P.003

Structural integrity of the nucleus basalis of meynert in Parkinson's Disease related cognitive and gait decline

A Yeung (Edmonton) F Ba (Edmonton) M Gee (Edmonton) R Camicioli (Edmonton)*

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Background: In Parkinson's disease (PD), mounting evidence implicates degeneration of cholinergic systems in cognitive and gait decline. The Nucleus Basalis of Meynert (NBM) is a major cholinergic nucleus with widespread cortical projections. We hypothesized that atrophy of the NBM is correlated with cognitive phenotypes and gait measures in PD. Methods: Subjects from the COMPASS-ND study (20 controls and 79 PD patients) were studied. Clinical measures included cognitive diagnosis (MCI, dementia) and quantitative gait parameters with dual task gait. Manual region of interest measurement of the NBM was performed on T1 MRI scans. NBM volumes were analyzed against clinical measures. Results: PD-MCI and PD-dementia patients had greater dual task costs to gait speed when performing serial 7s (mean difference -12%, p=0.02; -11%, p=0.04) and animal fluency tasks (mean difference -9%, p=0.02; -15%, p<.001) compared to controls. Reduced normalized NBM volume was associated with PD-MCI (mean difference 0.34, p=0.04) and PD-dementia (mean difference 0.55, p<0.001) phenotypes. NBM volume was weakly correlated with gait velocity (r^2 0.06, p=0.01) and dual task cost to gait velocity with animal fluency (r^2 0.06, p=0.02). Conclusions: NBM atrophy is associated with cognitive decline in PD and may be responsible for cognitive aspects of gait performance.

P.004

Comparison of the Montreal Cognitive Assessment (MoCA) and Rowland Universal Dementia Assessment Scale (RUDAS) for identification of mild cognitive impairment and dementia

K Lam (Calgary) M Wang (Calgary) E Smith (Calgary) Z Ismail (Calgary) A Ganesh (Calgary)*

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Background: There are many cognitive tests that detect mild cognitive impairment (MCI) and dementia such as the Montreal Cognitive Assessment (MoCA) and Rowland Universal Dementia Assessment Scale (RUDAS). The comparative performance of these screening tests for identifying MCI and dementia is unknown. Methods: The MoCA and RUDAS were administered during baseline visits for patients in the Calgary Neurosciences Program. Those that enrolled in the Prospective Registry of Persons with Memory Symptoms (PROMPT) had their scores related to their final clinical diagnosis. Cut-off scores of 26 for the MoCA and 22 for the RUDAS were used to indicate a positive result. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy of both cognitive scores were compared. Results: The sensitivity, specificity, PPV, NPV, and accuracy of the MoCA (n = 125) was 89.3%, 72.7%, 93.9%, 59.3%, and 86.4%, respectively. The sensitivity, specificity, PPV, NPV, and accuracy of the RUDAS (n = 125) was 47.6%, 100%, 100%, 29.0%, 56.8%, respectively. Conclusions: In patients with cognitive complaints presenting to a specialist clinic, the MoCA was more sensitive and accurate than the RUDAS for a final clinician diagnosis of mild cognitive impairment or dementia when using the standard cut-offs.

P.005

A virtual interdisciplinary diagnostic memory clinic: rural patient and caregiver satisfaction

ME O'Connell (Saskatoon) R Camicioli (Edmonton) A Cammer (Saskatoon) H Chertkow (Toronto) P Desmarais (Montreal) JD Fisk (Halifax) M Freedman (Toronto) N Friedman (Montreal) M Geddes (Montreal) Z Ismail (Calgary) A Kirk (Saskatoon) L Lee (Hamilton) DG Morgan (Saskatoon) J Pettersen (Prince George)*

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Background: Saskatchewan's Rural and Remote Memory Clinic (RRMC) has provided *post-diagnostic* virtual dementia care for approximately 19 years. In response to the COVID-19 pandemic and a new need for remote dementia *diagnosis*, we developed a virtual, team-based, interdisciplinary (neurology, neuropsychology, nursing), diagnostic memory clinic (vRRMC). We evaluated patient and caregiver satisfaction with the new virtual clinic. Methods: Semi-structured telephone interviews were conducted with rural vRRMC patients (n=7), caregivers (n= 13), and one patient/caregiver dyad. Ages of respondents ranged from 40 to 70 years old (60% female). Level of diagnosed cognitive dysfunction ranged from subjective cognitive impairment to major neurocognitive disorder. Respondents saved an average of 460 km of travel compared to a trip to Saskatoon. Results: Thematic analysis of responses revealed universal satisfaction with the virtual model. The technology training sessions, offered prior to the first vRRMC visit, was described as important for satisfaction. Analysis of preference for future visits revealed more nuance; some preferred in-person visits and planned to travel for future appointments post-pandemic, while others preferred to maintain the virtual model due to perceived travel burden (cost, time, and inconvenience). Conclusions: When clinically appropriate, virtual diagnostic memory clinics should persist as an option post pandemic for families who experience high travel burden.

P.006

Alzheimer's disease CSF biomarker testing and its impacts on clinical management: findings from the IMPACT-AD BC study

KJ Patel (Vancouver) JR Best (Burnaby) D Yang (Vancouver) C Chambers (Vancouver) PE Lee (Vancouver) A Henri-Bhargava (Victoria) CR Funnell (Vancouver) DJ Foti (Vancouver) HH Feldman (San Diego) JA Pettersen (Vancouver) HB Nygaard (Vancouver) GR Hsiung (Vancouver) ML DeMarco (Vancouver)

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Background: Within the IMPACT-AD BC study, we sought to address the gap in knowledge around how the use of

Alzheimer's disease (AD) CSF biomarker testing impacts clinical management. Methods: IMPACT-AD BC (NCT05002699, impactAD.org) is an observational, longitudinal study examining the role of AD CSF biomarker testing (i.e., amyloid-beta and tau proteoforms) in medical and personal decision-making, and health economics. For medical decision-making, physicians completed surveys on patient management plans before and after receiving the biomarker findings. Overall change in management was assessed as a composite measure of changes in the use of: (i) AD symptomatic medications, (ii) other dementia-relevant medications, (iii) diagnostic procedures, and (iv) referrals or counselling. Results: Of the 142 participants, 66% were determined to have CSF biomarker profiles on the AD continuum. Overall change in management was observed in 89% of patients, with the greatest changes by category being: diagnostic procedures > referrals and counselling > AD symptomatic medications > other dementia-relevant medications. Conclusions: The use of AD CSF biomarker testing increases diagnostic confidence and aids in medical decision-making. Notably, the addition of biomarker testing leads to a reduction in the use of other diagnostic procedures, helps optimize pharmacotherapy and results in increased physician-patient/family member counselling.

P.007

Web-based monitoring for cognitive decline following deep brain stimulation

CW Howard (Boston) MD Fox (Boston)*

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Background: There is a pressing need to monitor the cognitive outcomes of patients undergoing deep brain stimulation (DBS) for movement disorders, despite the prevalence of pre-operative cognitive evaluations. Previous research has demonstrated the potential for DBS to induce reversible cognitive decline, highlighting the need for post-operative cognitive monitoring. Methods: To address this issue, the present study sought to improve upon the existing Autonomous Cognitive Examination through the development of a 5-minute web-based exam. This examination leverages the capacity of machine-learning algorithms to evaluate complex multimodal inputs, including cognitive and movement disorders, and is made available through a web-based platform for physicians to administer to their patients. Results: The outcome of this study was the development of a cognitive evaluation platform, which enables physicians to administer and view results of a brief cognitive examination with sensitivity to multiple domains of cognition, including movement disorders. The web-application based screening examination is easily accessible and can be used on any device. Conclusions: This web-based cognitive examination offers a crucial solution for monitoring longitudinal cognition in high-risk patient populations undergoing DBS for movement disorders. Its ability to assess complex multimodal inputs has broad applications beyond movement disorders and serves as a valuable tool for detecting cognitive decline.

P.008

Alzheimer's disease biomarker testing from the perspective of patients and caregivers

*KJ Patel (Vancouver) D Yang (Vancouver) HH Feldman (San Diego) GR Hsiung (Vancouver) HB Nygaard (Vancouver) JR Best (Burnaby) ER Dwosh (Vancouver) JM Robillard (Vancouver) ML DeMarco (Vancouver)**

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Background: To enrich our understanding of the impact of Alzheimer's disease (AD) CSF biomarker testing on patients and caregivers, we examined these perspectives within the IMPACT-AD BC study. Methods: IMPACT-AD BC (NCT05002699, impactAD.org) is an observational, longitudinal study examining the impact of AD CSF biomarker testing (i.e., amyloid-beta and tau proteoforms) on personal and medical utility, and health economics. Patients underwent AD biomarker testing as part of medical care (n=142), and for the personal utility arm, a subset of patients (n=34), and their 'care partner' (n=31), were interviewed post-biomarker disclosure to understand their decision-making to undergo testing and the impact of learning the test results. Results: The primary consideration in patients' decision to undergo testing was the desire for diagnostic clarity (63%). After biomarker result disclosure, patients' positive feelings stemmed largely from having greater diagnostic certainty (55%) and the ability to plan for the future (23%), including making financial changes (58%) and care plans (21%). Care partners conveyed that biomarker testing provided needed information to help plan for the future and spurred them to connect with community resources. Conclusions: Patients and care partners value the diagnostic clarity from AD biomarker testing and use the information to make informed future plans.

P.009

Comparison of Montreal Cognitive Assessment (MoCA) and Rowland Universal Dementia Assessment Scale (RUDAS) scores in diverse populations

K Lam (Calgary) M Wang (Calgary) E Smith (Calgary) Z Ismail (Calgary) A Ganesh (Calgary)*

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Background: The Montreal Cognitive Assessment (MoCA) and Rowland Universal Dementia Assessment Scale (RUDAS) are tests used to detect mild cognitive impairment (MCI) and dementia. However, it has been suggested that the MoCA may not be appropriate for diverse populations, and that the relatively newer RUDAS may be better suited as a universal cognitive test. Methods: The MoCA and RUDAS were administered at baseline visits for participants enrolled in the Prospective Registry of Persons with Memory Symptoms (PROMPT). Test scores were compared for patients with different levels of educational attainment, first language, and race using the Kruskal-Wallis test.