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Parkinson's Disease

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1. **Comparative safety of antimuscarinics versus mirabegron for overactive bladder in Parkinson disease.**

Authors: Abraham, Danielle S.;Pham Nguyen, Thanh Phuong;Newcomb, Craig W.;Gray, Shelly L.;Hennessy, Sean;Leonard, Charles E.;Liu, Qing;Weintraub, Daniel and Willis, Allison W.

Publication Date: 2023

Journal: Parkinsonism & Related Disorders 115, pp. 105822

Abstract: BACKGROUND: Overactive bladder (OAB) is a common non-motor symptom of Parkinson disease (PD), often treated with antimuscarinics or beta-3 agonists. There is lack of evidence to guide OAB management in PD. OBJECTIVES: To assess the comparative safety of antimuscarinics versus beta-3 agonists for OAB treatment in PD. METHODS: We employed a new-user, active-comparator cohort study design. We included Medicare beneficiaries age >=65 years with PD who were new users of either antimuscarinic or beta-3 agonist. The primary outcome was any acute care encounter (i.e., non-elective hospitalization or emergency department visit) within 90 days of OAB drug initiation. The main secondary outcome was a composite measure of acute care encounters for anticholinergic related adverse events (AEs). Matching on high-dimensional propensity score (hdPS) was used to address potential confounding. We used Cox proportional hazards models to examine the association between OAB drug category and outcomes. We repeated analyses for 30- and 180-day follow-up periods. RESULTS: We identified 27,091 individuals meeting inclusion criteria (mean age: 77.8 years). After hdPS matching, antimuscarinic users had increased risks for any acute care encounter (hazard ratio [HR] 1.23, 95% confidence interval [CI] 1.12-1.37) and encounters for anticholinergic related AEs (HR 1.18, 95% CI 1.04-1.34) compared to beta-3 agonist users. Similar associations were observed for sensitivity analyses. CONCLUSIONS: Among persons with PD, anticholinergic initiation was associated with a higher risk of acute care encounters compared with beta-3 agonist initiation. The long-term safety of anticholinergic vs. beta-3 agonist therapy in the PD population should be evaluated in a prospective study.

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2. **Extrapyramidal syndrome in psychotic depression: a case report**

Authors: Alvarez, C. and Gomez Martin, A.M.

Publication Date: 2023

Publication Details: European Psychiatry. Conference: 31st European Congress of Psychiatry, EPA 2023. Paris France. 66(Supplement 1) (pp S1049-S1050); Cambridge University Press,

Abstract: Introduction: Psychotic depression is a subtype of major depression, with worst prognosis but underdiagnosed and undertreated. We introduce the case of a 75-year-old patient who is attended in the hospital presenting sorrow and behavioral disturbances. He also had delusions of ruin and surveillance through his phone, adding amnesia, dizziness, constipation, tremor and bradykinesia. He had suffered a limited depressive episode regarding his wife's death. Objective(s): To highlight the importance of a correct differential diagnosis in psychotic depression to prescribe an adequate treatment that provides a better outcome for the patient. Method(s): A narrative search of the available literature on the subject through the presentation of a case. Result(s): The presumptive diagnosis is Parkinson vs psychotic depression. After some weeks of treatment with venlafaxine and

olanzapine, the absence of improvement and fluctuating symptoms orientates towards Parkinson. This is later excluded due to a normal DATSCAN. Therefore, the diagnosis of psychotic depression is made, explaining parkinsonism as secondary to psychotropics. Olanzapine and venlafaxine are retired, introducing clozapine because of its lower incidence of extrapyramidal symptoms. After two weeks, the symptoms disappear, recovering the patient his basal functionality. Conclusion(s): Depression with psychotic symptoms can take several weeks to respond to treatment, requiring a proper organic screening. In our case, the slow response to treatment made the organic etiology as one of the main differential diagnoses, specifically Parkinson disease. It ruled out because of the absence of findings in the DATSCAN and the resolution of the extrapyramidal symptoms with the change of treatment.

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3. **Psychosis in Parkinson's Disease: a Case Report of Diagnosis and Management**

Authors: Andrade, R.P.L., Gil, N.P., Costa, A.L., Bras, J., Castro, N., Sousa, R., Vaz, R.P., Martins, J., Almeida, E., Abreu, J. and Afonso, H.

Publication Date: 2023

Publication Details: European Psychiatry. Conference: 31st European Congress of Psychiatry, EPA 2023. Paris France. 66(Supplement 1) (pp S1085); Cambridge University Press,

Abstract: Introduction: Psychosis is a frequent complication in patients diagnosed with Parkinson's Disease (PD). Characterized mainly by visual hallucinations and paranoid delusions, it occurs most frequently, but not exclusively, as an adverse effect of antiparkinson medications. Nevertheless, cognitive impairment and dementia, as a frequent feature of PD, needs to be considered for differential diagnosis. Objective(s): Our main objective is to report a case of PD Psychosis, its diagnosis and management and complement it with a nonsystematic review of literature. Method(s): Patient file consultation and an additional research, based on the key words Psychosis and Parkinson's Disease , using Pubmed as database. Result(s): A 53-year-old female, diagnosed with Juvenile Parkinson's Disease since age 45 and, as expected, polimedicated with antiparkinson medication. Without any relevant psychiatric background, she was admitted to the emergency department for disorganized behaviour, with 2 weeks of evolution. There, it was also possible to determine the presence of auditive hallucinations and persecutory delusions, associated with marked anguish. After exclusion of any underlying cause for this symptomatology, inpatient treatment was proposed and accepted by the patient. In collaboration with the Neurology Department, a gradual reduction and optimization of antiparkinson drugs was conducted, associated with introduction of low doses of antipsychotic drugs, in this case Olanzapine. With this medication adjustments, clinical improvement was accomplished, with eventual fading and cessation of psychotic symptoms. Additionally, an irregularly intake of antiparkinson drugs was considered the most probably cause of this clinical decompensation. Conclusion(s): As present in literature, due to the chronicity and complexity of PD, stopping all antiparkinson drugs is not an option, even when psychotic symptoms, that could be a consequence of these drugs, are present. Therefore, a rigorous evaluation and management are mandatory, including the exclusion of other underlying causes and a careful therapeutic adjustment, with gradual reduction of antiparkinson drugs, addressing an eventual temporal relationship between the beginning of a specific drug and the onset of symptoms, and verification of therapeutic compliance, including an involuntary overdose. In cases of refractory symptoms, and after a risk-benefit assessment, pharmacologic treatment directed at these symptoms, low doses of anti-psychotics, may be necessary.

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4. **Delirious episode secondary to rotigotine: the psychotic patch**

Authors: Andreo Vidal, M.A., Calvo Valcarcel, M., Martinez Gimeno, P., Pando Fernandez, P., Rodriguez Rodriguez, B., Navarro Barriga, N., Fernandez Lozano, M., Mateos Sexmero, M.J., Jimenez Aparicio, T., Valdecillo Adame, M.D.C., De Andres Lobo, C., Guerra Valera, G., Queipo de Llano de la Viuda, M., Gonzaga Ramirez, A.A., Guillen Soto, M.D.L.A., Aparicio Parras, A. and Esperesate Pajares, M.

Publication Date: 2023

Publication Details: European Psychiatry. Conference: 31st European Congress of Psychiatry, EPA 2023. Paris France. 66(Supplement 1) (pp S626); Cambridge University Press,

Abstract: Introduction: There is a fine line separating psychiatry and neurology. Most movement disorders can have psychiatric symptoms, not only those caused by the disease itself, but also those induced by the drugs used to treat them. Objective(s): Presentation of a clinical case about a patient diagnosed with Parkinson's disease presenting a several-month-long delirious episode due to dopaminergic drugs. Method(s): Literature review on drug-induced psychosis episodes in Parkinson's disease. Result(s):A57-year-old patient with diagnosis of Parkinson's disease for six years, who went to the emergency room accompanied by his wife due to delirious ideation. He was being treated with levodopa, carbidopa and rasagiline for years, and rotigotine patches whose dosage was being increased over the last few months. His wife reported celotypical clinical manifestations and multiple interpretations of different circumstances occurring around her. He chased her on the street, had downloaded an app to look for a second cell phone because he believed she was cheating on him, and was obsessed with sex. He had no psychiatric background. It was decided to prescribe quetiapine. The following day, he returned because he refused to take the medication since he thought he was going to be put to sleep or poisoned. It was decided to admit him to Psychiatry. During the stay, rasagiline and rotigotine were suspended. Olanzapine and clozapine were introduced, with behavioral improvement and distancing from the psychotic symptoms which motivated the admission. The patient was also motorically stable. Although levodopa is best known for causing psychotic episodes, the symptons were attributed to rotigotine patches for temporally overlapping the dose increase. Conclusion(s): Psychiatric symptoms are the third most frequent group of complications in Parkinson's disease after gastrointestinal complications and abnormal movements. All medication used to control motor disorders can lead to psychosis, not only dopaminergics, but also selegiline, amantadine and anticholinergics. Excessive stimulation of mesocortical and mesolimbic dopaminergic pathways can lead to psychosis, which is the most common psychiatric problem related to dopaminergic treatment. In the face of a psychotic episode, antiparkinsonian drugs which are not strictly necessary for motor control should be withdrawn. If this is not sufficient, levodopa dose should be reduced, considering the side effects that may occur. When the adjustment of anti-parkinsonian treatment is not effective, neuroleptics, especially quetiapine or clozapine, should be administered. In a recent study, pimavanserin, a serotonin 5-HT2 antagonist, was associated with approximately 35% lower mortality than atypical antipsychotic use during the first 180 days of treatment in community-dwelling patients. Medication should always be tailor-made to suit each patient and we usually have to resort to lowering or withdrawing the dopaminergic medication.

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5. **Fall risk management through personalised machine learning in wearables**

Authors: Arnold, S., Tamir, R., Shimoni, N., Rotem, Y., Newman, G. and Kistner, M.

Publication Date: 2023

Publication Details: Gait and Posture. Conference: ESMAC 2023. Athens Greece. 106(Supplement 1) (pp S10-S11); Elsevier B.V.,

Abstract: Introduction: Fall risk management is an integral part of patient care and is essential for patient safety and fall reduction in healthcare settings. Falls, specifically among the elderly and those with chronic conditions, are a leading cause of hospitalisation and contribute to increased healthcare costs1. Wearable devices can play a key role in detecting falls and providing alerts for immediate assistance2-3. Personalised machine learning (ML) models, tailored to different fall types and individual physiologies observed in real-world settings, can enhance fall detection, prediction and prevention1-6. Research question: Can wrist-worn wearable devices accurately enable the detection of falls across diverse clinical populations in a real-world setting? Methods: Real-world data were collected, by Owlytics, from a diverse population of 449 individuals; 269 Women (Age:71.7+/-18.7years), 152 Men (66.4+/-21.9years), 11 Non-specified (77.3+/-15.3years), over two years. The cohort consisted of the elderly, some with chronic conditions (e.g. Parkinson's Disease), younger individuals with Multiple Sclerosis, and young healthy individuals. For each individual, 25 Hz accelerometer sensor data and 1 Hz physiological metrics were collected from wrist-worn, LifeQ-enabled wearable devices during activities of daily living (ADL) for continuous periods ranging between 1 week and 2 years. Events were classified using a cloud-based fall detection model and a designated caregiver was alerted. The caregiver confirmed or dismissed the event. From the data, accelerometer triggers were identified where the total acceleration was greater than a specified threshold. Samples were extracted containing 8 seconds of data around triggers. A curated dataset was created with 244 (150 real-life, 94 simulated) true falls and 627,693 ADL events that resembled a fall. Simulated falls were included for model training but only true falls were used for model evaluation. Fig. 1 Current fall detection model with the feedback loop to improve personalisation[Formula presented] Results: On a validation set consisting of 30 true falls and 125,543 ADL events, we achieved an Area Under Curve (AUC) of 0.99. At a target recall of 0.80, the false-positive rate was 0.017. Testing the model on the wrist-worn data from UMA-Fall7 dataset resulted in AUC of 0.98 and F1-score of 88.5, a substantial improvement compared to previous state-of-the-art (F1=81.5) 2. Discussion(s): This fall detection solution is currently enabling timely care and assistance to individuals, easing the burden in clinical settings by accurately detecting falls across different populations with minimal false positives. Feedback by caregivers allows for continuous dataset expansion and personalised models. Model performance is expected to improve with increased data, expanded time-windows around fall triggers, and incorporation of physiological features. Moving the fall detection components to the edge can further decrease the interval between fall detection and caregiver alert. These personalised solutions may inform preventative rehabilitation (balance and strength training), manage the risk of falls, and enhance the overall quality of life as individuals age.Copyright © 2023

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6. **Holter STAT-ON TM against other tools for detecting MF in advanced Parkinson's disease: an observational study.**

Authors: Cabo-Lopez, Iria;Puy-Nunez, Alfredo;Redondo-Rafales, Nuria;Teixeira Baltazar, Sara and Calderon-Cruz, Beatriz

Publication Date: 2023

Journal: Frontiers in Neurology [Electronic Resource] 14, pp. 1249385

Abstract: Background: Different screening tools to identify advanced Parkinson's disease (APD) have emerged in recent years. Among them, wearable medical devices, such as STAT-ON TM, have been proposed to help to objectively detect APD. Objectives: To

analyze the correlation between STAT-ON TM reports and other assessment tools to identify APD and to assess the accuracy of screening tools in APD patients, using the STAT-ON TM as the gold standard. Methods: In this retrospective, observational study, data from the University Hospital Complex of Pontevedra database on 44 patients with potential APD who wore STAT-ON TM were extracted. Data were collected according to different sources of tools for identifying APD: (1) STAT-ON TM, (2) information provided by the patient, (3) questionnaire for advanced Parkinson's disease (CDEPA), (4) 5-2-1 Criteria, and (5) Making Informed Decisions to Aid Timely Management of Parkinson's Disease (MANAGE-PD). Considering STAT-ON TM recordings as a reference, the sensitivity, specificity, and positive and negative predictive values for each tool were calculated. The kappa index assessed the degree of agreement between the gold standard and the other instruments. Results: Although no statistically significant association was found between STAT-ON TM recordings and any screening methods evaluated, the CDEPA questionnaire demonstrated the highest sensitivity and VPN values to detect patients with APD candidates for second-line therapy (SLT). According to the correlation analyses, MANAGE-PD demonstrated the highest degree of concordance with STAT-ON TM recordings to identify the SLT indication and to predict the SLT decision. Conclusion: STAT-ON TM device may be a helpful tool to detect APD and to guide treatment decisions.

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7. **The Effects of Deep Brain Stimulation on Mood and Quality of Life in Parkinson's Disease: A Systematic Review and Meta-Analysis**

Authors: El Ghazal, Nour;Nakanishi, Hayato;Martinez-Nunez, Alfonso E.;Al Sabbakh, Nader K.;Segun-Omosehin, Omotayo A.;Bourdakos, Natalie E.;Nasser, Maya;Matar, Reem H.;Than, Christian;Danoun, Omar A. and Johnson, Andrew

Publication Date: Aug ,2023

Journal: Cureus 15(8), pp. e44177

Abstract: Deep brain stimulation (DBS) is extensively used to treat motor and non-motor symptoms in Parkinson's disease (PD). The aim of this study was to investigate the difference between subthalamic (STN) and globus pallidus internus (GPi) DBS on mood and quality of life with reference to minimal clinically important differences (MCID). A systematic literature search for articles published until November 2022 yielded 14 studies meeting the eligibility criteria, with a total of 1,088 patients undergoing STN (n=571) or GPi (n=517) stimulation. Baseline patient and clinical characteristics were comparable between the two groups. Results showed that GPi stimulation demonstrated a greater reduction in the Beck depression inventory (mean difference (MD)=1.68) than STN stimulation (MD=0.84). Hospital anxiety and depression scale showed a 2.69- and 3.48-point decrease by the GPi group in the depression and anxiety categories, respectively. The summary index (SI) of the PD questionnaire depicted a greater improvement in the GPi group from baseline (mean=41.01, 95% CI 34.89, 47.13) to follow-up (mean=30.85, 95% CI 22.08, 39.63) when compared to the STN group (baseline mean=42.43, 95% CI 34.50, 50.37; follow-up mean=34.21, 95% CI 25.43, 42.99). The emotions category also demonstrated a similar trend. However, STN stimulation showed greater reductions in motor symptoms and medication than GPi stimulation. This meta-analysis demonstrated that GPi stimulation seems to offer an advantage over STN stimulation in improving mood and quality of life in PD, but those effects must be further validated by larger studies.

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8. **Visuospatial memory profile of patients with Parkinson's disease.**

Authors: Franca, M.;Parada Lima, J.;Oliveira, A.;Rosas, M. J.;Vicente, S. G. and Sousa, C.

Publication Date: 2023

Journal: Applied Neuropsychology.Adult , pp. 1-9

Abstract: BACKGROUND: In Parkinson's Disease (PD) cognitive impairment may become evident at an early stage of the disease. Performance in the visuospatial domain has been pointed out as a possible predictor of cognitive decline for dementia. OBJECTIVE(S): The goal was to characterize the visuospatial memory profile, explore the predictive value of a set of visuospatial measures that better distinguish patients from controls, and investigate the relevance of the 10/36 SPART, providing cutoff scores. METHOD(S): A total of 43 PD patients and 45 healthy controls (HC) were recruited from the Centro Hospitalar Universitario de Sao Joao and the community, respectively. The protocol included a set of tests assessing global cognitive functioning, visuoperceptive abilities, and visuospatial memory. RESULT(S): PD patients performed significantly worse than HC, showing difficulties in global cognition, visuospatial learning, and visuoconstructive and perceptive abilities. Through a discriminant analysis, the Clock Drawing Test and ACE-R's visuospatial domain were revealed as good tools to be included in the evaluation protocol. Regarding the 10/36 SPART's performance, four predictors were found (age, sex, education, and emotional distress) and cutoff scores were determined. CONCLUSION(S): The visuospatial memory profile found was congruent with that described in the literature. The results were discussed according to their relevance for clinical practice and future research.

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9. **Acute effect of levodopa on orthostatic hypotension and its association with motor responsiveness in Parkinson's disease: Results of acute levodopa challenge test.**

Authors: Liu, Zhu;Su, Dongning;Zhou, Junhong;Wang, Xuemei;Wang, Zhan;Yang, Yaqin;Ma, Huizi and Feng, Tao

Publication Date: 2023

Journal: Parkinsonism & Related Disorders 115, pp. 105860

Abstract: OBJECTIVE: Levodopa administration can induce or worsen orthostatic hypotension (OH) in patients with Parkinson's disease (PD). Understanding of acute OH post levodopa (AOHPL) is important for rational drug use in PD patients. Primary objective of this study was to investigate the incidence of AOHPL in PD patients. The secondary objectives were a) hemodynamic character of AOHPL; b) risk factors of AOHPL; c) relationship between motor responsiveness and blood pressure (BP) change. METHODS: 490 PD inpatients underwent acute levodopa challenge test (LCT). Supine-to-standing test (STS) was done 4 times during LCT, including before levodopa and every hour post levodopa intake within 3 h. Patients were classified into two groups, AOHPL and non-AOHPL. A comprehensive set of clinical features scales was assessed, including both motor (e.g., motor response, wearing-off) and nonmotor symptoms (e.g., autonomic dysfunction, neuropsychology). RESULTS: 33.1% PD patients had OH before drug, 50.8% the same subjects had AOHPL during levodopa effectiveness. PD patients who had better response to levodopa likely to have lower standing mean artery pressure (MAP) and severer systolic BP drop after levodopa intake. BP increased when the motor performance worsened and vice versa. Beneficial response was a risk factors of AOHPL (OR = 1.624, P = 0.017). CONCLUSIONS: AOHPL was very common in PD patients. We suggested that PD patients with risk factors should monitor hemodynamic change during LCT to avoid AOHPL following the introduction or increase of oral levodopa. The fluctuations of BP were complicated and multifactorial, likely caused by the process of PD and levodopa both. Copyright © 2023. Published by Elsevier Ltd

10. **Safety perception in patients with advanced idiopathic Parkinson's disease - a qualitative study.**

Authors: Pedrosa, Anna J.;van Munster, Marlena;Timmermann, Lars and Pedrosa, David J.

Publication Date: 2023

Journal: Frontiers in Aging Neuroscience 15, pp. 1200143

Abstract: Background: A fundamental cornerstone of quality of healthcare is patient safety, which many people with life-limiting illnesses feel is being compromised. Perceptions of impaired safety are associated with the occurrence of psychological distress and healthcare utilization. However, little is known about how people with idiopathic Parkinson's disease (iPD) perceive their own safety toward the end of life. The aim of our study was therefore to investigate factors that influence the perception of safety of patients with advanced iPD. Methods: We conducted semi-structured interviews with a purposeful sample of 21 patients with advanced iPD. Participants were recruited at the neurology department of a tertiary care hospital in Germany between August 2021 and June 2022. Data were analyzed using reflexive thematic analysis. Results: iPD-patients reported relevant impairment of their safety. While most participants expressed safety concerns based on the manifestation of disease, our analysis identified enablers and barriers to establishing safety in patients with advanced iPD, in 10 additional domains: relationship to the disease, informedness, self-perception, utilization of support and care structures, healthcare professionals and structures, treatment, social interaction, social security, spirituality, and environment. Conclusion: This study provides new insights into safety perceptions of patients with advanced iPD, which extend well beyond the physical realm. The findings suggest that clinicians and policy makers should consider a holistic and multidisciplinary approach to assessing and improving patients' safety taking into account the enablers and barriers identified in this study. Copyright © 2023 Pedrosa, van Munster, Timmermann and Pedrosa.

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11. **Clozapine use in drug induced psychosis in Parkinson's disease: a case report and review of literature**

Authors: Sanz Giancola, A., Setien Preciados, P., Arroyo Sanchez, E., Romero Gerecther, I., Martin Velasco, M. and Diaz Mayoral, C.

Publication Date: 2023

Publication Details: European Psychiatry. Conference: 31st European Congress of Psychiatry, EPA 2023. Paris France. 66(Supplement 1) (pp S1041); Cambridge University Press,

Abstract: Introduction: The occurrence of psychotic symptoms induced by dopaminergic drugs marks a new phase in the course of Parkinson's disease (PD). The term drug induced psychosis may be used when other significant psychiatric diseases are excluded in patients with no history of psychosis. The prevalence of dopaminomimetic psychosis varies from 5% to 20%. Therefore, knowledge of the psychopharmacological management of this condition is essential. Objective(s): The purpose of this case report and literature review is to to learn the psychopharmacological management of this not uncommon medical complication. Method(s): Descriptive case study and review of literature Results: We present the case of a 71-year-old man with a medical history of Parkinson's disease with partial response to treatment with high doses of levodopa and carbidopa. He was brought to the emergency department by his family due to the presence of behavioural alterations at home. The patient reported seeing men in foam trying to harm his family. In a disjointed way in his speech, he

links this idea with the delusional belief that he is being watched by electronic devices placed throughout the house. In a variegated manner he links this with a coelotypical type of discourse, however the delusional ideation remains unstructured throughout. With no previous personal or family history of mental health and ruling out underlying organic conditions, a diagnosis of psychosis secondary to pharmacological treatment for Parkinson's disease is presumed. Considering the risks and benefits, it was decided to maintain the anti-Parkinson's dose in order to avoid worsening the patient's motor function. Therefore, after reviewing the literature, the best option was to introduce clozapine at low doses, up to 50 mg at night, with the respective analytical control. After a week's admission, the patient began to improve psychopathologically, achieving an ad integrum resolution of the psychotic symptoms. Conclusion(s): Despite the availability of other antipsychotic treatments such as quetiapine or the more recent pimavanserin, clozapine remains the treatment of choice for drug-induced psychosis in Parkinson's disease.

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12. **Fluctuations in Parkinson's disease and personalized medicine: bridging the gap with the neuropsychiatric fluctuation scale.**

Authors: Schmitt, Emmanuelle;Debu, Bettina;Castrioto, Ana;Kistner, Andrea;Fraix, Valerie;Bouvard, Martine and Moro, Elena

Publication Date: 2023

Journal: Frontiers in Neurology [Electronic Resource] 14, pp. 1242484

Abstract: Background: Neuropsychiatric fluctuations (NpsyF) are frequent and disabling in people with Parkinson's disease (PD). In OFF-medication, NpsyF entail minus neuropsychiatric symptoms (NPS) like anxiety, apathy, sadness, and fatigue. In ON-medication, NpsyF consist in plus NPS, such as high mood, hypomania, and hyperactivity. Accurate identification of these NpsyF is essential to optimize the overall PD management. Due to lack of punctual scales, the neuropsychiatric fluctuation scale (NFS) has been recently designed to assess NpsyF in real time. The NFS comprises 20 items with two subscores for plus and minus NPS, and a total score. Objective: To evaluate the psychometric properties of the NFS in PD. Methods: PD patients with motor fluctuations and healthy controls (HC) were assessed. In PD patients, the NFS was administrated in both the ON-and OFF-medication conditions, together with the movement disorders society-unified Parkinson disease rating scale parts I-IV. Depression (Beck depression scale II), apathy (Starkstein apathy scale) and non-motor fluctuations items of the Ardouin scale of behaviour in PD (ASBPD OFF and ON items) were also assessed. NFS internal structure was evaluated with principal component analysis consistency (PCA) in both medication conditions in PD patients and before emotional induction in HC. NFS internal consistency was assessed using Cronbach's alpha coefficient. NFS convergent and divergent validity was measured through correlations with BDI-II, Starktein, and ASBPD OFF and ON non motor items. Specificity was assessed comparing NFS global score between the HC and PD populations. Sensitivity was evaluated with t-student test comparing the ON-and the OFF-medication conditions for NFS global score and for minus and plus subscores. Results: In total, 101 consecutive PD patients and 181 HC were included. In PD patients and HC, PCA highlighted one component that explained 32-35 and 42% of the variance, respectively. Internal consistency was good for both the NFS-plus (alpha =0.88) and NFS-minus items (alpha =0.8). The NFS showed a good specifity for PD (p p 0.0001) and a good sensitivity to the medication condition (p p 0.0001). Conclusion: The satisfactory properties of the NFS support its use to assess acute neuropsychiatric fluctuations in PD patients, adding to available tools.

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13. **Time To Navigate (TTN): A practical objective clinical measure for freezing of gait**

severity in people with Parkinson's disease.

Authors: Scully, A. E.;Tan, D.;de Oliveira, B. I. R.;Hill, K. D.;Clark, R. and Pua, Y. H.

Publication Date: 2023

Journal: medRxiv (pagination), pp. ate of Pubaton: 20 Aug 2023

Abstract: Objectives: Existing objective assessments for freezing of gait (FOG) severity may be unwieldy for routine clinical practice. To provide an easy-to-use clinical measure, this cross-sectional study explored if time to complete the recently-validated FOG Severity Tool (or its components) could be used to reflect FOG severity. Method(s): People with Parkinson's disease who could independently ambulate eightmetres, understand instructions, and without co-morbidities severely affecting gait were consecutively recruited from outpatient clinics. Participants were assessed with the FOG Severity Tool in a test-retest design, with time taken for each component recorded using a stopwatch during video-analysis. Validity of total FOG Severity Tool time, time taken to complete its turning and narrow-space components (i.e., Time To Navigate, TTN), and an adjusted-TTN were examined through correlations with the FOG Questionnaire, percentage of time spent with FOG, and FOG Severity Tool-Revised score. To facilitate clinical interpretation, TTN cutoff was determined using scatterplot smoothing (LOESS) regression whilst minimal important change (MIC) was calculated using predictive modelling. Result(s): Thirty-five participants were included [82.9%(n=29)male; Median(IQR): age - 73.0(11.0)years; disease duration - 4.0(4.5)years]. The FOG Severity Tool time, TTN, and adjusted-TTN similarly demonstrated moderate correlations with the FOG Questionnaire and percentage-FOG, and very-high correlations with FOG Severity Tool-Revised. TTN was nonlinearly related to FOG severity such that a positive relationship was observed in the first 300-seconds, beyond which the association plateaued. MIC for TTN was 15.4-seconds reduction in timing (95%CI 3.2 to 28.7). Conclusion(s): The TTN is a feasible, interpretable, and valid test of FOG severity, demonstrating strong convergent validity with the FOG Severity Tool-Revised. In busy clinical settings, TTN provides a viable alternative when use of existing objective FOG measures is (often) unfeasible.

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14. **An Exploration of Wearable Device Features Used in UK Hospital Parkinson Disease Care: Scoping Review.**

Authors: Tam, W.;Alajlani, M. and AbdAlrazaq, A.

Publication Date: 2023

Journal: Journal of Medical Internet Research 25(pagination), pp. Arte Number: e42950. ate of Pubaton: 2023

Abstract: Background: The prevalence of Parkinson disease (PD) is becoming an increasing concern owing to the aging population in the United Kingdom. Wearable devices have the potential to improve the clinical care of patients with PD while reducing health care costs. Consequently, exploring the features of these wearable devices is important to identify the limitations and further areas of investigation of how wearable devices are currently used in clinical care in the United Kingdom. Objective(s): In this scoping review, we aimed to explore the features of wearable devices used for PD in hospitals in the United Kingdom. Method(s): A scoping review of the current research was undertaken and reported according to the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines. The literature search was undertaken on June 6,

2022, and publications were obtained from MEDLINE or PubMed, Embase, and the Cochrane Library. Eligible publications were initially screened by their titles and abstracts. Publications that passed the initial screening underwent a full review. The study characteristics were extracted from the final publications, and the evidence was synthesized using a narrative approach. Any queries were reviewed by the first and second authors. Result(s): Of the 4543 publications identified, 39 (0.86%) publications underwent a full review, and 20 (0.44%) publications were included in the scoping review. Most studies (11/20, 55%) were conducted at the Newcastle upon Tyne Hospitals NHS Foundation Trust, with sample sizes ranging from 10 to 418. Most study participants were male individuals with a mean age ranging from 57.7 to 78.0 years. The AX3 was the most popular device brand used, and it was commercially manufactured by Axivity. Common wearable device types included body-worn sensors, inertial measurement units, and smartwatches that used accelerometers and gyroscopes to measure the clinical features of PD. Most wearable device primary measures involved the measured gait, bradykinesia, and dyskinesia. The most common wearable device placements were the lumbar region, head, and wrist. Furthermore, 65% (13/20) of the studies used artificial intelligence or machine learning to support PD data analysis. Conclusion(s): This study demonstrated that wearable devices could help provide a more detailed analysis of PD symptoms during the assessment phase and personalize treatment. Using machine learning, wearable devices could differentiate PD from other neurodegenerative diseases. The identified evidence gaps include the lack of analysis of wearable device cybersecurity and data management. The lack of cost-effectiveness analysis and large-scale participation in studies resulted in uncertainty regarding the feasibility of the widespread use of wearable devices. The uncertainty around the identified research gaps was further exacerbated by the lack of medical regulation of wearable devices for PD, particularly in the United Kingdom where regulations were changing due to the political landscape.

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15. **Levodopa Carbidopa Intestinal Gel for Parkinson's Disease over 11 years: One Center's "Real World" Experience.**

Authors: Vekhande, C.;Hamed, M.;Tremain, G.;Mah, J.;Shetty, A.;Lazarescu, A. and Suchowersky, O.

Publication Date: 2023

Journal: Canadian Journal of Neurological Sciences (pagination), pp. ate of Pubaton: 2023

Abstract: Background: Levodopa Carbidopa Intestinal Gel (LCIG) therapy has been shown to be a safe and effective treatment for advanced P ki s 's is s (PD). Limited data is available regarding long-term benefits and complications in Canada. Objective of the study was to review long-term experience and clinical outcomes in PD patients with LCIG therapy over 11 years in a multidisciplinary University clinic setting. Method(s): Chart review was done on PD patients with LCIG from 2011 to 2022. Data collected: dosing, UPDRS-III motor scores, OFF times, hours with dyskinesias, MoCA, complications, discontinuation reasons and nursing time requirements. Result(s): Thirty-three patients received LCIG therapy with a mean follow up of 3.25+2.09 years. UPDRS-III scores showed reduction by 15% from baseline (mean 35.9) up to 4 years (mean 30.4). Daily OFF time improved from baseline (mean 7.1+3.13 hours) up to 5 years (mean 3.3+2.31 hours; -53.5%; p Result(s): Thirty-three patients received LCIG therapy with a mean follow up of 3.25+2.09 years. UPDRS-III scores showed reduction by 15% from baseline (mean 35.9) up to 4 years (mean 30.4). Daily OFF time improved from baseline (mean 7.1+3.13 hours) up to 5 years (mean 3.3+2.31 hours; -53.5%; p Conclusion(s): Patients on LCIG showed improved motor function over 5-year follow-up. Serious complications were uncommon. Dedicated nursing time is required by LCIG trained nurses in a multidisciplinary setting for optimum management.

16. **Development of a Brief Cognitive Screening Tool for Predicting Postoperative Delirium in Patients with Parkinson's Disease: A Secondary Analysis.**

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Abstract: Background: A simple, rapid, and effective cognitive screening test appropriate for fast-paced settings with limited resources and staff is essential, especially preoperatively. This study aimed to develop and validate the short versions of Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) for predicting postoperative delirium (POD) in patients with Parkinson's disease (PD) who were scheduled for surgery. Methods: The current study was a secondary analysis of data collected from 128 inpatients scheduled for deep brain stimulation of the subthalamic nuclei (STN-DBS) lasting >60 min, at Tsinghua University Yuquan Hospital, China. Preoperative cognitive screening was performed during the preoperative visit using the MMSE and MoCA. The optimal MMSE and MoCA cut-off scores for detecting PD-MCI was 27 and 23 respectively. The POD was assessed twice a day on the first postoperative day until discharge by the confusion assessment method. The backward conditional logistic regression analysis was used to organize the reduced versions of the MMSE or MoCA. Also, the areas under the receiver operating characteristic curves (AUCs) were examined using the DeLong test. Results: 125/128 PD patients were included in the analysis, and 27 (21.6%) developed POD. The MMSE reduced version (orientation to time, attention and calculation, and comprehension) demonstrated performance similar to the original MMSE in predicting POD (z=0.820, p=0.412). The AUC of the original MoCA and the short MoCA (visuospatial and executive attention and orientation) were 0.808 and 0.826, respectively. There was no significantly difference in the AUC values between the tests (z=0.561, p=0.575). Conclusion: Our simplified MMSE and MoCA could be efficiently used to identify patients at risk for POD. Also, short cognitive tests could be considered while predicting POD in fast-paced preoperative settings with limited resources and staff. Copyright © 2023 Zhou et al.

Sources Used:

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