

Parkinson's Disease Current Awareness Bulletin

April 2023

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1. Supportive care of neurodegenerative patients

Authors: Armitage, A. E. and Fonkem, E.

Publication Date: 2023

Journal: Frontiers in Oncology 13, pp. 1029938

Abstract: Neurodegenerative illnesses are notorious for paucity of treatments and relentless clinical progression. Illness may follow a relatively acute presentation, as is seen with primary brain tumors such as glioblastoma or have a more insidious onset with a slower yet unyielding course, such as that seen in Parkinson's disease. Though disparate in presentation, these neurodegenerative illnesses are universally terminal, and both the patients and their families benefit from the intervention of supportive care in conjunction with primary disease management. Supportive palliative care has been shown to improve quality of life, enhance patient outcomes, and often extend patient life-but such care needs to be tailored. This clinical commentary examines the role of supportive palliative care in the management of neurologic patients, comparing and contrasting glioblastoma patients with idiopathic Parkinson's disease patients. Both patient populations are high utilizers of healthcare resources, require active management of multiple symptoms, and have high caregiver burden which underscores the need for supportive services in conjunction with disease management provided by the primary care team. Review of prognostication, patient and family communication, trust and relationship building, and complementary medicinal approaches are explored for these two diseases which broadly represent two differing poles of incurable neurological illness. Copyright © 2023 Armitage and Fonkem.

2. Deep brain stimulation and dopamine medication enhance free choice preference in Parkinson's disease.

Authors: Bendetowicz, D.;Temiz, G.;Hainque, E.;Czernecki, V.;Lau, B.;Karachi, C. and Munuera, J.

Publication Date: 2023

Journal: bioRxiv (pagination), pp. no pagination

Abstract: Human decisions are frequently explained as the balancing of potential rewards and punishments, such as food, money, or lost time. However, rational models of decision making based on this idea often fail to accurately predict human behavior. Humans and other animals appear to base decisions on value estimation that is often not clearly linked to extrinsic outcomes. For example, humans prefer to choose, even when doing so has no clear impact on impending rewards or punishments. Thus, choice opportunities may be intrinsically rewarding. There is limited evidence about the mechanisms underlying intrinsic rewards, and it is unclear how deficits in motivation for intrinsic rewards manifest themselves following impairment of brain networks involved in reward processing such as the dopaminergic and cortico-basal ganglia systems. Here we seek to understand how extrinsic and intrinsic rewards act together to guide decisions. We designed a decision-making task that separates the intrinsic value of free choice from the value of extrinsic rewards received for correct performance. We investigated the neural mechanisms underlying choice preference by asking Parkinson's disease patients to perform the task ON and OFF treatment. We tested two groups of patients to explore the effects of dopamine medication and potential modulation of wider cortical areas by deep brain stimulation. One group was treated with acute dopamine replacement therapy, and another group was treated with subthalamic nucleus deep brain stimulation. On average, patients ON dopaminergic

treatment preferred to choose even when they risked losing extrinsic rewards ($z=3.736$, $P=0.004$). However, we found a significant interaction with the level of chronic levodopa therapy ($z=2.643$, $P=0.008$); patients with low doses of levodopa treatment in their daily lives did not prefer to choose ($z=0.901$, $P=0.60$), nor was this indifference modulated by acute levodopa administration ($z=0.227$, $P=0.996$). Deep brain stimulation patients were similarly indifferent to choice opportunities when OFF stimulation ($z=-0.95$, $P=0.339$). Like patients with low chronic levodopa treatment in the first group, all deep brain stimulation patients received low-dosage chronic levodopa treatment, which is one of the principal effects of this surgical intervention. Interestingly, in deep brain stimulation patients, choice preference could be re-established by subthalamic nucleus stimulation ($z=3.07$, $P=0.011$). This was associated with increased structural connectivity between subthalamic nucleus stimulation sites and the medial frontal cortex (including Brodmann areas 8, 9, and 32; P Copyright The copyright holder for this preprint is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. All rights reserved. No reuse allowed without permission.

3. Parkinson disease following COVID-19: Report of six cases.

Authors: Calulli, A.; Bocci, T.; Porcino, M.; Avenali, M.; Casellato, C.; Arceri, S.; Regalbuto, S.; Priori, A. and Pisani, A.

Publication Date: 2023

Journal: European Journal of Neurology (pagination), pp. no pagination

Abstract: Background and purpose: Core clinical manifestations of COVID-19 include influenza-like and respiratory symptoms. However, it is now evident that neurological involvement may occur during SARS-CoV-2 infection, covering an extensive spectrum of phenotypical manifestations. A major challenge arising from this pandemic is represented by detecting emerging neurological complications following recovery from SARS-CoV-2 infection. To date, a few post-COVID-19-infected subjects diagnosed with Parkinson disease (PD) have been described, raising the possibility of a connection between the infection and neurodegenerative processes. Here, we describe a case series of six subjects who developed PD after COVID-19. Method(s): Patients were observed at Scientific Institute for Research and Health Care Mondino Foundation Hospital, Pavia (Italy), and San Paolo University Hospital of Milan (Italy) between March 2021 and June 2022. In all subjects, SARS-CoV-2 infection was confirmed by means of reverse transcriptase polymerase chain reaction from a nasopharyngeal swab. Subjects underwent an accurate neurological evaluation, and neuroimaging studies were performed. Result(s): We describe six subjects who developed PD with an average time window after SARS-CoV-2 infection of 4-7 weeks. Apparently, no relationship with COVID-19 severity emerged, and no overt structural brain abnormalities were found. All subjects experienced unilateral resting tremor at onset and showed a satisfactory response to dopaminergic treatment. Conclusion(s): Immune responses to SARS-CoV-2 infection have been shown to shape the individual susceptibility to develop long-term consequences. We hypothesize that, in these subjects, COVID-19 has unmasked a latent neurodegenerative process. Characterization of the neuroinflammatory signatures in larger cohorts is warranted, which might provide novel insights into the pathogenesis of PD. Copyright © 2023 The Authors. European Journal of Neurology published by John Wiley & Sons Ltd on behalf of European Academy of Neurology.

4. Facilitators and barriers to the delivery of palliative care to patients with Parkinson's disease: a qualitative study of the perceptions and experiences of stakeholders using the socio-ecological model.

Authors: Chen, Yiping;Zhang, Ru;Lou, Yan;Li, Wei and Yang, Hui

Publication Date: Mar 06 ,2023

Journal: BMC Health Services Research 23(1), pp. 215

Abstract: OBJECTIVE: Palliative care (PC) can improve the quality of life of Parkinson's disease (PD) patients and their carers. However, the impact of PC services on patients with PD remains unclear. This research was conducted to identify the barriers and facilitators influencing PC services for patients with PD based on the Social Ecological Model (SEM) framework. METHODS: This research was conducted through semi-structured interviews, employing SEM to organize themes and identify potential solutions across multiple levels. RESULTS: A total of 29 interviewees (5 PD clinicians, 7 PD registered nurses, 8 patients, 5 caregivers, and 4 policy makers) completed the interviews. Facilitators and barriers were identified according to the levels of the SEM. Several facilitators were identified, i.e., (1) individual level: the critical needs among PD patients and their relatives and the desire for PC knowledge among health professionals; (2) interpersonal level: social support; (3) organizational level: the investments towards systematization of PC; and nurses are the bridge between patients and doctors; (4) community level: the convenience of community services; and hospital-community-family-based services; (5) culture and policy level: existing policy. CONCLUSION: The social-ecological model proposed in this study helps illuminate the complex and multilevel factors that may influence PC delivery to PD patients. Copyright © 2023. The Author(s).

5. Palliative Care Movement Disorders Multidisciplinary Meeting

Item Type: Conference Proceeding

Authors: Davies, R., Wilson, E., Richfield, E., Mundy, C., Wright, B. and Stratton, E.

Publication Date: 2023

Publication Details: Age and Ageing. Conference: British Geriatrics Society Autumn Meeting. London United Kingdom. 52(Supplement 1) (pp i24); Oxford University Press,

Abstract: Introduction It is well recognised that patients with Parkinson's disease (PD) have significant symptom burden in advanced stages of their disease. Integration of movement disorder and palliative care services has been limited by concerns about resource and sustainability. We present our experience of establishing a movement disorders palliative care multidisciplinary meeting. Method In 2019 we established a multidisciplinary virtual bimonthly meeting between movement disorders and palliative care specialists. Referrals were accepted from movement disorder specialists, community Parkinson's practitioners and palliative care specialists. Referring clinicians all actively applied primary palliative care approaches within their existing services. Aims of the meeting were to facilitate holistic management of complex needs, support advance care planning (ACP) and consider referral to specialist palliative care services. Result 37 patients in total were discussed over a 2-year period (although the service was limited for a time due to COVID pressures). On average 3 new patients were discussed per meeting. Reasons for referral included motor and non-motor symptoms, support with ACP, medication advice, caregiver concerns and emotional distress. Meeting outcomes included medication adjustments, expediting reviews, hospice

support, carer support, and referral to other services. Since the meetings started 23 (62%) patients have died. Of these, 30% died in hospital compared with the national average of 43.4%. The average between discussion at the meeting and death was 139 days. The meeting has generated education opportunities, triggered joint assessments and a professionals' framework for the palliative management of patients with a movement disorder. Conclusions We present the experience of an MDT embedded within an early integrated palliative care service for movement disorders. The MDT has strengthened partnership working and findings suggest that alongside active primary palliative care, specialist palliative care for PD can be sustainable and resource efficient in a UK setting.

6. Hard to Swallow? A Review of the Quality of Dysphagia Care Provided to Patients with Parkinson's Disease Admitted to Hospital When Acutely Unwell

Item Type: Conference Proceeding

Authors: Freeth, H., Koomson, D., Goodwin, A. and Srivastava, V.

Publication Date: 2023

Publication Details: Dysphagia. Conference: 11th European Society for Swallowing Disorders Annual Congress, ESSD 2021. Online. 38(Supplement 1) (pp S80-S81); Springer Science and Business Media B.V., pp. S80

Abstract: Estimates of the prevalence of dysphagia in Parkinson's Disease (PD) vary¹. Reasons for this include a lack of awareness, recognition, and documentation of the condition. The assessment of indicators of dysphagia is important, as the inability to swallow can lead to dehydration, malnutrition, and weight loss². Patients with PD have a high rate of admission to hospital³, and screening for dysphagia at the point of admission would provide an opportunity for earlier intervention. The aim of the study was to explore multidisciplinary care and organizational factors in the process of identifying, screening, assessing, treating and monitoring the ability to swallow in patients with PD admitted to hospital. All UK hospitals were asked to report the details of patients with PD admitted to hospital over eight weeks. From this up to four patients per hospital were sampled for detailed review. The clinician caring for the patient at admission completed a questionnaire and returned this alongside copied extracts of the case notes. These data were peer reviewed by a multidisciplinary group of clinicians to assess the quality of dysphagia care patients had received. In addition, organizational data and the views of service users were collected. Five hundred five (505) clinician questionnaires were analyzed, and 344 sets of anonymized case notes were peer reviewed; this included 126 patients with dysphagia. Organizational questionnaires were returned from 177 hospitals. Several areas of concern were highlighted in line with expectations for this group of patients, broadly relating to issues with the documentation of swallowing status; the screening of patients for dysphagia at admission; the referral of patients with swallowing difficulties to speech and language therapy; and the provision of information at discharge. The report, which makes 11 recommendations for clinicians and management to implement in practice, highlights there is room for improvement in the quality of dysphagia care.

7. P-96 Accelerometer-data-driven assessment of UPDRS finger tapping for Parkinson disease monitoring

Item Type: Conference Proceeding

Authors: Habets, J., Spooner, R., Mathiopoulou, V., Lofredi, R., Feldmann, L., Busch, J.,

Florin, E. and Kuhn, A.

Publication Date: 2023

Publication Details: Clinical Neurophysiology. Conference: Congress for Clinical Neuroscience with Advanced Training Academy (DGKN23) of the German Society for Clinical Neurophysiology and Functional Neuroimaging (DGKN) e.V.. Hamburg Germany. 148 (pp e51-e52); Elsevier Ireland Ltd, pp. e51

Abstract: Introduction: Parkinson disease (PD) is a neurodegenerative disease characterized by bradykinesia. With disease duration and progression, the effect of dopamine-replacement therapy on bradykinesia decreases and increased dopamine-dosages lead to motor fluctuations in the majority of PD patients. These motor fluctuations often require pharmacological adjustments, or device-assisted therapy such as intestinal levodopa infusion or deep brain stimulation. The Unified Parkinson's Disease Rating Scale (UPDRS) is the most common assessment for motor fluctuations monitoring but is labor-intensive and depends on anamnestic patient reports subject to recall-bias. The finger tapping UPDRS-subtask is an important part of bradykinesia assessment. Wearable- and video-technologies to automate motor fluctuation assessment often rely on proprietary software. Despite the current availability of wearable-technology in daily-life, an accessible assessment of bradykinesia during finger tapping is lacking. Aim(s): To establish and validate an automated, open-source assessment of bradykinesia during finger tapping based on accelerometer-data. Method(s): To establish a tool that does not require signal processing by the clinician or researcher, the first part of the algorithm detects finger tapping-activity. The second part of the algorithm extracts relevant kinematic features from the accelerometer-data. These kinematic features describe bradykinetic movement based on literature and clinical observations. The last part of the algorithm uses the extracted features to predict the severity of bradykinesia during finger tapping based on a supervised machine-learning model. Result(s): Tri-axial accelerometer-data and video-recordings of 10-second finger tapping tasks were collected in both medication- and stimulation- on and off conditions in two centers. One center performed three consecutive tapping-blocks per condition. The algorithm correctly detected 376 out of 377 tapping-blocks from 37 PD patients (mean duration 11.8 seconds \pm 2.5). Twenty-one blocks were false positively detected leading to an accuracy of 94%. The average tap per block number was 29.5 (\pm 13) taps. The 376 detected taps had following UPDRS-tapping sub scores, resp. from zero to four: 41, 151, 120, 59, and 5. 4 out of 6 a-priori chosen kinematic features (tapping-frequency, intra-tap-intervals coefficient of variation, mean, coefficient of variation, and decrement of Root Mean Squares per tap, and the mean and coefficient of variation of tap-jerkiness) showed significant differences between tapping blocks of different UPDRS sub scores (Kruskal-Wallis tests, corrected alpha for multi-comparisons-testing =.007). Conclusion(s): The successful detection of tapping-blocks and tapping-moments paves the way for further predictive modeling of bradykinesia severity based on both clustering and supervised classification models. The significant differences between kinematic features belonging to different UPDRS finger tapping sub scores demonstrates the pathological relevance of these features for characterizing bradykinesia in PD. An accessible, cheap, open-source bradykinesia assessment could collect repetitive measures in real-life Parkinson monitoring, collect ground-truth labels next to continuous neurophysiological sensing-devices, and increase the availability of PD care remotely from the hospital. Copyright © 2023

8. Home calligraphic exercises as manual dexterity training in patients with Parkinson's disease: a pilot feasibility study.

Authors: LlamasVelasco, S.;Romero Ferreiro, C.;Gonzalez Fuertes, A.;Garcia Tell, P.;BlancoPalmero, V. A.;MartinJimenez, P.;Perez Martinez, D. A. and MendezGuerrero, A.

Publication Date: 2023

Journal: Disability and Rehabilitation , pp. 1-5

Abstract: PURPOSE: To assess the feasibility and effects on manual dexterity and the quality of life (QoL) of a 12-week home calligraphic training program in patients with Parkinson's disease (PD). METHOD(S): A pilot study with participants recruited from the Movement Disorders consultation at the Hospital 12 de Octubre (Madrid). The main outcome, manual dexterity, was assessed using the Purdue Pegboard Test (PPT). Secondary outcomes included clinical rating scales that contemplate aspects related to manual dexterity (DextQ-24, UPDRSII, UPDRSIII), and QoL (PDQ-39 and EuroQoL-5D). RESULT(S): Thirty PD patients (57% males) with a mean age of 66.11 (9.76) years and 93% adherence rate. The PPT scores improved significantly (pRESULT(S): Thirty PD patients (57% males) with a mean age of 66.11 (9.76) years and 93% adherence rate. The PPT scores improved significantly (pRESULT(S): Thirty PD patients (57% males) with a mean age of 66.11 (9.76) years and 93% adherence rate. The PPT scores improved significantly (pCONCLUSION(S): This is the first study to demonstrate the feasibility and improvement in hand dexterity assessed by the PPT for patients diagnosed with PD after a 12-week home calligraphic training program. A significant improvement was noted in the QoL measurements, such as the PDQ-39, modified PDQ-39, and EuroQoL-5D. Implications for Rehabilitation Most patients with Parkinson's disease suffer from impaired manual dexterity, making it difficult to perform activities of daily living such as eating, buttoning, or shaving. A 12-week home calligraphic training program could improve hand dexterity in these patients. The advantage of this home calligraphic training is that it is an easy-to-perform, low-cost and no side effects. This training also improves their quality of life.

9. A systematic review and meta-analysis of respiratory dysfunction in Parkinson's disease.

Authors: McMahon, L.; Blake, C. and Lennon, O.

Publication Date: 2023

Journal: European Journal of Neurology (pagination), pp. no pagination

Abstract: Introduction: Respiratory dysfunction in Parkinson's disease (PD) is common and associated with increased hospital admission and mortality rates. Central and peripheral mechanisms have been proposed in PD. To date no systematic review identifies the extent and type of respiratory impairments in PD compared with healthy controls. Method(s): PubMed, EMBASE, CINAHL, Web of Science, Pedro, MEDLINE, Cochrane Library and OpenGrey were searched from inception to December 2021 to identify case-control studies reporting respiratory measures in PD and matched controls. Result(s): Thirty-nine studies met inclusion criteria, the majority with low risk of bias across Risk of Bias Assessment tool for Non-randomized Studies (RoBANS) domains. Data permitted pooled analysis for 26 distinct respiratory measures. High-to-moderate certainty evidence of impairment in PD was identified for vital capacity (standardised mean difference [SMD] 0.75; 95% CI 0.45-1.05; p Result(s): Thirty-nine studies met inclusion criteria, the majority with low risk of bias across Risk of Bias Assessment tool for Non-randomized Studies (RoBANS) domains. Data permitted pooled analysis for 26 distinct respiratory measures. High-to-moderate certainty evidence of impairment in PD was identified for vital capacity (standardised mean difference [SMD] 0.75; 95% CI 0.45-1.05; p 2 = 10%), total chest wall volume (SMD 0.38; 95% CI 0.09-0.68; p = 0.01; I2 = 0%), maximum inspiratory pressure (SMD 0.91; 95% CI 0.64-1.19; p =

0%), maximum inspiratory pressure (SMD 0.91; 95% CI 0.64-1.19; p = 43%) and sniff nasal inspiratory pressure (SMD 0.58; 95% CI 0.30-0.87; p = 43%) and sniff nasal inspiratory pressure (SMD 0.58; 95% CI 0.30-0.87; p = 0%). Sensitivity analysis provided high-moderate certainty evidence of impairment for forced vital capacity and forced expiratory volume in 1 s during medication ON phases and increased respiratory rate during OFF phases. Lower certainty evidence identified impairments in PD for maximum expiratory pressure, tidal volume, maximum voluntary ventilation and peak cough flow. Conclusion(s): Strong evidence supports a restrictive pattern with inspiratory muscle weakness in PD compared with healthy controls. Limited data for central impairment were identified with inconclusive findings. Copyright © 2023 The Authors. European Journal of Neurology published by John Wiley & Sons Ltd on behalf of European Academy of Neurology.

10. Timely referral for device-aided therapy in Parkinson's disease. Development of a screening tool.

Authors: Moes, Harmen R.; Ten Kate, Jolien M.; Portman, Axel T.; van Harten, Barbara; van Kesteren, Mirjam E.; Mondria, Tjeerd; Lunter, Gerton; Buskens, Erik and van Laar, Teus

Publication Date: Apr, 2023

Journal: Parkinsonism & Related Disorders 109, pp. 105359

Abstract: BACKGROUND: Timely referral of Parkinson's disease (PD) patients to specialized centers for treatment with device-aided therapies (DAT) is suboptimal. OBJECTIVE: To develop a screening tool for timely referral for DAT in PD and to compare the tool with the published 5-2-1 criteria. METHODS: A cross-sectional, observational study was performed in 8 hospitals in the catchment area of a specialized movement disorder center in the Northern part of the Netherlands. The target population comprised PD patients not yet on DAT visiting the outpatient clinic of participating hospitals. The primary outcome was apparent eligibility for referral for DAT based on consensus by a panel of 5 experts in the field of DAT. Multivariable logistic regression modelling was used to develop a screening tool for eligibility for referral for DAT. Potential predictors were patient and disease characteristics as observed by attending neurologists. RESULTS: In total, 259 consecutive PD patients were included, of whom 17 were deemed eligible for referral for DAT (point prevalence: 6.6%). Presence of response fluctuations and troublesome dyskinesias were the strongest independent predictors of being considered eligible. Both variables were included in the final model, as well as levodopa equivalent daily dose. Decision curve analysis revealed the new model outperforms the 5-2-1 criteria. A simple chart was constructed to provide guidance for referral. Discrimination of this simplified scoring system proved excellent (AUC after bootstrapping: 0.97). CONCLUSIONS: Awaiting external validation, the developed screening tool already appears promising for timely referral and subsequent treatment with DAT in patients with PD. Copyright © 2023 The Authors. Published by Elsevier Ltd.. All rights reserved.

11. Long-term levodopa ameliorates sequence effect in simple, but not complex walking in early Parkinson's disease patients.

Authors: Ohara, M.; Hirata, K.; Hallett, M.; Matsubayashi, T.; Chen, Q.; Kina, S.; Shimano, K.; Hirakawa, A.; Yokota, T. and Hattori, T.

Publication Date: 2023

Journal: Parkinsonism and Related Disorders 108(pagination), pp. no pagination

Abstract: Background: The sequence effect (SE) is characterized by the progressive decrement of movements and is often observed in Parkinson's disease (PD) patients. While acute effect of levodopa does not ameliorate the SE, the effect of long-term levodopa treatment for the SE remains unknown. Objective(s): We aimed to elucidate the SEs during various gait conditions and their response to long-term levodopa treatment in drug-naïve PD patients. Method(s): Nineteen drug-naïve PD patients and 21 healthy controls were enrolled. Gait parameters were measured via wearable inertial sensors in the following conditions: 1) straight walking, 2) circular walking: walking a circle of 1 m diameter in a clock-wise direction for 3 laps, 3) straight or circular walking under cognitive-motor dual-task (serial 7s subtractions). PD patients were evaluated at baseline, within 1 h after intravenous administration of levodopa, and after one, three, and six months treatment with levodopa. The SE was measured by a linear regression slope by plotting consecutive stride lengths over steps. Patients were also separately analyzed depending on laterality of symptoms. Result(s): Long-term levodopa treatment ameliorated the SE only during single-task straight walking. The SE during circular walking was exacerbated after long-term levodopa treatment for right-side dominant patients. During dual-task straight walking, the SE at baseline was greater in right-side dominant PD patients. Conclusion(s): The SE only during single-task straight walking can be ameliorated by long-term levodopa treatment. However, the SE may be exaggerated by cognitive motor interference or by asymmetrical stride length with/without long-term levodopa treatment, depending on the laterality of symptoms. Copyright © 2023 Elsevier Ltd

12. Analytical and clinical validity of wearable, multi-sensor technology for assessment of motor function in patients with Parkinson's disease in Japan.

Authors: Oyama, Genko;Burq, Maximilien;Hatano, Taku;Marks, William J. Jr;Kapur, Ritu;Fernandez, Jovelle;Fujikawa, Keita;Furusawa, Yoshihiko;Nakatome, Keisuke;Rainaldi, Erin;Chen, Chen;Ho, King Chung;Ogawa, Takashi;Kamo, Hikaru;Oji, Yutaka;Takeshige-Amano, Haruka;Taniguchi, Daisuke;Nakamura, Ryota;Sasaki, Fuyuko;Ueno, Shinichi, et al

Publication Date: 03 14 ,2023

Journal: Scientific Reports 13(1), pp. 3600

Abstract: Continuous, objective monitoring of motor signs and symptoms may help improve tracking of disease progression and treatment response in Parkinson's disease (PD). This study assessed the analytical and clinical validity of multi-sensor smartwatch measurements in hospitalized and home-based settings (96 patients with PD; mean wear time 19 h/day) using a twice-daily virtual motor examination (VME) at times representing medication OFF/ON states. Digital measurement performance was better during inpatient clinical assessments for composite V-scores than single-sensor-derived features for bradykinesia (Spearman $r = 0.63$, reliability = 0.72), tremor ($r = 0.41$, reliability = 0.65), and overall motor features ($r = 0.70$, reliability = 0.67). Composite levodopa effect sizes during hospitalization were 0.51-1.44 for clinical assessments and 0.56-1.37 for VMEs. Reliability of digital measurements during home-based VMEs was 0.62-0.80 for scores derived from weekly averages and 0.24-0.66 for daily measurements. These results show that unsupervised digital measurements of motor features with wrist-worn sensors are sensitive to medication state and are reliable in naturalistic settings. Trial Registration: Japan Pharmaceutical Information Center Clinical Trials Information (JAPIC-CTI): JapicCTI-194825; Registered June 25, 2019. Copyright © 2023. The Author(s).

13. Intraoperative microelectrode recording under general anesthesia guided subthalamic nucleus deep brain stimulation for Parkinson's disease: One institution's experience.

Authors: Qian, Kang;Wang, Jiajing;Rao, Jing;Zhang, Peng;Sun, Yaqiang;Hu, Wenqing;Hao, Jie;Jiang, Xiaobing and Fu, Peng

Publication Date: 2023

Journal: Frontiers in Neurology [Electronic Resource] 14, pp. 1117681

Abstract: Objective: Microelectrode recording (MER) guided subthalamic nucleus deep brain stimulation (STN-DBS) under local anesthesia (LA) is widely applied in the management of advanced Parkinson's disease (PD). Whereas, awake DBS under LA is painful and burdensome for PD patients. We analyzed the influence of general anesthesia (GA) on intraoperative MER, to assess the feasibility and effectiveness of GA in MER guided STN-DBS. Methods: Retrospective analysis was performed on the PD patients, who underwent bilateral MER guided STN-DBS in Wuhan Union Hospital from July 2019 to December 2021. The patients were assigned to LA or GA group according to the anesthetic methods implemented. Multidimensional parameters, including MER signals, electrode implantation accuracy, clinical outcome and adverse events, were analyzed. Results: A total of 40 PD patients were enrolled in this study, including 18 in LA group and 22 in GA group. There were no statistically significant differences in patient demographics and baseline characteristics between two groups. Although, the parameters of MER signal, including frequency, inter-spike interval (ISI) and amplitude, were obviously interfered under GA, the waveforms of MER signals were recognizable and shared similar characteristics with LA group. Both LA and GA could achieve effective electrode implantation accuracy and clinical outcome. They also shared similar adverse events postoperatively. Conclusion: GA is viable and comparable to LA in MER guided STN-DBS for PD, regarding electrode implantation accuracy, clinical outcome and adverse events. Notably, GA is more friendly and acceptable to the patients who are incapable of enduring intraoperative MER under LA. Copyright © 2023 Qian, Wang, Rao, Zhang, Sun, Hu, Hao, Jiang and Fu.

14. Causes, factors, and complications associated with hospital admissions among patients with Parkinson's disease.

Authors: Shaibdat, N. S.;Ahmad, N.;Azmin, S. and Ibrahim, N. M.

Publication Date: 2023

Journal: Frontiers in Neurology 14(pagination), pp. no pagination

Abstract: Introduction: Patients with Parkinson's disease (PD) are at a higher risk of hospital admissions compared to the general population. We studied the causes and factors associated with admissions among patients with PD over 6 years. Method(s): We included all PD admissions between 1 January 2016 and 31 December 2021. Other causes of parkinsonism were excluded. Causes of admissions were divided into PD-related (direct or indirect) or non-PD-related. The type of admission was categorized into emergency or elective. Result(s): We identified 605 hospital admissions (259 patients with PD); 345 (57.0%) were PD-related and 260 (43%) were non-PD-related. Emergency PD admissions contributed to 50.4% of all admissions, most commonly from respiratory infection (23%). PD admissions in comparison to non-PD admissions were associated with worse disease severity (HY \geq 3; p Result(s): We identified 605 hospital admissions (259 patients with PD); 345 (57.0%) were PD-related and 260 (43%) were non-PD-related. Emergency PD

admissions contributed to 50.4% of all admissions, most commonly from respiratory infection (23%). PD admissions in comparison to non-PD admissions were associated with worse disease severity (HY ≥ 3 ; p Result(s): We identified 605 hospital admissions (259 patients with PD); 345 (57.0%) were PD-related and 260 (43%) were non-PD-related. Emergency PD admissions contributed to 50.4% of all admissions, most commonly from respiratory infection (23%). PD admissions in comparison to non-PD admissions were associated with worse disease severity (HY ≥ 3 ; p Conclusion(s): Respiratory infection was the leading cause of hospital admission and a significant independent predictor of unfavorable hospital admission outcomes (death and complications). PD-related admissions were associated with disease severity and led to more complications and longer hospital stays. Non-PD-related admissions were associated with comorbidities. Copyright © 2023 Shaibdat, Ahmad, Azmin and Ibrahim.

15. Causes, factors, and complications associated with hospital admissions among patients with Parkinson's disease.

Authors: Shaibdat, Navena Sharma; Ahmad, Norfazilah; Azmin, Shahrul and Ibrahim, Norlinah Mohamed

Publication Date: 2023

Journal: Frontiers in Neurology [Electronic Resource] 14, pp. 1136858

Abstract: Introduction: Patients with Parkinson's disease (PD) are at a higher risk of hospital admissions compared to the general population. We studied the causes and factors associated with admissions among patients with PD over 6 years. Methods: We included all PD admissions between 1 January 2016 and 31 December 2021. Other causes of parkinsonism were excluded. Causes of admissions were divided into PD-related (direct or indirect) or non-PD-related. The type of admission was categorized into emergency or elective. Results: We identified 605 hospital admissions (259 patients with PD); 345 (57.0%) were PD-related and 260 (43%) were non-PD-related. Emergency PD admissions contributed to 50.4% of all admissions, most commonly from respiratory infection (23%). PD admissions in comparison to non-PD admissions were associated with worse disease severity (HY ≥ 3 ; p p p = 0.020]. Non-PD admissions were associated with more comorbidities (97.3%; p = 0.013). There were 124 (20.5%) complications and 31 deaths (5.1%). A total of 29 deaths were due to respiratory infection and 3 deaths were due to COVID-19 pneumonia. Emergency admission (PD- and non-PD-related; p = 0.001) and respiratory-related causes (p Copyright © 2023 Shaibdat, Ahmad, Azmin and Ibrahim.

16. Awareness of Dysphagia-Related Complications and Risks and the Importance of Early Intervention in Patients with Parkinson's Disease: A Qualitative Study.

Authors: Yao, Kaifeng; Wang, Lihua and Zhang, Lihua

Publication Date: 2023

Journal: International Journal of Clinical Practice 2023, pp. 9514851

Abstract: Objective: To investigate the awareness of dysphagia-related complications and

risks and the importance of early intervention in patients with Parkinson's disease (PD). Methods: Using the phenomenological approach of the qualitative study, 18 patients with PD in a Grade A tertiary hospital in Nantong were selected, and semistructured personal in-depth interviews were conducted. The interview content was analyzed using Colaizzi's seven-step method, and the topics and subtopics were further refined. Results: Awareness of dysphagia-related complications and risks and the importance of early intervention in patients with PD can be summarized into three topics: lack of knowledge about PD and dysphagia, changes in emotional cognition, and low need for early intervention for dysphagia. Conclusions: Patients with PD have a low awareness of dysphagia, do not follow any preventative measures, and have difficulty in recognizing the disease symptoms; hence, there is a vital need for early intervention. Medical staff need to create awareness among patients and their families, provide health education through multiple channels, popularize the knowledge of PD complications such as dysphagia, improve patient compliance with respect to medication, regular consultation, and medical treatment, guide the transformation of negative emotions in patients to positive emotions, and help patients with PD to actively prevent dysphagia and other complications and improve their quality of life. Copyright © 2023 Kaifeng Yao et al.

17. Physical Frailty, Genetic Predisposition, and Incident Parkinson Disease.

Authors: Zheng, Z.;Lv, Y.;Rong, S.;Sun, T. and Chen, L.

Publication Date: 2023

Journal: JAMA Neurology (pagination), pp. no pagination

Abstract: Importance: Cross-sectional evidence implicates high prevalent frailty in patients with Parkinson disease (PD), whereas the longitudinal association remains unknown. Objective(s): To examine the longitudinal association of the frailty phenotype with the development of PD and to explore the modification role of genetic risk of PD in such an association. Design, Setting, and Participant(s): This prospective cohort study launched in 2006 to 2010 with a follow-up of 12 years. Data were analyzed from March 2022 to December 2022. The UK Biobank recruited over 500000 middle-aged and older adults from 22 assessment centers across the United Kingdom. Participants who were younger than 40 years (n=101), diagnosed with dementia or PD at baseline, and developed dementia, PD, or died within 2 years from baseline were excluded (n=4050). Participants who had no genetic data or mismatch between genetic sex and reported gender (n=15350), were not of self-reported British White descent (n=27850), and had no data for frailty assessment (n=100450) or any covariates were also excluded (n=39706). The final analysis included 314998 participants. Exposures: The physical frailty was assessed by the Fried criteria's frailty phenotype through 5 domains, ie, weight loss, exhaustion, low physical activity, slow walking speed, and low grip strength. The polygenic risk score (PRS) for PD comprised 44 single-nucleotide variants. Main Outcomes and Measures: New-onset PD was identified through the hospital admission electronic health records and death register. Result(s): Among 314998 participants (mean age, 56.1 years; 49.1% male), 1916 new-onset PD cases were documented. Compared with nonfrailty, the hazard ratio (HR) of incident PD in prefrailty and frailty was 1.26 (95% CI, 1.15-1.39) and 1.87 (95% CI, 1.53-2.28), respectively, and the absolute rate difference per 100000 person-years was 1.6 (95% CI, 1.0-2.3) for prefrailty and 5.1 (95% CI, 2.9-7.3) for frailty. Exhaustion (HR, 1.41; 95% CI, 1.22-1.62), slow gait speed (HR, 1.32; 95% CI, 1.13-1.54), low grip strength (HR, 1.27; 95% CI, 1.13-1.43), and low physical activity (HR, 1.12; 95% CI, 1.00-1.25) were associated with incident PD. A significant interaction between frailty and PRS on PD was found and the highest hazard was observed in participants with frailty and high genetic risk. Conclusions and Relevance: Physical prefrailty and frailty were associated with incident PD independent of

sociodemographic factors, lifestyles, multiple morbidities, and genetic background. These findings may have implications for the assessment and management of frailty for PD prevention.

18. The clinical utility of plantar pressure measurements as screening in patients with Parkinson's disease with and without freezing of gait history.

Authors: Zou, Y. F.;Lai, Y. R.;Chiu, W. C.;Lien, C. Y.;Huang, C. C.;Cheng, B. C.;Lin, W. C.;Chen, Y. S.;Yu, C. C.;Chiang, Y. F.;Kung, C. T.;Kung, C. F. and Lu, C. H.

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Abstract: OBJECTIVE: To test the feasibility of objective assessments using the TekScan MatScan pressure mat plantar pressure measurement as a time-effective screening service for Parkinson's disease (PD) with and without freezing of gait (FOG) history. DESIGN: A prospective cross-sectional study. SETTING: The largest medical center in southern Taiwan. INTERVENTIONS: Not applicable. MAIN OUTCOME MEASURE(S): Plantar pressure measurements including average peak pressure (PP), contact distribution (CA), and pressure time integral (PTI) in static and dynamic conditions as well as clinical scores during off-medication states. PARTICIPANTS: One hundred and three patients with PD and the other 22 age-sex-match healthy volunteers. RESULT(S): Plantar pressure assessment including PP, CA, and PTI on the total foot (TF) areas between PD and healthy control in the static conditions are similar. Patients with PD represented higher PTI on TF areas as well as hallux, midfoot area, and medial and lateral heels during dynamic conditions as compared with healthy control. The PP, CA, and PTI during the static condition and CA during the dynamic condition on the hallux showed statistical significance between PD with and without FOG history. Stepwise logistic regression after controlling with age and BMI showed only PTI on hallux (static conditions) was significantly associated with the presence of FOG. The receiver operating characteristic curve analysis in diagnostic accuracy for FOG in PTI were statistically significant ($p=0.002$, Area under the curve: 0.71). CONCLUSION(S): FOG screening using the TekScan MatScan pressure mat plantar pressure measurement could serve as a time-effective screening service at the outpatient clinic. Based on our study, PTI may be valuable in auxiliary diagnosis. Copyright © 2023. Published by Elsevier Inc.

19. Prevalence and Risk Factors of Peripheral Neuropathy in Parkinson's Disease.

Authors: Ramachandran, Aparna;Jose, James;Gafoor, V. Abdul;Das, Smita and Balaram, Neetha

Publication Date: 2022

Journal: Annals of Indian Academy of Neurology 25(6), pp. 1109-1115

Abstract: Introduction: A lesser studied aspect of Parkinson's disease (PD) is its associated peripheral sensory-motor neuropathy. Peripheral neuropathy is an intriguing aspect of PD, a problem not given sufficient attention and which if tackled properly could make a difference to the multifaceted sufferings of the PD patient. Studies regarding the prevalence of peripheral neuropathy and its risk factors in patients with PD are scarce from the Indian subcontinent. Methods: This prospective observational study was conducted in a tertiary care teaching hospital in South India. Patients diagnosed with idiopathic Parkinson's disease (IPD) were screened and enrolled. All the patients underwent detailed evaluation of

symptoms, signs, and electrophysiology (Nerve conduction study, Sympathetic skin response), stimulated skin wrinkling with Eutectic Mixture of Local Anesthetics. Patients found to have large/small fiber neuropathy underwent additional tests to exclude other causes of neuropathy. Results: A total of 154 patients with IPD were enrolled in the study (mean age: 61.96 +/- 9.15 years, mean duration of disease was 4.08 +/- 3.16 years). The mean Hoehn and Yahr (H and Y) score was 2.3 +/- 0.825 and the mean Unified Parkinsons Disease Rating Scale (UPDRS)-3 score in the ON state was 23.07 +/- 11.14. The mean cumulative levodopa dose was 482.68 +/- 651.76 (median: 292; range: 4728.57) grams. Peripheral neuropathy was found in 49 patients (31.8%), large fiber in 28 (18.2%) and small fiber in 47 (30.5%); an overlap of large and small fiber neuropathy was seen in 26 patients (16.9%). Around 34% of patients had serum homocysteine levels >20 mg/dl. In univariate analysis, duration of disease, levodopa cumulative dose, serum homocysteine level, H and Y score, UPDRS-3 ON score, Toronto Clinical Neuropathy Score (P = 0.02 for both) were associated with large fiber neuropathy. All of these variables were also associated with the presence of small fiber neuropathy (P = 0.004 for age at presentation and P = 0.004 for duration of disease). Copyright: © 2022 Annals of Indian Academy of Neurology.

20. Screening of Idiopathic Parkinson Disease in First Degree Relatives in A sample of Egyptian Patients.

Authors: Ali, F.; Eldeen, E. S. and Elattar, R.

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Abstract: Aim of the study: Screening of idiopathic Parkinson's disease in first degree relatives in a sample of Egyptian patients by smell test and hyperechogenicity of substantia nigra and hypotrophy of vagus nerve. Method(s): This is a cross-sectional observational study was done on forty-one Egyptian patients of idiopathic Parkinson disease and sixty of their first degree relatives collected from outpatient movement disorder clinic in Al Zahraa University Hospital and Kasr ELainy hospital from period February 2020 to November 2020. Demographic, clinical data, smell test, and transcranial sonography, and vagus nerve ultrasound of patients and their relatives were correlated to each other. Result(s): As regards 41 Parkinson patients: 25 (61.0%) have vagus nerve hypotrophy, 27 (65.9%) have substantia nigra hyperechogenicity, and 24 (58.5%) have hyposmia. As regard 60 relatives: 36 (60.0%) have vagus nerve hypotrophy, 26 (43.3%) have substantia nigra hyperechogenicity, and 24 (40.0%) have hyposmia. There was no statistically significant difference ($P > 0.05$) found between patients and their relatives regarding vagus nerve caliber, and smell test while there was a statistically significant ($P < 0.05$) difference found between patients and their relatives regarding substantia nigra hyperechogenicity. Conclusion(s): We found substantia nigra hyperechogenicity, vagus nerve hypotrophy, and hyposmia in first-degree relatives as well as that is seen in Parkinson patients. Copyright © 2020 Ubiquity Press. All rights reserved.

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