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Parkinson's Disease Current Awareness Bulletin

December 2020

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Title: Targeting neuroplasticity in patients with neurodegenerative diseases using brain stimulation techniques.

Citation: Translational neurodegeneration; Dec 2020; vol. 9 (no. 1); p. 44

Author(s): Yuan, Ti-Fei; Li, Wei-Guang; Zhang, Chencheng; Wei, Hongjiang; Sun, Suya; Xu, Nan-Jie; Liu, Jun; Xu, Tian-Le

Abstract: Deficits in synaptic transmission and plasticity are thought to contribute to the pathophysiology of Alzheimer's disease (AD) and Parkinson's disease (PD). Several brain stimulation techniques are currently available to assess or modulate human neuroplasticity, which could offer clinically useful interventions as well as quantitative diagnostic and prognostic biomarkers. In this review, we discuss several brain stimulation techniques, with a special emphasis on transcranial magnetic stimulation and deep brain stimulation (DBS), and review the results of clinical studies that applied these techniques to examine or modulate impaired neuroplasticity at the local and network levels in patients with AD or PD. The impaired neuroplasticity can be detected in patients at the earlier and later stages of both neurodegenerative diseases. However, current brain stimulation techniques, with a notable exception of DBS for PD treatment, cannot serve as adequate clinical tools to assist in the diagnosis, treatment, or prognosis of individual patients with AD or PD. Targeting the impaired neuroplasticity with improved brain stimulation techniques could offer a powerful novel approach for the treatment of AD and PD.

Title: Deep Brain Stimulation Selection Criteria for Parkinson's Disease: Time to Go beyond CAPSIT-PD.

Citation: Journal of clinical medicine; Dec 2020; vol. 9 (no. 12)

Author(s): Artusi, Carlo Alberto; Lopiano, Leonardo; Morgante, Francesca

Abstract: Despite being introduced in clinical practice more than 20 years ago, selection criteria for deep brain stimulation (DBS) in Parkinson's disease (PD) rely on a document published in 1999 called 'Core Assessment Program for Surgical Interventional Therapies in Parkinson's Disease'. These criteria are useful in supporting the selection of candidates. However, they are both restrictive and out-of-date, because the knowledge on PD progression and phenotyping has massively evolved. Advances in understanding the heterogeneity of PD presentation, courses, phenotypes, and genotypes, render a better identification of good DBS outcome predictors a research priority. Additionally, DBS invasiveness, cost, and the possibility of serious adverse events make it mandatory to predict as accurately as possible the clinical outcome when informing the patients about their suitability for surgery. In this viewpoint, we analyzed the pre-surgical assessment according to the following topics: early versus delayed DBS; the evolution of the levodopa challenge test; and the relevance of axial symptoms; patient-centered outcome measures; non-motor symptoms; and genetics. Based on the literature, we encourage rethinking of the selection process for DBS in PD, which should move toward a broad clinical and instrumental assessment of non-motor symptoms, quantitative measurement of gait, posture, and balance, and in-depth genotypic and phenotypic characterization.

Title: Brain and Muscle: How Central Nervous System Disorders Can Modify the Skeletal Muscle.

Citation: Diagnostics (Basel, Switzerland); Dec 2020; vol. 10 (no. 12)

Author(s): Dalise, Stefania; Azzollini, Valentina; Chisari, Carmelo

Abstract: It is widely known that nervous and muscular systems work together and that they are strictly dependent in their structure and functions. Consequently, muscles undergo macro and microscopic changes with subsequent alterations after a central nervous system (CNS) disease. Despite this, only a few researchers have addressed the problem of skeletal muscle abnormalities following CNS diseases. The purpose of this review is to summarize the current knowledge on the potential mechanisms responsible for changes in skeletal muscle of patients suffering from some of the most common CSN disorders (Stroke, Multiple Sclerosis, Parkinson's disease). With this purpose, we analyzed the studies published in the last decade. The published studies show an extreme heterogeneity of the assessment modality and examined population. Furthermore, it is evident that thanks to different evaluation methodologies, it is now possible to implement knowledge on muscle morphology, for a long time limited by the requirement of muscle biopsies. This could be the first step to amplify studies aimed to analyze muscle characteristics in CNS disease and developing rehabilitation protocols to prevent and treat the muscle, often neglected in CNS disease.

Title: Parkinson's disease and translational research.

Citation: Translational neurodegeneration; Dec 2020; vol. 9 (no. 1); p. 43

Author(s): Dinter, Elisabeth; Saridaki, Theodora; Diederichs, Leonie; Reichmann, Heinz; Falkenburger, Björn H

Abstract: Parkinson's disease (PD) is diagnosed when patients exhibit bradykinesia with tremor and/or rigidity, and when these symptoms respond to dopaminergic medications. Yet in the last years there was a greater recognition of additional aspects of the disease including non-motor symptoms and prodromal states with associated pathology in various regions of the nervous system. In this review we discuss current concepts of two major alterations found during the course of the disease: cytoplasmic aggregates of the protein α-synuclein and the degeneration of dopaminergic neurons. We provide an overview of new approaches in this field based on current concepts and latest literature. In many areas, translational research on PD has advanced the understanding of the disease but there is still a need for more effective therapeutic options based on the insights into the basic biological phenomena.

Title: Deep brain stimulation programming in Parkinson's disease: Introduction of current issues and perspectives.

Citation: Revue neurologique; Dec 2020; vol. 176 (no. 10); p. 770-779

Author(s): Aubignat, M; Lefranc, M; Tir, M; Krystkowiak, P

Abstract: Deep brain stimulation (DBS) is a well-established treatment for Parkinson's disease (PD) leading to a significant reduction in motor and non-motor symptoms. Numerous

factors contribute to positive outcomes for DBS including careful patient selection, lead placement and effective programming. Only DBS programming can be modified after patient implantation, therefore DBS programming plays a crucial role in improving clinical outcomes. In this paper, we review the literature to present current issues and perspectives for DBS programming in PD. Only a few algorithms proposed by experts for the initial programming and management of some adverse effects are available. No guidelines are available for programming sessions and medical treatment management during DBS follow-up. Moreover, emergence of increasingly complex lead designs makes programming more and more complex. Fortunately, in the last few years numerous techniques have emerged for optimization of DBS programming in PD.

Title: Deep-Brain Stimulation for Essential Tremor and Other Tremor Syndromes: A Narrative Review of Current Targets and Clinical Outcomes.

Citation: Brain sciences; Dec 2020; vol. 10 (no. 12)

Author(s): Iorio-Morin, Christian; Fomenko, Anton; Kalia, Suneil K

Abstract: Tremor is a prevalent symptom associated with multiple conditions, including essential tremor (ET), Parkinson's disease (PD), multiple sclerosis (MS), stroke and trauma. The surgical management of tremor evolved from stereotactic lesions to deep-brain stimulation (DBS), which allowed safe and reversible interference with specific neural networks. This paper reviews the current literature on DBS for tremor, starting with a detailed discussion of current tremor targets (ventral intermediate nucleus of the thalamus (Vim), prelemniscal radiations (Raprl), caudal zona incerta (Zi), thalamus (Vo) and subthalamic nucleus (STN)) and continuing with a discussion of results obtained when performing DBS in the various aforementioned tremor syndromes. Future directions for DBS research are then briefly discussed.

Title: Influence of BDNF Genetic Polymorphisms in the Pathophysiology of Aging-related Diseases.

Citation: Aging and disease; Dec 2020; vol. 11 (no. 6); p. 1513-1526

Author(s): Urbina-Varela, Rodrigo; Soto-Espinoza, María Inés; Vargas, Romina; Quiñones, Luis; Del Campo, Andrea

Abstract: For the first time in history, most of the population has a life expectancy equal or greater than 60 years. By the year 2050, it is expected that the world population in that age range will reach 2000 million, an increase of 900 million with respect to 2015, which poses new challenges for health systems. In this way, it is relevant to analyze the most common diseases associated with the aging process, namely Alzheimer´s disease, Parkinson Disease and Type II Diabetes, some of which may have a common genetic component that can be detected before manifesting, in order to delay their progress. Genetic inheritance and epigenetics are factors that could be linked in the development of these pathologies. Some researchers indicate that the BDNF gene is a common factor of these diseases, and apparently some of its polymorphisms favor the progression of them. In this regard, alterations in the level of BDNF expression and secretion, due to polymorphisms, could be linked to the development and/or progression of neurodegenerative and metabolic disorders. In this review we will deepen on the different polymorphisms in the BDNF gene and their possible association with age-related pathologies, to open the possibilities of potential therapeutic targets.

Title: Self-Management Components as Experienced by People with Parkinson's Disease and Their Carers: A Systematic Review and Synthesis of the Qualitative Literature.

Citation: Parkinson's Disease (20420080); Dec 2020 ; p. 1-10

Author(s): Tuijt ; Tan, Aylin; Armstrong, Megan; Pigott, Jennifer; Read, Joy; Davies, Nathan; Walters, Kate; Schrag, Anette

Background: Self-management strategies are important in healthcare for people with Parkinson's to improve daily living. There is limited evidence on effectiveness in Parkinson's, and the active components of effective self-management strategies are uncertain. This review aims to identify and synthesise the qualitative evidence regarding the experiences of self-management components by people with Parkinson's and their carers.

Methods: MEDLINE, PsycINFO, Embase, Web of Science, and CINAHL were searched from inception to July 8, 2020, for qualitative research concerning self-management for people with Parkinson's. Data were coded and thematically synthesised using NVivo.

Findings: Of 9547 search results, six papers were included in the final thematic synthesis. The studies reviewed consisted of 147 participants: 104 were people with Parkinson's and 43 were carers. Seven main themes were derived concerning self-management of people with Parkinson's: (1) medication management, (2) physical exercise, (3) self-monitoring techniques, (4) psychological strategies, (5) maintaining independence, (6) encouraging social engagement, and (7) providing knowledge and information. These components should be incorporated as relevant strategies and techniques and should be specific as well as tailored to different stages of the disease.

Discussion: Self-management programmes for people with Parkinson's should include the seven themes presented as part of this review and pay particular attention to presenting relevant information and skills as they relate to different stages of the disease. Tailoring information and social engagement were two components that required specific attention in order to engage people with Parkinson's effectively.

Title: Psychometric properties of the external Housing-Related Control Belief Questionnaire among people with Parkinson's disease.

Citation: Aging Clinical & Experimental Research; Dec 2020; vol. 32 (no. 12); p. 2639-2647

Author(s): Andersson ; Nilsson, Maria H.; Slaug, Björn; Oswald, Frank; Iwarsson, Susanne

Background: Housing-related control beliefs are associated with aspects of health among older people in general. Research on Parkinson's disease (PD) focusing on perceptions of the home are rare and instruments capturing perceived aspects of home have seldom been used. Aims: To evaluate psychometric properties of the external Housing-related Control Beliefs Questionnaire (HCQ) among people with PD.

Methods: The external HCQ were administrated to 245 participants with PD, (mean age = 69.9 years; mean PD duration = 9.7 years). External HCQ has 16-items, with five response options. The psychometric properties evaluated were data quality, structural validity (factor analysis), floor and ceiling effects, corrected item total correlations, internal consistency and construct validity (testing correlations with relevant constructs according to pre-defined hypotheses).

Results: Data quality was high. Structural validity showed a unidimensional construct with removal of two items. Homogeneity was questionable, but strengthened after the removal of

the two items. For the 14-item version internal consistency was α = 0.78 and SEM 4.47. Corrected item total correlation ranged between 0.31 and 0.54 and no floor or ceiling effects. Significant correlations with relevant constructs supported the construct validity.

Conclusions: Taken together, the psychometric results suggest a 14-item version of the external HCQ to be sufficiently reliable and valid for use in the PD population. The results pave the way for further studies, using the HCQ to analyse how perceptions of control of the home may be associated with health among people ageing with PD.

Title: Long-term Results for Single Channel-Guided Deep Brain Stimulation Used to Treat Parkinson's Disease.

Citation: Archives of Neuropsychiatry / Noropsikiatri Arsivi; Dec 2020; vol. 57 (no. 4); p. 290-293

Author(s): KAPTAN ; EKMEKÇİ, Hakan

Introduction: The optimal method for targeting the subthalamic nucleus (STN) and positioning the deep brain stimulation (DBS) electrode is still controversial. In this study, single channel-guided stimulations were used in order to determine the most proper way to target the STN. Findings were synthesised for use in clinical situations. This paper presents the long-term results of DBS applied using single-channel guidance.

Methods: We retrospectively reviewed 15 patients who had undergone STN-DBS to treat Parkinson's disease in-between 2010 and 2017. All patients were examined preoperatively, and they were routinely followed-up 2--7 years postoperatively.

Results: The use of single-channel guidance resulted in better outcomes of motor complaints of Parkinson's patients. Moreover, a significantly greater improvement in Unified Parkinson's Disease Rating Scale Score (UPDRS) was achieved in either ON or OFF periods of patients.

Conclusion: Single channel-guided STN-DBS is a safe procedure and it results in improved motor outcomes in advanced Parkinson's Disease.

Title: Revisiting the assessment of tremor: clinical review.

Citation: British Journal of General Practice; Dec 2020; vol. 70 (no. 701); p. 611-614

Author(s): Vijiaratnam ; Wirth, Thomas; Morris, Huw R

Abstract: Tremor, an involuntary, rhythmic, and oscillatory movement of a body part, is a frequent presenting symptom to general practice and by far the most common movement disorder presentation, impacting up to 15% of such cases.[1] A common initial pattern is symmetric upper-limb involvement during posture and action. Although patients are often worried about Parkinson's disease (PD), PD tremor usually has easily recognisable features.[2] This concern tends to lead to frequent referrals for specialist input despite an alternative diagnosis being more likely in a majority of cases. Essential tremor (ET) is the most common diagnosis given to patients with this presentation, which is estimated to affect 0.4-6.0% of the general population.[3] This may be an overestimate as the rubric of ET and the relationship between clinical features and underlying pathophysiology is uncertain. Essential tremor plus Patients with ET-plus have ET features with additional signs that are subtle and their presence at times questionable.

Title: Effects of water-based exercise on functioning and quality of life in people with Parkinson's disease: a systematic review and meta-analysis.

Citation: Clinical Rehabilitation; Dec 2020; vol. 34 (no. 12); p. 1425-1435

Author(s): Gomes Neto ; Pontes, Sarah Souza; Almeida, Lorena de Oliveira; da Silva, Cássio Magalhães; da Conceição Sena, Cristiano; Saquetto, Micheli Bernardone

Aim: To investigate the effects of the water-based exercise on balance, mobility, mobility and functional independence, functional performance, fear of falling and quality of life in people with Parkinson's disease.

Methods: We searched pubmed/MEDLINE, Cochrane Central Register of Controlled Trials, PEDro data base and SciELO to June 2020 for randomised controlled trials that investigated the effects of water-based exercise in people with Parkinson's disease. Two comparisons were made: water-based exercise versus usual care and water-based exercise versus land-exercise. The main outcomes were Balance, Confidence, Mobility, Unified Parkinson's Disease Rating Scale and quality of life. Mean differences (MD) with 95% confidence interval (CI) were calculated, and heterogeneity was assessed using the I 2 test.

Results: Fifteen randomised controlled trials were found (435 people). Compared to usual care, water-based exercise resulted in improvement in balance MD (9.1, 95% CI: 6.5, 11.8, N = 45). Water-based exercise resulted in improvement in balance MD (3.1, 95% CI: 1.2, 5.0, N = 179), mobility MD (−2.2, 95% CI: −3.3, −1.0, N = 197) and quality of life MD (−5.5, 95% CI: −11, −0.07, N = 98) compared to land-based exercise, but without significant difference in functional performance MD (0.01, 95% CI: −2.6 to 2.7, N = 69). Land-based exercise resulted in improvement in fear of falling MD (−3.5, 95% CI: −5.6, −1.3, N = 58) compared to water-based exercise.

Conclusion: Water-based exercise was more efficient than land-based exercise and/or usual care in improving balance, mobility and quality of life in people with Parkinson's disease.

Title: The effect of Qigong-based therapy on patients with Parkinson's disease: a systematic review and meta-analysis.

Citation: Clinical Rehabilitation; Dec 2020; vol. 34 (no. 12); p. 1436-1448

Author(s): Chen ; Zhang, Yanjie; Wang, Yong Tai; Liu, Xiaolei; Song, Wook; Du, Xiru

Objective: This study was to evaluate the effects of Qigong on clinical motor symptoms, walking ability, and balance of patients with Parkinson's disease. Data sources: Seven electronic databases (MEDLINE, Web of Science, CINAHL, SportDiscus, Scopus, China National Knowledge Infrastructure, and Wanfang Database) were searched from inception to June 28, 2020.

Methods: Two reviewers independently selected and extracted the data from studies with randomized controlled trial, and effect sizes were calculated by employing random-effect models with 95% confidential interval (CI). We used Physiotherapy Evidence Database scale to evaluate the quality of included studies.

Results: A total of seven studies with 325 participants (180 males and 145 females) were included in this meta-analysis. Results of this meta-analysis showed that Qigong had significantly positive effects on motor symptoms (SMD = 0.59, 95% CI [0.24, 0.93]), walking ability (SMD = 0.78, 95% CI [0.10, 1.47]), and balance (SMD = 0.72, 95% CI [0.23, 1.20]) in patients with Parkinson's disease. Subgroup analysis showed Qigong exercise had

significant difference on improving motor symptoms and walking ability compared to passive control (P < 0.01), and no significant difference compared to active control. Subgroup analysis of Qigong exercise revealed a significant difference on balance compared to both active and passive control (P < 0.05). In addition, meta-regression result indicated that the effect of Qigong exercise on motor symptoms was influenced by age.

Conclusion: The findings from current meta-analysis supported Qigong exercise as a beneficial alternative therapy may contribute to increasing motor function, walking ability, and balance for patients with Parkinson's disease.

Title: The experiences of carers looking after people with Parkinson's disease who exhibit impulsive and compulsive behaviours: An exploratory qualitative study.

Citation: Journal of Clinical Nursing (John Wiley & Sons, Inc.); Dec 2020; vol. 29 (no. 23/24); p. 4623-4632

Author(s): McKeown ; Saleem, Tariq; Magee, Cathy; Haddad, Mark

Aim: To understand the experiences of carers who were confronted by the development of impulsive and compulsive behaviours.

Background: Impulsive and compulsive behaviours (ICBs) are a serious complication in Parkinson's disease (PD) strongly associated with dopamine replacement therapy used to treat patients. These behaviours comprise abnormal activities such as pathological gambling, binge eating, compulsive shopping and hypersexuality. These behaviours place a considerable burden on patients and on their carers and families.

Design: An exploratory qualitative study. Methods: Using a convenience sampling approach, 13 carers were recruited to participate in semi-structured interviews. Interviews were conducted over the telephone. Verbatim transcripts were analysed using a thematic analysis approach. COREQ guidelines were adhered to in the reporting of this study.

Results: Five main themes were identified: (a) realisation—developing awareness of ICB symptoms and their causes; (b) reacting—confronting and attempts to manage ICBs; (c) reaching out—help-seeking and selective disclosure; (d) reframing—shifting perspectives on ICBs over time; and (e) resignation—impact on relationships and facing the future.

Conclusions: The profound impact of ICBs on quality of life, relationships and economic stability was clear in the carers' accounts. Possible avenues for future clinical research are suggested.

Relevance to clinical practice: The potentially devastating effects of ICBs provide a strong imperative for nurses and other health professionals to ensure that close monitoring for symptom development together with patient education is always part of practice.

Title: Subcortical Involvement in Formulaic Language: Studies on Bilingual Individuals With Parkinson's Disease.

Citation: Journal of Speech, Language & Hearing Research; Dec 2020; vol. 63 (no. 12); p. 4029-4045

Author(s): Leea ; Van Lancker Sidtis, Diana

Purpose: An impoverished production of routinized expressions, namely, formulaic language, has been reported for monolingual speakers with Parkinson's disease (PD). Little is known regarding how formulaic expressions might be manifested in individuals with

neurological damage who speak more than one language. This study investigated the processing of formulaic language across first language (L1) and second language (L2) in bilingual individuals with PD.

Method: Eleven Korean--English bilingual speakers with PD, who acquired Korean as L1 and English as L2, were recruited for this study. Two matched control groups composed of 11 healthy Korean--English bilingual individuals and 11 healthy native English speakers were included for comparison. Their performance on three structured tasks (comprehension, completion, and judgment--correction) and conversational speech was measured and compared across groups for analyses.

Results: The bilingual speakers with PD had significantly impaired comprehension of formulaic language in L1 and had lower proportions of formulaic expressions in their L1 conversational speech compared with the bilingual controls. Regarding L2, both bilingual groups with and without PD were comparable in their English performance across all tasks. Both groups performed significantly poorer in L2 structured tasks than the native English speakers. Spontaneous production of formulaic language in English (L2 for bilingual individuals) was similar across all three groups.

Conclusions: The results of this study contribute to the growing body of literature on impoverishment of formulaic language production following subcortical dysfunction. Additionally, findings here demonstrate a selective impairment of formulaic language performance in L1 but not L2 for bilinguals with PD, further supporting the role of the basal ganglia in native language.

Title: Orofacial Strength and Voice Quality as Outcome of Levodopa Challenge Test in Parkinson Disease.

Citation: Laryngoscope; Dec 2020; vol. 130 (no. 12)

Author(s): Lechien ; Delsaut, Bertil; Abderrakib, Anissa; Huet, Kathy; Delvaux, Veronique; Piccaluga, Myriam; Khalife, Mohamad; Harmegnies, Bernard; Saussez, Sven; Blecic, Serge

Objective: To assess the usefulness of orofacial strength and voice quality as assessment of response to levodopa challenge test (LCT) used in the diagnosis of early idiopathic Parkinson disease (IPD).Study Design: Controlled Prospective Study.

Methods: From January 2014 to April 2019, patients with early IPD and healthy individuals were recruited and evaluated for clinical findings (Hoehn and Yahr scale; Unified Parkinson's Disease Rating Scale); Voice Handicap Index (VHI); grade of dysphonia, roughness, breathiness, asthenia, and strain and instability (GRBASI); maximal phonation time; phonation quotient; acoustic parameters; and orofacial muscle strength Oral Performance Instrument (IOPI; IOPI Medical, Woodinville, WA, USA) t) at baseline and 45 minutes after the levodopa intake (LCT).

Results: A total of 32 IPD patients and 20 healthy individuals completed the study. Healthy individuals exhibited better VHI, grade of dysphonia, breathiness, asthenia, strain, instability, and acoustic measurements (noise-related, tremor, F0 short- and mid-term and intensity short-term parameters) than healthy subjects. The mean values of muscle strength of lips, cheeks, fundamental frequency (F0), highest F0, and shimmer significantly improved from pre- to post-LCT in IPD patients. Healthy individuals did not exhibit significant changes of orofacial strength and voice quality assessment from pre- to post-LCT. Significant associations were found between clinical, orofacial strength, and some aerodynamic and acoustic measurements.

Conclusion: Orofacial strength and acoustic voice quality measurements may be used as objective outcomes of the LCT responsiveness in patients with early IPD.Level Of Evidence: 3A. Laryngoscope, 2020.

Title: Executive Control of Walking in People With Parkinson's Disease With Freezing of Gait.

Citation: Neurorehabilitation & Neural Repair; Dec 2020; vol. 34 (no. 12); p. 1138-1149

Author(s): Vitorio ; Stuart, Samuel; Mancini, Martina

Background: Walking abnormalities in people with Parkinson's disease (PD) are characterized by a shift in locomotor control from healthy automaticity to compensatory prefrontal executive control. Indirect measures of automaticity of walking (eg, step-to-step variability and dual-task cost) suggest that freezing of gait (FoG) may be associated with reduced automaticity of walking. However, the influence of FoG status on actual prefrontal cortex (PFC) activity during walking remains unclear.

Objective: To investigate the influence of FoG status on automaticity of walking in people with PD.

Methods: Forty-seven people with PD were distributed into 2 groups based on FoG status, which was assessed by the New Freezing of Gait Questionnaire: PD−FoG (n = 23; UPDRS-III = 35) and PD+FoG (n = 24; UPDRS-III = 43.1). Participants walked over a 9-m straight path (with a 180° turn at each end) for 80 seconds. Two conditions were tested off medication: single- and dual-task walking (ie, with a concomitant cognitive task). A portable functional near-infrared spectroscopy system recorded PFC activity while walking (including turns). Wearable inertial sensors were used to calculate spatiotemporal gait parameters.

Results: PD+FoG had greater PFC activation during both single and dual-task walking than PD−FoG (P =.031). There were no differences in gait between PD−FoG and PD+FoG. Both groups decreased gait speed (P =.029) and stride length (P <.001) during dual-task walking compared with single-task walking.

Conclusions: These findings suggest that PD+FoG have reduced automaticity of walking, even in absence of FoG episodes. PFC activity while walking seems to be more sensitive than gait measures in identifying reduction in automaticity of walking in PD+FoG.

Title: Urinary Dysfunction Is Associated with Nigrostriatal Dopaminergic Degeneration in Early and Untreated Patients with Parkinson's Disease.

Citation: Parkinson's Disease (20420080); Nov 2020 ; p. 1-6

Author(s): Wang ; Cao, Ruihua; Huang, Tao; Liu, Cheng; Fan, Yidong

Abstract: The aim of the present study was to determine the relation between urinary dysfunction and nigrostriatal dopaminergic degeneration in early and untreated Parkinson's disease (PD). The data were obtained from Parkinson's Progression Markers Initiative database. Two hundred and seventy-five patients and 149 healthy controls were included in our analysis. Urinary symptoms were evaluated with the Scale for Outcomes in Parkinson's Disease for Autonomic Symptoms (SCOPA-AUT). We performed correlation analyses between 123I-FP-CIT SPECT imaging data and severity of urinary symptoms in patients with PD and healthy controls. Early and untreated patients with PD exhibited worse urinary symptoms when compared with healthy controls. The severity of urinary symptoms significantly correlated with dopamine transporter binding levels in the caudate and the

putamen. After controlling for age and sex, the severity of storage symptoms significantly correlated with dopamine transporter binding levels in the less affected side of the putamen ($r = -0.172$, $p = 0.004$). The correlation was observed in both male ($r = -0.152$, $p = 0.043$) and female patients ($r = -0.217$, $p = 0.034$). No correlations were found between dopamine transporter binding levels and voiding symptoms in male or female patients, or any urinary symptoms in healthy controls. Worse storage symptoms reflect greater nigrostriatal dopaminergic loss in early and untreated PD.

Title: It's a Triple Threat: Loneliness, Parkinson's, and COVID-19.

Citation: Neurology Today; Nov 2020; vol. 20 (no. 22); p. 8-9

Author(s): Rukovets, Olga

Abstract: Patients with Parkinson's disease who were socially isolated rated their Parkinson's disease on outcomes scales as more severe and their quality of life as lower than non-isolated PD patients. The COVID-19 pandemic has only exacerbated the deleterious effects on health and quality of life associated with social isolation.

Title: Co-occurrence of apathy and impulse control disorders in Parkinson disease.

Citation: Neurology; Nov 2020; vol. 95 (no. 20)

Author(s): Scott ; Eisinger, Robert S.; Burns, Matthew R.; Lopes, Janine; Okun, Michael S.; Gunduz, Aysegul; Bowers, Dawn

Objective: To empirically test whether apathy and impulse control disorders (ICDs) represent independent, opposite ends of a motivational spectrum.

Methods: In this single-center, cross-sectional study, we obtained retrospective demographics and clinical data for 887 patients with idiopathic Parkinson disease (PD) seen at a tertiary care center. Mood and motivation disturbances were classified using recommended cutoff scores from self-reported measures of apathy, ICD, anxiety, and depression.

Results: Prevalence rates included 29.0% of patients with PD with depression, 40.7% with anxiety, 41.3% with apathy, 27.6% with ICDs, and 17.0% with both apathy and ICD. The majority (61.6%) of people reporting clinically significant ICDs also reported clinically significant apathy, and more than a third of patients with apathy (41.3%) also reported elevated ICD. Anxiety and depression were highest in patients with both apathy and ≥1 ICDs. Dopamine agonist use was higher in people with only ICD compared to people with only apathy. Mood significantly interacted with demographic variables to predict motivational disturbances.

Conclusions: Motivational disturbances are common comorbid conditions in patients with PD. In addition, these complex behavioral syndromes interact with mood in clinically important ways that may influence the design of future clinical trials and the development of novel therapies. This study challenges the concept of apathy and ICD in PD as opposite ends of a spectrum.

Title: Intrajejunal vs oral levodopa-carbidopa therapy in Parkinson disease: A retrospective cohort study.

Citation: Medicine; Nov 2020; vol. 99 (no. 46)

Author(s): Popa ; Leucuta, Daniel-Corneliu; Tohanean, Nicoleta; Popa, Stefan-Lucian; Perju-Dumbrava, Lacramioara; Chen., Hansen

Abstract: Levodopa-carbidopa intestinal gel (LCIG) is a method of continuous administration of levodopa - the standard treatment in Parkinson disease (PD, a neurodegenerative disorder characterized by resting tremor, rigidity, gait impairment, and bradykinesia), thought to reduce the short-life and pulsatile problems of oral administration. We aimed to study the effects of Levodopa-Carbidopa therapy in 2 separate groups: one with intrajejunal administration of Levodopa-Carbidopa gel and the second with oral therapy. We performed an observational retrospective Romanian cohort study on 61 patients diagnosed with PD patients, with Hoehn and Jahr 3 and 4 stages, recruited from a single regional tertiary center in Cluj-Napoca, Romania, between 2009 and 2019.The mean adjusted UPDRS III (and similarly for UPDRS II) improved in the LCIG compared to the oral therapy group with 15.6 (95% CI 12.0-19.2, P<.001), and with 18.4 (95% CI 13.8-22.9, P<.001), stratified for the Hoehn and Jahr stages 3 and 4. There was a 41.7% (10) reduction in dyskinesia, and 29.2% reduction in wearing off/on-off at 1 year in the LCIG group compared to 0% (0) dyskinesia reduction, and 2.7% reduction in wearing off/on-off in the oral therapy group. Continuous intrajejunal infusion of LCIG ensures a significant and clinical reduction in motor fluctuations compared to oral therapy in advanced PD, even after adjustment for important confounders.

Title: Risk factors of Parkinson disease: Simultaneous assessment, interactions, and etiologic subtypes.

Citation: Neurology; Nov 2020; vol. 95 (no. 18)

Author(s): Belvisi ; Pellicciari, Roberta; Fabbrini, Andrea; Costanzo, Matteo; Pietracupa, Sara; Lucia, Maria De; Modugno, Nicola; Magrinelli, Francesca; Dallocchio, Carlo; Ercoli, Tommaso; Terravecchia, Claudio; Nicoletti, Alessandra; Solla, Paolo; Fabbrini, Giovanni; Tinazzi, Michele; Berardelli, Alfredo; Defazio, Giovanni; Daniele, Belvisi; Roberta, Pellicciari; Andrea, Fabbrini

Objective: To perform a simultaneous evaluation of potential risk/protective factors of Parkinson disease (PD) to identify independent risk/protective factors, to assess interaction among factors, and to determine whether identified risk factors predict etiologic subtypes of PD.

Methods: We designed a large case-control study assessing 31 protective/risk factors of PD, including environmental and lifestyle factors, comorbid conditions, and drugs. The study enrolled 694 patients with PD and 640 healthy controls from 6 neurologic centers. Data were analyzed by logistic regression models, additive interaction models, and cluster analysis.

Results: The simultaneous assessment of 31 putative risk/protective factors of PD showed that only coffee consumption (odds ratio [OR] 0.6; 95% confidence interval [CI] 0.4-0.9), smoking (OR 0.7, 95% CI 0.6-0.9), physical activity (OR 0.8, 95% CI 0.7-0.9), family history of PD (OR 3.2, 95% CI 2.2-4.8), dyspepsia (OR 1.8, 95% CI 1.3-2.4), and exposure to pesticides (OR 2.3, 95% CI1.3-4.2), oils (OR 5.6, 95% CI 2.3-13.7), metals (OR 2.8, 95% CI 1.5-5.4), and general anesthesia (OR 6.1, 95% CI 2.9-12.7) were independently associated with PD. There was no evidence of interaction among risk/protective factors, but cluster

analysis identified 4 subtypes with different risk factor profiles. In group 1, all patients had a family history of PD, while dyspepsia or exposure to toxic agents was present in 30% of patients. In groups 2 and 3, a family history of PD was lacking, while exposure to toxic agents (group 2) and dyspepsia (group 3) played major roles. Group 4 consisted of patients with no risk factors.

Conclusions: This study demonstrated that 9 factors independently modify PD risk by coexisting in the same patient rather than interacting with others. Our study suggests the need for future preventive strategies aimed at reducing the coexistence of different risk factors within the same participant.

Title: Living with Parkinson's disease: The benefits of community programming.

Citation: Complementary Therapies in Clinical Practice; Nov 2020; vol. 41

Author(s): Spencer ; Haub, Michelle; Rockers, Madison

Abstract and Purpose: Parkinson's Disease (PD) is a common neurodegenerative disorder that has significant physical, mental and financial costs for individuals and families. It is necessary to examine ways to improve the lives of individuals living with PD. Through the use of a thematic analysis, this study examined the benefits that participants in a community PD program experienced, and the barriers that prohibited individuals from participating. Participants of the community PD program reported that participating in the program gave them a sense of community/belonging, increased knowledge about PD, a sense of hope/improved outlook on life, and physical improvements. Two main barriers preventing individuals from participating in the program was a lack of transportation and a fear of seeing PD symptom progression in others. Results highlight that community PD programs can aid in improvements in quality of life related to exercise, an improved outlook, and support. • Participating in the community PD program gave participants a sense of community/belonging, and a sense of hope/improved outlook on life. • Participants in a community PD program reported that they have an increased knowledge and understanding of PD from attending the program. • Individuals participating in a community PD program reported physical improvements and exercise as a benefit of the program. • Barriers preventing individuals from participating was a lack of transportation and a fear of seeing PD symptom progression in others.

Title: Literature Review: The Case For Appointing Parkinson's Disease Nurse Specialists.

Citation: Kai Tiaki Nursing Research; Nov 2020; vol. 11 (no. 1); p. 50-57

Author(s): Taylor ; Josland, Heather; Batyaeva, Natalia

Aim: To identify gaps in the management of Parkinson's disease, and limitations in the education and role of Parkinson's nurses; and to recommend changes that optimise the well-being of the person with Parkinson's and minimise the health-care burden, including the establishment of a Parkinson's nurse specialist role.

Background: Parkinson's is a progressive, incapacitating neurodegenerative disorder which is rapidly increasing in incidence. It is debilitating and socially isolating for the person and leads to an increased risk of falls, fractures and hospital admissions.

Method: Literature exploring recent key aspects of Parkinson's was sourced from textbooks and databases including Science Direct, ProQuest, PubMed, Google Scholar and the website of Dr Toni Pitcher of the New Zealand Brain Research Institute, Christchurch.

Findings: Gaps in Parkinson's care include incomplete understanding of Parkinson's-specific care by health-care professionals and inconsistent medication administration or compliance, resulting in falls and fractures. In New Zealand there is a shortage of neurologists with resultant dependence on general practitioners. There is no formal education of Parkinson's nurses and limited coordination of Parkinson's care. In contrast, the development and education of dedicated Parkinson's nurse specialists in Europe has optimised care and medication use, thus reducing the risk of falls.

Conclusion: Establishing a New Zealand programme to educate Parkinson's nurse specialists and general practitioners could be an important strategy to support other health carers and ensure a coordinated interprofessional approach to optimise function, independence and social interaction of people with Parkinson's, and avoid unnecessary injuries. Improved knowledge and delivery of health care for this vulnerable group may be a cost-effective way to reduce hospital admissions and the economic burden of Parkinson's health care.

Title: The neuropathological basis of anxiety in Parkinson's disease.

Citation: Medical Hypotheses; Nov 2020; vol. 144

Author(s): Overton ; Coizet, Veronique

Abstract: Evidence suggests that 24.5%-46.7% (mean 31%) of patients with Parkinson's disease experience an anxiety disorder, a much higher prevalence than in controls. Anxiety does not appear to be a consequence of diagnosis or the motoric symptoms of the disorder and can manifest as Generalised Anxiety Disorder, phobias or panic attacks. At present, the neural underpinnings of anxiety disorders in Parkinson's disease is unknown. Here, we make the novel proposal that the superior colliculus (SC), one component of a rapid, reflexive threat detection system in the brain, consisting of the colliculus, pulvinar and amygdala, becomes hyper-responsive to sensory stimuli following dopamine denervation of the striatum in Parkinson's disease. This in turn leads to heightened responses to existing threat-related stimuli (giving rise to phobias and panic attacks), and heightened responses to anticipated threats (giving rise to Generalised Anxiety Disorder). This proposal is supported by a range of evidence, in particular elevated visual responses in the SC in an animal model of Parkinson's disease and in Parkinson's disease itself. Also facilitated saccadic eye movements (prosaccades, express saccades and fixational saccades) and increased distractibility in Parkinson's disease, both of which involve the SC. Identifying one potential locus of change in the brain in Parkinson's disease relevant to anxiety gives a potential target for interventions to combat a non-motor symptom that has a substantial negative effect on quality of life in the disorder.

Title: Efficacy of non-invasive brain stimulation on cognitive functioning in brain disorders: a meta-analysis.

Citation: Psychological Medicine; Nov 2020; vol. 50 (no. 15); p. 2465-2486

Author(s): Begemann ; Brand, Bodyl A.; Ćurčić-Blake, Branislava; Aleman, André; Sommer, Iris E.

Background: Cognition is commonly affected in brain disorders. Non-invasive brain stimulation (NIBS) may have procognitive effects, with high tolerability. This meta-analysis evaluates the efficacy of transcranial magnetic stimulation (TMS) and transcranial Direct Current Stimulation (tDCS) in improving cognition, in schizophrenia, depression, dementia, Parkinson's disease, stroke, traumatic brain injury, and multiple sclerosis.

Methods: A PRISMA systematic search was conducted for randomized controlled trials. Hedges' g was used to quantify effect sizes (ES) for changes in cognition after TMS/tDCS v. sham. As different cognitive functions may have unequal susceptibility to TMS/tDCS, we separately evaluated the effects on: attention/vigilance, working memory, executive functioning, processing speed, verbal fluency, verbal learning, and social cognition.

Results: We included 82 studies (n = 2784). For working memory, both TMS (ES = 0.17, p = 0.015) and tDCS (ES = 0.17, p = 0.021) showed small but significant effects. Age positively moderated the effect of TMS. TDCS was superior to sham for attention/vigilance (ES = 0.20, p = 0.020). These significant effects did not differ across the type of brain disorder. Results were not significant for the other five cognitive domains.

Conclusions: Our results revealed that both TMS and tDCS elicit a small trans-diagnostic effect on working memory, tDCS also improved attention/vigilance across diagnoses. Effects on the other domains were not significant. Observed ES were small, yet even slight cognitive improvements may facilitate daily functioning. While NIBS can be a well-tolerated treatment, its effects appear domain specific and should be applied only for realistic indications (i.e. to induce a small improvement in working memory or attention).

Title: "He's Back so I'm Not Alone": The Impact of Deep Brain Stimulation on Personality, Self, and Relationships in Parkinson's Disease

Citation: Qualitative Health Research; Dec 2020; vol. 30 (no. 14); p. 2217

Author(s): Thomson, Cassandra J; Segrave, Rebecca A; Racine, Eric; Warren, Narelle; Thyagarajan, Dominic; Carter, Adrian

Abstract: Deep brain stimulation (DBS) for Parkinson's disease successfully alleviates motor symptoms, but unanticipated changes in personality, self, and relationships can occur. Little is known about how these nonmotor outcomes affect patients and families. We prospectively examined the experience and meaning of DBS-related changes in personality and self for patients and caregivers. In-depth, semi-structured interviews were conducted with 22 participants (11 patient–caregiver dyads) before and 9 months after DBS and analyzed using thematic analysis. We identified three themes present prior to DBS that reflected a time of anticipation, while three themes present after DBS reflected a process of adjustment. Participants noted both positive and negative personality changes, with some, but not all, attributing them to the stimulation. The risk of stimulation-related personality change should be weighed against the procedure's motor benefits and considered in the context of disease- and medication-related personality changes. Clinical implications including perioperative education and follow-up management are discussed.

Title: The experiences of carers looking after people with Parkinson's disease who exhibit impulsive and compulsive behaviours: An exploratory qualitative study

Citation: Journal of Clinical Nursing; Dec 2020; vol. 29 (no. 23-24); p. 4623

Author(s): McKeown, Eamonn; Saleem, Tariq; Magee, Cathy; Haddad, Mark

Aim: To understand the experiences of carers who were confronted by the development of impulsive and compulsive behaviours.

Background: Impulsive and compulsive behaviours (ICBs) are a serious complication in Parkinson's disease (PD) strongly associated with dopamine replacement therapy used to treat patients. These behaviours comprise abnormal activities such as pathological gambling, binge eating, compulsive shopping and hypersexuality. These behaviours place a considerable burden on patients and on their carers and families.

Design: An exploratory qualitative study.

Methods: Using a convenience sampling approach, 13 carers were recruited to participate in semi-structured interviews. Interviews were conducted over the telephone. Verbatim transcripts were analysed using a thematic analysis approach. COREQ guidelines were adhered to in the reporting of this study.

Results: Five main themes were identified: (a) realisation—developing awareness of ICB symptoms and their causes; (b) reacting—confronting and attempts to manage ICBs; (c) reaching out—help-seeking and selective disclosure; (d) reframing—shifting perspectives on ICBs over time; and (e) resignation—impact on relationships and facing the future.

Conclusions: The profound impact of ICBs on quality of life, relationships and economic stability was clear in the carers' accounts. Possible avenues for future clinical research are suggested.

Relevance to clinical practice: The potentially devastating effects of ICBs provide a strong imperative for nurses and other health professionals to ensure that close monitoring for symptom development together with patient education is always part of practice.

Title: Impairments in face discrimination and emotion recognition are related to aging and cognitive dysfunctions in Parkinson's disease with dementia

Citation: Scientific Reports; Dec 2020; vol. 10 (no. 1)

Author(s): Ho M.W.-R.; Chien S.H.-L.; Lu M.-K.; Lane H.-Y.; Chen J.-C.; Tsai C.-H.; Aoh Y.; Chen C.-M.

Abstract: Patients with Parkinson's disease (PD) suffer from motor and non-motor symptoms; 40% would develop dementia (PD-D). Impaired face and emotion processing in PD has been reported; however, the deficits of face processing in PD-D remain unclear. We investigated three essential aspects of face processing capacity in PD-D, and the associations between cognitive, neuropsychiatric assessments and task performances. Twenty-four PD-D patients (mean age: 74.0 +/- 5.55) and eighteen age-matched healthy controls (HC) (mean age: 71.0 +/- 6.20) received three computerized tasks, morphing-face discrimination, dynamic facial emotion recognition, and expression imitation. Compared to HC, PD-D patients had lower sensitivity (d') and greater neural internal noises in discriminating faces; responded slower and had difficulties with negative emotions; imitated some expressions but with lower strength. Correlation analyses revealed that patients with advancing age, slow mentation, and poor cognition (but not motor symptoms) showed stronger deterioration in face perception. Importantly, these correlations were absent in the age-matched HC. The present study is among the first few examined face processing in patients with PD-D, and found consistent deficits correlated with advancing age and slow mentation. We propose that face discrimination task could be included as a potential test for the early detection of dementia in PD.

Sources Used:

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

EMCARE, British Nursing Index, Cinahl, Medline

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