarcopenia, a syndrome characterized by the loss of muscle mass, strength and function, is also significantly associated with frailty. To maintain the quality of life of older people, frailty, including sarcopenia, should be quickly and appropriately managed. Polypharmacy is an important factor causing the progression of frailty in geriatric syndrome. Although Parkinson's disease and frailty have similar symptoms, and are considered to affect each other, the clinical features and mechanisms of both largely remain unclear. Nevertheless, little literature on the relationship between frailty and Parkinson's disease is currently available. This narrative review aims to clarify the relationships between Parkinson's disease and frailty, not only on the physical, but also on the mental, cognitive, and social aspects and issues regarding polypharmacy in Parkinson's disease explored by previous studies. Geriatr Gerontol Int 2022; 22: 259-270. Copyright © 2022 Japan Geriatrics Society.

8. Medications used to treat tremors

Item Type: Journal Article

Authors: Frei, Karen and Truong, Daniel D.

Publication Date: Apr 15 ,2022

Journal: Journal of the Neurological Sciences 435, pp. 120194

Abstract: Tremor is one of the most common movement disorders, though it can arise in the context of several unrelated neurological disorders whose pharmacology and anatomical origins differ greatly. Treatment of tremors can take advantage of several medications and neurosurgical treatments. Medications useful for treating tremor are discussed in this review, including those for action tremor as seen in essential tremor, the resting tremor of Parkinson's disease, orthostatic tremor, cerebellar tremor, Holmes tremor, dystonic tremor, and drug-induced tremors. A medication that is useful for most types of tremors is the beta-blocker propranolol, though even in essential tremor it can fail to be effective at tremor control. This article is part of the Special Issue "Tremor" edited by Daniel D. Truong, Mark Hallett, and Aasef Shaikh. Copyright © 2022 The Authors. Published by Elsevier B.V. All rights reserved.

9. Leveraging the Potential of Digital Technology for Better Individualized Treatment of Parkinson's Disease

Item Type: Journal Article

Authors: Frohlich, Holger; Bontridder, Noemi; Petrovska-Delacreta, Dijana; Glaab, Enrico; Kluge, Felix; Yacoubi, Mounim El; Marin Valero, Mayca; Corvol, Jean-Christophe; Eskofier, Bjoern; Van Gyseghem, Jean-Marc; Lehericy, Stephane; Winkler, Jurgen and Klucken, Jochen

Publication Date: 2022

Journal: Frontiers in Neurology [Electronic Resource] 13, pp. 788427

Abstract: Recent years have witnessed a strongly increasing interest in digital technology within medicine (sensor devices, specific smartphone apps) and specifically also neurology. Quantitative measures derived from digital technology could provide Digital Biomarkers (DMs) enabling a quantitative and continuous monitoring of disease symptoms, also outside clinics. This includes the possibility to continuously and sensitively monitor the response to treatment, hence opening the opportunity to adapt medication pathways quickly. In addition, DMs may in the future allow early diagnosis, stratification of patient subgroups and prediction of clinical outcomes. Thus, DMs could complement or in certain cases even replace classical examiner-based outcome measures and molecular biomarkers measured in cerebral spinal fluid, blood, urine, saliva, or other body liquids. Altogether, DMs could play a prominent role in the emerging field of precision medicine. However, realizing this vision requires dedicated research. First, advanced data analytical methods need to be developed and applied, which extract candidate DMs from raw signals. Second, these candidate DMs need to be validated by (a) showing their correlation to established clinical outcome measures, and (b) demonstrating their diagnostic and/or prognostic value compared to established biomarkers. These points again require the use of advanced data analytical methods, including machine learning. In addition, the arising ethical, legal and social questions associated with the collection and processing of sensitive patient data and the use of machine learning methods to analyze these data for better individualized treatment of the disease, must be considered thoroughly. Using Parkinson's Disease (PD) as a prime example of a complex multifactorial disorder, the purpose of this article is to critically review the current state of research regarding the use of DMs, discuss open challenges and highlight emerging new directions. Copyright © 2022 Frohlich, Bontridder, Petrovska-Delacreta, Glaab, Kluge, Yacoubi, Marin Valero, Corvol, Eskofier, Van Gyseghem, Lehericy,

Winkler and Klucken.

10. The Effects of Action Observation Therapy as a Rehabilitation Tool in Parkinson's Disease Patients: A Systematic Review

Item Type: Journal Article

Authors: Giannakopoulos, Ioannis; Karanika, Panagiota; Papaxanthis, Charalambos and Tsaklis, Panagiotis

Publication Date: 2022

Journal: International Journal of Environmental Research & Public Health [Electronic Resource] 19(6), pp. 03 11

Abstract: During Action Observation (AO), patients observe human movements that they then try to imitate physically. Until now, few studies have investigated the effectiveness of it in Parkinson's disease (PD). However, due to the diversity of interventions, it is unclear how the dose and characteristics can affect its efficiency. We investigated the AO protocols used in PD, by discussing the intervention features and the outcome measures in relation to their efficacy. A search was conducted through MEDLINE, Scopus, Cochrane, and WoS until November 2021, for RCTs with AO interventions. Participant 's characteristics, treatment features, outcome measures, and main results were extracted from each study. Results were gathered into a quantitative synthesis (MD and 95% CI) for each time point. Seven studies were included in the review, with 227 participants and a mean PEDro score of 6.7. These studies reported positive effects of AO in PD patients, mainly on walking ability and typical motor signs of PD like freezing of gait. However, disagreements among authors exist, mainly due to the heterogeneity of the intervention features. In overall, AO improves functional abilities and motor control in PD patients, with the intervention dose and the characteristics of the stimulus playing a decisive role in its efficacy.

11. Internet of Things Technologies and Machine Learning Methods for Parkinson's Disease Diagnosis, Monitoring and Management: A Systematic Review

Item Type: Journal Article

Authors: Giannakopoulou, Konstantina-Maria; Roussaki, Ioanna and Demestichas, Konstantinos

Publication Date: Feb 24 ,2022

Journal: Sensors 22(5)

Abstract: Parkinson's disease is a chronic neurodegenerative disease that affects a large portion of the population, especially the elderly. It manifests with motor, cognitive and other types of symptoms, decreasing significantly the patients' quality of life. The recent advances in the Internet of Things and Artificial Intelligence fields, including the subdomains of machine learning and deep learning, can support Parkinson's disease patients, their caregivers and clinicians at every stage of the disease, maximizing the treatment effectiveness and minimizing the respective healthcare costs at the same time. In this review, the considered studies propose machine learning models, trained on data acquired via smart devices, wearable or non-wearable sensors and other Internet of Things

technologies, to provide predictions or estimations regarding Parkinson's disease aspects. Seven hundred and seventy studies have been retrieved from three dominant academic literature databases. Finally, one hundred and twelve of them have been selected in a systematic way and have been considered in the state-of-the-art systematic review presented in this paper. These studies propose various methods, applied on various sensory data to address different Parkinson's disease-related problems. The most widely deployed sensors, the most commonly addressed problems and the best performing algorithms are highlighted. Finally, some challenges are summarized along with some future considerations and opportunities that arise.

12. Nuclear imaging in Parkinson's disease: The past, the present, and the future

Item Type: Journal Article

Authors: Golan, Haim; Volkov, Olga and Shalom, Eli

Publication Date: May 15 ,2022

Journal: Journal of the Neurological Sciences 436, pp. 120220

Abstract: The current review analyzed Parkinson's disease-related (PD) literature published from 1817 to 2021 and specifically concentrated on imaging-related works published from the 1960s to 2021. We analyzed the history of PD-related imaging development, its current condition, and pointed out some understudied aspects to be investigated in the future. The present review is specifically concentrated on nuclear imaging techniques. The available imaging armamentarium for PD investigation is very broad, variable, and diversified and includes structural, diffusion-weighted and diffusion tensor, resting-state, and task-based functional MRI, proton magnetic resonance spectroscopy, transcranial B-mode sonography, single-photon emission CT (SPECT), and positron emission tomography (PET). Specifically, PET is a reliable tool for quantifying nigrostriatal functions, glucose metabolism, amyloid, tau, and alpha-synuclein molecular imaging, as well as neuroinflammation. Besides 18F-DOPA and 18F-FDG, PET and SPECT use various other radiopharmaceuticals. Also, some studies have demonstrated that myocardial 123I-MIBG scintigraphy can be useful for the early differential diagnosis of patients with PD from other atypical PD. However, in addition to further perfecting of differential diagnosis imaging tools, some aspects of etiology (PD genetics), pathology (the pons and medulla), pathophysiology (neuroinflammation), and early diagnosis of PD remain understudied. The currently available set of neuroimaging tools can provide adequate imaging data for early diagnosis, differential diagnosis, progression assessment, and treatment assessment of PD. To adjust this armamentarium to routine clinical needs, there is an urgent need for the generally accepted protocol for PD-related imaging investigations. Closer cooperation and data exchange between radiologists and pathologists are desirable. Copyright © 2022 Elsevier B.V. All rights reserved.

13. Caring for patients with cognitive dysfunction, fluctuations and dementia caused by Parkinson's disease

Item Type: Journal Article

Authors: Halhouli, Oday; Zhang, Qiang and Aldridge, Georgina M.

Publication Date: 2022

Abstract: Cognitive dysfunction is one of the most prevalent non-motor symptoms in patients with Parkinson's disease (PD). While it tends to worsen in the later stages of disease, it can occur at any time, with 15-20% of patients exhibiting cognitive deficits at diagnosis (Aarsland et al., 2010; Goldman and Sieg, 2020). The characteristic features of cognitive dysfunction include impairment in executive function, visuospatial abilities, and attention, which vary in severity from subtle impairment to overt dementia (Martinez-Horta and Kulisevsky, 2019). To complicate matters, cognitive dysfunction is prone to fluctuate in PD patients, impacting diagnosis and the ability to assess progression and decision-making capacity. The diagnosis of cognitive impairment or dementia has a huge impact on patient independence, quality of life, life expectancy and caregiver burden (Corallo et al., 2017; Lawson et al., 2016; Leroi et al., 2012). It is therefore essential that physicians caring for patients with PD provide education, screening and treatment for this aspect of the disease. In this chapter, we provide a practical guide for the assessment and management of various degrees of cognitive dysfunction in patients with PD by approaching the disease at different stages. We address risk factors for cognitive dysfunction, prevention strategies prior to making the diagnosis, available tools for screening. Lastly, we review aspects of care, management and considerations, including decision-making capacity, that occur after the patient has been diagnosed with cognitive dysfunction or dementia. Copyright © 2022 Elsevier B.V. All rights reserved.

14. Factors Contributing to the Severity and Laterality of Pisa Syndrome in Parkinson's Disease

Item Type: Journal Article

Authors: Huh, Young Eun; Seo, Dae-Won; Kim, Kunhyun; Chung, Won-Ho; Kim, Seonwoo and Cho, Jin Whan

Publication Date: 2022

Abstract: Objective: Pisa syndrome (PS) is a disabling postural deformity in Parkinson's disease (PD). We aimed to elucidate clinical factors determining the severity and laterality of PS in PD. Methods: In 54 PD patients with PS, we measured the clinical factors that are previously known to contribute to the occurrence of PS as follows: asymmetry of motor symptoms for the evaluation of asymmetric basal ganglia dysfunction, the degree and direction of subjective visual vertical (SVV) tilt for the misperception of body verticality, the canal paresis for unilateral peripheral vestibulopathy, and the tonic electromyographic (EMG) hyperactivity of paraspinal muscles for dystonia. Multivariable linear and logistic regression analyses were conducted to identify the clinical factors associated with the degree of truncal tilt, for the quantification of the severity of PS, and PS tilting to the less affected side, respectively. Results: The multivariable linear regression analyses revealed that the larger degree of SVV tilt (β = 0.29, SE = 0.10, p = 0.005), right-sided SVV tilt (β = 2.32, SE = 0.82, p = 0.007), and higher Hoehn and Yahr (HY) stage (β = 4.01, SE = 1.29, p = 0.003) significantly increased the severity of PS. In the multivariable logistic regression analyses, greater asymmetry of motor symptoms odds ratio (OR) = 2.01, 95% CI = 1.34–3.49] was significantly associated with PS tilting to the less affected side, while right-sided SVV tilt (OR

= 0.02, 95% CI = 0.001–0.21), unilateral canal paresis (OR = 0.06, 95% CI = 0.003–0.79), and higher HY stage (OR = 0.04, 95% CI = 0.002–0.46) were associated with PS tilting to the more affected side. Conclusion: Misperception of verticality, asymmetric basal ganglia dysfunction, unilateral peripheral vestibulopathy, and motor disability are the clinical factors associated with the severity and laterality of PS in patients with PD.

15. Cognition, function and awareness of disease impact in early Parkinson's and Huntington's disease

Item Type: Journal Article

Authors: Júlio, Filipa; Ribeiro, Maria J.; Morgadinho, Ana; Sousa, Mário;v an Asselen, Marieke; Simões, Mário R.; Castelo-Branco, Miguel and Januário, Cristina

Abstract: Patients with Parkinson's and Huntington's Disease (PD and HD) present impairments in cognitively challenging everyday activities. This study contrasts these two basal ganglia disorders on the ability to perform daily life- like tasks and their level of awareness regarding the disease impact on function. 19 controls, 10 early-onset PD, 20 early stage PD, and 15 early manifest HD patients were compared in the "EcoKitchen," a virtual reality task with increasing executive load, the "Behavioural Assessment of Dysexecutive Syndrome battery – BADS," and "The Adults and Older Adults Functional Assessment Inventory – IAFAI," a self-report functional questionnaire. The EcoKitchen clinical correlates were investigated. All clinical groups presented slower EcoKitchen performance than controls, however, only HD patients showed decreased accuracy. HD and PD patients exhibited reduced BADS scores compared to the other study participants. Importantly, on the IAFAI, PD patients signalled more physically related incapacities and HD patients indicated more cognitively related incapacities. Accordingly, the EcoKitchen performance was significantly associated with PD motor symptom severity. Our findings suggest differential disease impact on cognition and function across PD and HD patients, with preserved awareness regarding disease- related functional sequelae. These observations have important implications for clinical management, research and rehabilitation. Patients with early stage Parkinson's and Huntington's disease have diagnosis-specific impairments in the performance of executively demanding everyday activities and, yet, show preserved awareness about the disease impact on their daily life. An active involvement of patients in the rehabilitation process should be encouraged, as their appraisal of the disease effects can help on practical decisions about meaningful targets for intervention, vocational choices, quality-of-life issues and/or specific everyday skills to boost. The EcoKitchen, a non-immersive virtual reality task, can detect and quantify early deficits in everyday-like tasks and is therefore a valuable tool for assessing the effects of rehabilitation strategies on the functional cognition of these patients. Rehabilitation efforts in the mild stages of Parkinson's and Huntington's disease should be aware of greater time needs from the patients in the performance of daily life tasks, target executive skills, and give a more prominent role to patients in symptoms report and management.

16. Perspectives on the urological care in Parkinson's disease patients

Item Type: Journal Article

Authors: Moussa, Mohamad; Abou Chakra, Mohamad; Papatsoris, Athanasios G.; Dellis, Athanasios; Dabboucy, Baraa; Peyromaure, Michael; Barry Delongchamps, Nicolas; Bailly, Hugo and Duquesne, Igor

Publication Date: Mar 30 ,2022

Abstract: Parkinson's disease (PD) is recognized as the most common neurodegenerative disorder after Alzheimer's disease. Lower urinary tract symptoms are common in patients with PD, either storage symptoms (overactive bladder symptoms or OAB) or voiding symptoms. The most important diagnostic clues for urinary disturbances are provided by the patient's medical history. Urodynamic evaluation allows the determination of the underlying bladder disorder and may help in the treatment selection. Pharmacologic interventions especially anticholinergic medications are the first-line option for treating OAB in patients with PD. However, it is important to balance the therapeutic benefits of these drugs with their potential adverse effects. Intra-detrusor Botulinum toxin injections, electrical stimulation were also used to treat OAB in those patients with variable efficacy. Mirabegron is a beta3-agonist that can also be used for OAB with superior tolerability to anticholinergics. Desmopressin is effective for the management of nocturnal polyuria which has been reported to be common in PD. Deep brain stimulation (DBS) surgery is effective in improving urinary functions in PD patients. Sexual dysfunction is also common in PD. Phosphodiesterase type 5 inhibitors are first-line therapies for PD-associated erectile dysfunction (ED). Treatment with apomorphine sublingually is another therapeutic option for PD patients with ED. Pathologic hypersexuality has occasionally been reported in patients with PD, linked to dopaminergic agonists. The first step of treatment of hypersexuality consists of reducing the dose of dopaminergic medication. This review summarizes the epidemiology, pathogenesis, risk factors, genetic, clinical manifestations, diagnostic test, and management of PD. Lastly, the urologic outcomes and therapies are reviewed.

17. Parkinson's disease in primary health care and nursing care: a scoping review

Item Type: Journal Article

Authors: Nunes, Simony Fabiola Lopes; Alvarez, Angela Maria and Valcarenghi, Rafaela Vivian

Publication Date: 2022

Abstract: OBJECTIVE: to map and analyze the scientific literature on nursing care aimed at people with Parkinson's disease in Primary Health Care. METHOD: this is a scoping review using the Joanna Briggs Institute methodology, carried out between July and October 2020, and updated in November 2021 in six databases from nursing care and Parkinson's disease descriptors, and their respective acronyms and synonyms in English, Portuguese and Spanish. RESULTS: a total of 44 publications were included in this review, which identified

as nursing care in Primary Care: assessment of motor and non-motor functions; management of activities of daily living and instrumental activities of daily living; disease self-management education for people with Parkinson's and their care partners; supervised group approach; and personal factor management. CONCLUSION: Nursing care for people with Parkinson's at the primary level essentially involves actions that include providing focused care at an individual and group level, encompassing clinical assessment, patient education, patient involvement in the social context of care, and developing positive relationships with family members and caregivers.

18. Sex Differences in Brain and Cognition in de novo Parkinson's Disease

Item Type: Journal Article

Authors: Oltra, Javier; Uribe, Carme; Campabadal, Anna; Inguanzo, Anna; Monté-Rubio, Gemma C.; Martí, Maria J.; Compta, Yaroslau; Valldeoriola, Francesc; Junque, Carme and Segura, Barbara

Publication Date: 2022

Journal: Frontiers in Aging Neuroscience 13, pp. 1-9

Abstract: Background and Objective: Brain atrophy and cognitive impairment in neurodegenerative diseases are influenced by sex. We aimed to investigate sex differences in brain atrophy and cognition in de novo Parkinson's disease (PD) patients. Methods: Clinical, neuropsychological and T1-weighted MRI data from 205 PD patients (127 males: 78 females) and 69 healthy controls (40 males: 29 females) were obtained from the PPMI dataset. Results: PD males had a greater motor and rapid eye movement sleep behavior disorder symptomatology than PD females. They also showed cortical thinning in postcentral and precentral regions, greater global cortical and subcortical atrophy and smaller volumes in thalamus, caudate, putamen, pallidum, hippocampus, and brainstem, compared with PD females. Healthy controls only showed reduced hippocampal volume in males compared to females. PD males performed worse than PD females in global cognition, immediate verbal recall, and mental processing speed. In both groups males performed worse than females in semantic verbal fluency and delayed verbal recall; as well as females performed worse than males in visuospatial function. Conclusions: Sex effect in brain and cognition is already evident in de novo PD not explained by age per se , being a relevant factor to consider in clinical and translational research in PD.

19. Microvascular Changes in Parkinson's Disease- Focus on the Neurovascular Unit

Item Type: Journal Article

Authors: Paul, Gesine and Elabi, Osama F.

Publication Date: 2022

Journal: Frontiers in Aging Neuroscience 14, pp. 853372

Abstract: Vascular alterations emerge as a common denominator for several neurodegenerative diseases. In Parkinson's disease (PD), a number of observations have been made suggesting that the occurrence of vascular pathology is an important

pathophysiological aspect of the disease. Specifically, pathological activation of pericytes, blood-brain barrier (BBB) disruption, pathological angiogenesis and vascular regression have been reported. This review summarizes the current evidence for the different vascular alterations in patients with PD and in animal models of PD. We suggest a possible sequence of vascular pathology in PD ranging from early pericyte activation and BBB leakage to an attempt for compensatory angiogenesis and finally vascular rarefication. We highlight different pathogenetic mechanisms that play a role in these vascular alterations including perivascular inflammation and concomitant metabolic disease. Awareness of the contribution of vascular events to the pathogenesis of PD may allow the identification of targets to modulate those mechanisms. In particular the BBB has for decades only been viewed as an obstacle for drug delivery, however, preservation of its integrity and/or modulation of the signaling at this interface between the blood and the brain may prove to be a new avenue to take in order to develop disease-modifying strategies for neurodegenerative disorders. Copyright © 2022 Paul and Elabi.

20. The clinical approach to the identification of higher-order visual dysfunction in neurodegenerative disease

Item Type: Journal Article

Authors: Pelak, Victoria S.

Publication Date: Apr ,2022

Journal: Current Neurology & Neuroscience Reports 22(4), pp. 229-242

Abstract: PURPOSE OF REVIEW: This review is intended to assist the reader in gaining the knowledge and skills necessary for the recognition and assessment of higher-order visual dysfunction due to neurodegenerative diseases including Alzheimer's disease, dementia with Lewy bodies, Parkinson's dementia, corticobasal degeneration, Creutzfeldt-Jakob disease, and the posterior cortical atrophy syndrome. Clinical problem-solving and pattern recognition must be developed and practiced to accurately diagnosis disturbances of higher-order visual function, and knowledge of higher-order visual brain regions and their visual syndromes forms the foundation for deciphering symptoms presented by patients and/or their care partners. Tests of higher-order visual dysfunction must be assembled by the clinician and assessment can take time and effort. The use of screening tests, follow-up visits, and formal neuropsychological referrals are critical components for accurate diagnosis and these principles are reviewed here. RECENT FINDINGS: A recent survey of neuro-ophthalmologists revealed that over half of the respondents report that 5-10% of their new patient referrals carry a diagnosis of neurodegenerative disease and many patients were referred for visual symptoms of unknown cause. Despite over a century of discovery related to higher-order visual functions of the human brain, translation of discovery to the clinical assessment of patients has been slow or absent. As with the approach to translational medicine in general, to see meaningful progress, an interdisciplinary approach is indispensable. The first step involves the application of discoveries from the field visual neuroscience by clinicians from the fields of ophthalmology, neurology, and neuropsychology, and from the disciplines of neuro-ophthalmology and behavioral neurology. The unmet need for recognition, assessment, and management of higher-order visual dysfunction in neurodegeneration is evident and clinicians can contribute to closing the gap by using the approach and the tools outlined in the review. Copyright © 2022. The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of

Springer Nature.

21. Motor–Cognitive Treadmill Training With Virtual Reality in Parkinson's Disease: The Effect of Training Duration

Item Type: Journal Article

Authors: Pelosin, Elisa; Ponte, Chiara; Putzolu, Martina; Lagravinese, Giovanna; Hausdorff, Jeffrey M.; Nieuwboer, Alice; Ginis, Pieter; Rochester, Lynn; Alcock, Lisa; Bloem, Bastiaan R.; Nieuwhof, Freek; Cereatti, Andrea; Della Croce, Ugo; Mirelman, Anat and Avanzino, Laura

Publication Date: 2022

Abstract: Treadmill training with virtual reality (TT + VR) has been shown to improve gait performance and to reduce fall risk in Parkinson's disease (PD). However, there is no consensus on the optimal training duration. This study is a sub-study of the V-TIME randomized clinical trial (NCT01732653). In this study, we explored the effect of the duration of training based on the motor–cognitive interaction on motor and cognitive performance and on fall risk in subjects with PD. Patients in Hoehn and Yahr stages II–III, aged between 40 and 70 years, were included. In total, 96 patients with PD were assigned to 6 or 12 weeks of TT + VR intervention, and 77 patients completed the full protocol. Outcome measures for gait and cognitive performance were assessed at baseline, immediately after training, and at 1- and 6-month follow-up. The incident rate of falls in the 6-month pre-intervention was compared with that in the 6-month post-intervention. Dual-task gait performance (gait speed, gait speed variability and stride length under cognitive dual task and obstacle negotiation, and the leading foot clearance in obstacle negotiation) improved similarly in both groups with gains sustained at 6-month follow-up. A higher decrease in fall rate and fear of falling were observed in participants assigned to the 12-week intervention than the 6-week intervention. Improvements in cognitive functions (i.e., executive functions, visuospatial ability, and attention) were seen only in participants enrolled in 12-week training up to 1-month follow-up but vanished at the 6-month evaluation. Our results suggest that a longer TT + VR training leads to greater improvements in cognitive functions especially those directly addressed by the virtual environment.

22. Increased foot strike variability during turning in Parkinson's disease patients with freezing of gait

Item Type: Journal Article

Authors: Pillai, Lakshmi; Shah, Kunal; Glover, Aliyah and Virmani, Tuhin

Publication Date: 2022

Abstract: Background: Turning is a common trigger for freezing episodes in patients with Parkinson's disease (PD). Freezing during turning can lead to falls and fractures and decreased quality of life. Research Question: Does foot-strike contact variability also

increase during turning, as previously reported in straight gait in PD patients with Freezing of Gait (FOG)?Methods: Subjects were instructed to walk on a gait mat, making "normal pivot" (180°) turns at each end. ProtoKinetics Movement Analysis Software (PKMAS) software was used for analysis. Video recordings and foot-pressure-prints were studied to identify and define turn segments. Spatiotemporal gait and turn measures were then determined only for the turn segments. A movement disorders neurologist determined clinical freezes. Results: 100 subjects (28 controls, 38 noFOG and 34 FOG) were included. Compared to non-freezers (noFOG), FOG subjects had a smaller foot-strike during turning (a measure of completeness of foot contact with the mat) and increased foot-strike variability. FOG subjects also had a shorter stride-length, slower stride-velocity, and greater swing phase time and percentage during turns. After adjusting for turn direction, inner/outer leg dynamics showed heavier inner leg footsteps in FOG subjects. 38% of FOG subjects experienced freezes during turning. 69% of freezes occurred during the middle third of the turn. Turn-freezers had more severe spatiotemporal gait deficits. Significance: Developing targeted therapies to retrain subjects to plant their whole foot on the ground with more consistency could help decrease episodes of freezing of gait.

23. Comparative efficacy of surgical approaches to disease modification in Parkinson disease

Item Type: Journal Article

Authors: Rahimpour, Shervin; Zhang, Su-Chun; Vitek, Jerrold L.; Mitchell, Kyle T. and Turner, Dennis A.

Publication Date: Mar 25 ,2022

Journal: Npj Parkinsons Disease 8(1), pp. 33

Abstract: Parkinson's disease (PD) may optimally be treated with a disease-modifying therapy to slow progression. We compare data underlying surgical approaches proposed to impart disease modification in PD: (1) cell transplantation therapy with stem cell-derived dopaminergic neurons to replace damaged cells; (2) clinical trials of growth factors to promote survival of existing dopaminergic neurons; (3) subthalamic nucleus deep brain stimulation early in the course of PD; and (4) abdominal vagotomy to lower risk of potential disease spread from gut to brain. Though targeted to engage potential mechanisms of PD these surgical approaches remain experimental, indicating the difficulty in translating therapeutic concepts into clinical practice. The choice of outcome measures to assess disease modification separate from the symptomatic benefit will be critical to evaluate the effect of the disease-modifying intervention on long-term disease burden, including imaging studies and clinical rating scales, i.e., Unified Parkinson Disease Rating Scale. Therapeutic interventions will require long follow-up times (i.e., 5-10 years) to analyze disease modification compared to symptomatic treatments. The promise of invasive, surgical treatments to achieve disease modification through mechanistic approaches has been constrained by the reality of translating these concepts into effective clinical trials. Copyright © 2022. The Author(s).

24. Speech dysfunction, cognition, and Parkinson's disease

Item Type: Journal Article

Authors: Rohl, Andrea; Gutierrez, Stephanie; Johari, Karim; Greenlee, Jeremy; Tjaden, Kris and Roberts, Angela

Publication Date: 2022

Journal: Progress in Brain Research 269(1), pp. 153-173

Abstract: Communication difficulties are a ubiquitous symptom of Parkinson's disease and include changes to both motor speech and language systems. Communication challenges are a significant driver of lower quality of life. They are associated with decreased communication participation, social withdrawal, and increased risks for social isolation and stigmatization in persons with Parkinson's disease. Recent theoretical advances and experimental evidence underscore the intersection of cognition and motor processes in speech production and their impact on spoken language. This chapter overviews a growing evidence base demonstrating that cognitive impairments interact with motor changes in Parkinson's disease to negatively affect communication abilities in myriad ways, at all stages of the disease, both in the absence and presence of dementia. The chapter highlights common PD interventions (pharmacological, surgical, and non-pharmacological) and how cognitive influences on speech production outcomes are considered in each. Copyright © 2022 Elsevier B.V. All rights reserved.

25. Participant expectations and experiences of a tailored physiotherapy intervention for people with Parkinson's and a history of falls

Item Type: Journal Article

Authors: Rowsell, Alison; Ashburn, Ann; Fitton, Carolyn; Goodwin, Victoria A.; Hulbert, Sophia; Lamb, Sarah E.; McIntosh, Emma; Nieuwboer, Alice; Pickering, Ruth; Rochester, Lynn; Chivers-Seymour, Kim and Ballinger, Claire

Publication Date: 2022

Journal: Disability & Rehabilitation 44(5), pp. 727-735

Abstract: People with Parkinson's are twice as likely to fall as older people within the general population. This longitudinal qualitative study was part of a larger programme of research including a randomised controlled trial to test the effectiveness of a tailored physiotherapy intervention. Specific qualitative aims focused on a subsample of trial participants in the intervention arm of the trial, and comprised the following: To explore the expectations of participants about the intervention. To investigate participants' experiences of the intervention, and its perceived impacts. To understand the facilitators and barriers to engagement. Two semi-structured interviews were completed with a theoretical sample of people with Parkinson's from the intervention arm, initially after randomisation but before the intervention commenced, and then again six months later. Forty-two participants out of a large clinical trial were interviewed initially, with 37 agreeing to a second interview at six months. Prior experience of rehabilitation plus information accessed through the trial consent procedure informed participants' realistic expectations. Most found the level of the

intervention acceptable, and perceived a range of benefits. However, views about equipment provided were more equivocal. The biggest barriers to participation were time and motivation, whilst social support facilitated engagement with the intervention. This study is the first to capture expectations about participation in a programme of exercises and strategies. It highlights that previous challenges to engagement in physical exercises and activities are not a barrier to future participation and provides new insights into the role of equipment and technology in programmes of physical activity for people with Parkinson's. The challenge of ensuring that programmes of exercise and strategies become an embedded feature of everyday life is highlighted, particularly alongside busy social engagements and leisure pursuits. For people with Parkinsons, a programme of exercises and strategies has the potential to reduce the risk of falls amongst those with a history of falling. Adherence to such programmes can prove challenging for a variety of reasons, even when participants have realistic expectations about the commitment and effort needed. Clear explanations about the role of equipment and technology within such programmes could enhance adherence. In order to further individualise programmes of exercise for people with Parkinsons, choice regarding social support, reminders and integration into everyday activities should be explored.

26. Multidisciplinary Rehabilitation for People with Parkinson's Disease: A Systematic Review and Meta-Analysis

Item Type: Journal Article

Authors: Seid, Abubeker Alebachew; Demirdel, Ertugrul; Aychiluhm, Setognal Birara and Mohammed, Ahmed Adem

Publication Date: 2022

Journal: Parkinson's Disease (20420080) , pp. 1-8

Abstract: Introduction. Guidelines endorse to implement an integrated and multidisciplinary team approach in the management of people with Parkinson's disease (PD). However, there is no net and clear finding that shows the supremacy of multidisciplinary team interventions over conventional interventions for people with PD. Therefore, we perform a systematic review and meta-analysis to determine the supremacy of multidisciplinary interventions for people with PD. Methods. A systematic review and meta-analysis of randomized controlled trials were conducted. PubMed, Physiotherapy Evidence Database, Cochrane Library, and Google Scholar were searched from inception until May 2021. Randomized controlled trials comparing multidisciplinary intervention with conventional physiotherapy were included. The outcome measures were gait balance, disability status, quality of life, and depression level. The PEDro scale was used to systematically appraise methodological quality. Two reviewers screened, extracted, and performed a quality assessment of included studies independently. Review Manager V.5.4 (Cochrane Collaboration) software was used for statistical analysis. Heterogeneity was analyzed using I2 statistics, and a standardized mean difference with 95% CI and P value was used to calculate the treatment effect for outcome variables. Results. A total of 6 studies with 1260 participants were included. The average PEDro methodological quality score was 6.67. No statistically significant difference between multidisciplinary and conventional rehabilitation on functional capacity (SMD: 0.69; 95% CI: −0.13, 1.51; P = 0.10), disability status (SMD: 0.65; 95% CI: −0.16, 1.46; P = 0.11), and quality of life (SMD: 0.28; 95% CI: −0.31, 0.59; P = 0.08) was found. However, there is a statistically significant improvement in caregivers' anxiety levels in the multidisciplinary group

(SMD: 0.39; 95% CI 0.06, 1.73; P = 0.02). Conclusion. This systematic review and meta-analysis show no significant difference between multidisciplinary and conventional rehabilitation on functionality, disability, and quality of life. Caregivers' anxiety levels show improvement following multidisciplinary interventions. However, large-scale studies with long-term follow-up were required for concrete and clinical recommendations.

27. Designing Virtual Reality Assisted Psychotherapy for Anxiety in Older Adults Living with Parkinson's Disease: Integrating Literature for Scoping

Item Type: Journal Article

Authors: Thangavelu, Karthick; Hayward, Joshua A.; Pachana, Nancy A.; Byrne, Gerard J.; Mitchell, Leander K.; Wallis, Guy M.; Au, Tiffany R. and Dissanayaka, Nadeeka N.

Publication Date: Mar ,2022

Journal: Clinical Gerontologist 45(2), pp. 235-251

Abstract: Objective: This review integrates literature to discuss the potential use of virtual reality (VR) in treatment of anxiety in Parkinson's disease (PD) and inform next steps. Methods: A systematic search was performed to identify studies of VR use in PD, using four databases. Data were reported in accordance to the Preferred Reporting Items for Systematic reviews and Meta-Analyzes extension for Scoping Reviews (PRISMA-ScR). Results: Thirty-two studies met the inclusion criteria with four VR studies from the same study group directly assessing the effects of anxiety on motor symptoms in PD. Primary studies implementing a VR protocol in PD identified focus areas of understanding and alleviating freezing of gait (FOG), balance training, and cognitive and motor rehabilitation, and informed design considerations. Conclusion: VR in PD studies suggested established feasibility. With appropriate design considerations, a VR based protocol could improve anxiety outcomes in PD. Clinical implications: VR in PD provides control of a patient's field of view, which can be exploited to induce specific responses, provide visual feedback, analysis of patient actions, and introduce safe challenges in the context of training. VR assisted Cognitive Behavioral Therapy (CBT) tailored to suit subtypes of anxiety disorders in PD have the potential to improve the efficacy and effectiveness of psychotherapy in PD.

28. Gastrointestinal involvement in Parkinson's disease: pathophysiology, diagnosis, and management

Item Type: Journal Article

Authors: Warnecke, T.; Schafer, K-H; Claus, I.; Del Tredici, K. and Jost, W. H.

Publication Date: Mar 24 ,2022

Journal: Npj Parkinsons Disease 8(1), pp. 31

Abstract: Growing evidence suggests an increasing significance for the extent of gastrointestinal tract (GIT) dysfunction in Parkinson's disease (PD). Most patients suffer from GIT symptoms, including dysphagia, sialorrhea, bloating, nausea, vomiting, gastroparesis, and constipation during the disease course. The underlying pathomechanisms of this alpha-synucleinopathy play an important role in disease development and progression, i.e., early

accumulation of Lewy pathology in the enteric and central nervous systems is implicated in pharyngeal discoordination, esophageal and gastric motility/peristalsis impairment, chronic pain, altered intestinal permeability and autonomic dysfunction of the colon, with subsequent constipation. Severe complications, including malnutrition, dehydration, insufficient drug effects, aspiration pneumonia, intestinal obstruction, and megacolon, frequently result in hospitalization. Sophisticated diagnostic tools are now available that permit more detailed examination of specific GIT impairment patterns. Furthermore, novel treatment approaches have been evaluated, although high-level evidence trials are often missing. Finally, the burgeoning literature devoted to the GIT microbiome reveals its importance for neurologists. We review current knowledge about GIT pathoanatomy, pathophysiology, diagnosis, and treatment in PD and provide recommendations for management in daily practice. Copyright © 2022. The Author(s).

29. The neuropsychiatry of Parkinson's disease: advances and challenges

Item Type: Journal Article

Authors: Weintraub, Daniel; Aarsland, Dag; Chaudhuri, Kallol Ray;Dobkin, Roseanne D.;Leentjens, Albert F. G.;Rodriguez-Violante, Mayela and Schrag, Anette

Publication Date: 2022

Journal: Lancet Neurology 21(1), pp. 89-102

Abstract: In people with Parkinson's disease, neuropsychiatric signs and symptoms are common throughout the disease course. These symptoms can be disabling and as clinically relevant as motor symptoms, and their presentation can be similar to, or distinct from, their counterparts in the general population. Correlates and risk factors for developing neuropsychiatric signs and symptoms include demographic, clinical, and psychosocial characteristics. The underlying neurobiology of these presentations is complex and not well understood, with the strongest evidence for neuropathological changes associated with Parkinson's disease, mechanisms linked to dopaminergic therapy, and effects not specific to Parkinson's disease. Assessment instruments and formal diagnostic criteria exist, but there is little routine screening of these signs and symptoms in clinical practice. Mounting evidence supports a range of pharmacological and non-pharmacological interventions, but relatively few efficacious treatment options exist. Optimising the management of neuropsychiatric presentations in people with Parkinson's disease will require additional research, raised awareness, specialised training, and development of innovative models of care.

30. Retinal Microvascular Density Was Associated With the Clinical Progression of Parkinson's Disease

Item Type: Journal Article

Authors: Xu, Bei; Wang, Xin; Guo, Jifeng; Xu, Huizhuo; Tang, Beisha; Jiao, Bin and Shen, Lu

Publication Date: 2022

Journal: Frontiers in Aging Neuroscience 14, pp. 1-9

Abstract: Background: Retinal microvascular density has been studied in neurodegenerative diseases, whereas patients with Parkinson's disease (PD) at different clinical stages have been rarely investigated. The present study aimed to evaluate the microvascular variations in superficial retinal capillary plexus (SCP) in patients with PD on different Hoehn-Yahr (H-Y) stages by optical coherence tomography angiography (OCTA), as well as determine their relationships with clinical parameters. Methods: In total, 115 patients with PD and 67 healthy controls (HCs) were recruited. The PD group was divided into three groups based on the H-Y stage. The OCTA examination was performed in all participants, and the macular vessel density (m-VD), peripapillary vessel density (p-VD), and foveal avascular zone (FAZ) area were measured. Results: The m-VD in all regions, p-VD in center 6.1 (4.8, 6.95) mm–1 in healthy eyes vs. 5.1 (3.7, 6.4) mm–1 in patients], nasal inner (NI) 18.5 (17.8, 19.3) mm–1 in healthy eyes vs. 17.9 (17.1, 18.7) mm–1 in patients], temporal outer (TO) 19.6 (18.9, 20.2) mm–1 in healthy eyes vs. 19.3 (18.5, 19.7) mm–1 in patients] regions and FAZ area 0.36 (0.32, 0.39) mm2 in healthy eyes vs. 0.29 (0.26, 0.33) mm2 in patients] noticeably decreased in PD groups compared with HC ($p < 0.05$). Moreover, the FAZ area was suggested to decline significantly in patients with PD with H-Y I stage ($p < 0.05$), while it was more serious in the H-Y III stage in patients. Furthermore, we found that m-VD exhibited a significant negative correlation with age, disease duration, UPDRS scores, NMSS scores, and H-Y stage. Conclusion: OCTA has the potential to non-invasively detect the microvascular changes in patients with PD with different clinical stages in vivo , and it may be a valuable tool to monitor the PD progression.

31. University Hospitals Plymouth pioneers smart watches for Parkinson's

29th April 2022, Digital Health

Using a device, known as a Parkinson's Kinetigraph (PKG), a patient's movements can be closely monitored while they're at home. Doctors can then assess the data gathered to looks for signs that interventions may be needed, such as changing medications or offering physiotherapy. In addition, the watch buzzes to remind patients to take their medication to ensure they stay on top of their daily medication needs.