Parkinson's Disease Current Awareness Bulletin

October 2017

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Title: Social Support for Individuals with Parkinson's Disease: Implications for Rehabilitation Professionals.

Author(s): Wertheimer, Jeffrey; Moniz, Erin; Gottuso, Ann

Title: Insulin signalling: new target for Parkinson's treatments?

Author(s): Poewe, Werner; Seppi, Klaus

Abstract: Parkinson's disease is the second most common neurodegenerative disease, and affects 2-3% of people aged 65 years and older.[1] The number of affected people is expected to double between 2005 and 2030 as the world's population ages, which will further increase the societal and economic burdens of the disease.[1] Although in the past 20 years understanding of the molecular mechanisms underlying neuronal dysfunction and cell death in Parkinson's disease has improved substantially and novel therapeutic targets have been identified, no treatments with proven disease-modifying efficacy have become available.[1] Insulin and insulin-like growth factor 1 (IGF-1) are synthesised in the brain and modulate several affecting mechanisms involved in oxidative stress, apoptosis, autophagy, and inflammation.[2] Results of several experimental studies have suggested decreased insulin signalling in neurodegenerative disorders.[2] Glucagon-like peptide-1 (GLP-1) is an insulinotropic hormone that activates the same effectors as insulin and IGF-1, and both GLP-1 and its receptor are expressed in neurons. The study also showed that subcutaneous application of exenatide results in CSF concentrations equivalent to those associated with advantageous outcomes in preclinical models of Parkinson's disease.[5,9] Exenatide was generally well tolerated, with gastrointestinal adverse events and injection-site reactions reported at similar frequencies to those previously reported in diabetes trials.[10] Amelie-Benoist/BSIP/Science Photo Library Although these findings of a potential new mechanism in the treatment of Parkinson's disease are exciting, there are several caveats. 9 Y Li, T Perry, MS Kindy, GLP-1 receptor stimulation preserves primary cortical and dopaminergic neurons in cellular and rodent models of stroke and parkinsonism, Proc Natl Acad Sci USA, Vol. 106, 2009, 1285-1290 10 L MacConell, K Gurney, J Malloy, M Zhou, O Kolterman, Safety and tolerability of exenatide once weekly in patients with type 2 diabetes: an integrated analysis of 4328 patients, Diabetes Metab Syndr Obes, Vol. 8, 2015, 241-253 11 IA Reddy, JA Pino, P Weikop, Glucagon-like peptide 1 receptor activation regulates cocaine actions and dopamine homeostasis in the lateral septum by decreasing arachidonic acid levels, Transl Psychiatry, Vol. 6, 2016, e809

Title: A Meta-Analysis of Nonpharmacological Interventions for People With Parkinson's Disease.

Author(s): Lee, JuHee; Choi, MoonKi; Yoo, Yonju

Abstract: Nonpharmacological interventions are important in providing care for Parkinson's disease (PD) patients. However, there is limited evidence related to their impacts on health-related quality of life (HRQOL). We aimed to examine the effectiveness of nonpharmacological interventions for improving the HRQOL of PD patients. Articles published in peer-reviewed journals from 2000 to 2015 were searched through electronic

searching, computerized author searching, and footnote chasing. A meta-analysis was performed using the RevMan 5.3 program. Overall, effect size for the studies (n = 18) was −4.17 with 95% confidence interval (CI) from −7.63 to −0.70 (Z = 2.36, p = .02), indicating positive effects of nonpharmacological interventions on HRQOL. In subgroup analysis regarding the intervention types, the effect size of exercise programs was −5.73 with 95% CI of −11.36 to −0.10 (Z = 2.00, p = .05). Thus, nonpharmacological interventions, and particularly exercise programs, were effective in improving the HRQOL of PD patients.

Title: A randomized controlled feasibility trial exploring partnered ballroom dancing for people with Parkinson's disease.

Author(s): Kunkel, D.; Fitton, C.; Roberts, L.; Pickering, R. M.; Roberts, H. C.; Wiles, R.; Hulbert, S.; Robison, J.; Ashburn, A.

Objective: To determine the feasibility of a Dance Centre delivering a programme of mixed dances to people with Parkinson's and identify suitable outcomes for a future definitive trial.

Design: A two-group randomized controlled feasibility trial. Methods: People with Parkinson's were randomized to a control or experimental group (ratio 15:35), alongside usual care. In addition, participants in the experimental group danced with a partner for one hour, twice-a-week for 10 weeks; professional dance teachers led the classes and field-notes were kept. Control-group participants were given dance class vouchers at the end of the study. Blinded assessments of balance, mobility and function were completed in the home. Qualitative interviews were conducted with a subsample to explore the acceptability of dance.

Results: A total of 51 people with Parkinson's (25 male) with Hoehn and Yahr scores of 1-3 and mean age of 71 years (range 49-85 years), were recruited to the study. Dance partners were of similar age (mean 68, range 56-91 years). Feasibility findings focused on recruitment (target achieved); retention (five people dropped out of dancing); outcome measures (three measures were considered feasible, changes were recommended). Proposed sample size for a Phase III trial, based on the 6-minute walk test at six months was 220. Participants described dance as extremely enjoyable and the instructors were skilled in instilling confidence and motivation. The main organizational challenges for a future trial were transport and identifying suitable dance partners.

Conclusion: We have demonstrated the feasibility of conducting the study through a Dance Centre and recommend a Phase III trial.

Title: Essential tremor & Parkinson disease: Recognizing the differences.

Author(s): Vernon, Gwyn M.; Leiningen, Cheryl; Thomas, Cathi A.; Dunlop, Susan Rebecca

Abstract: Tremor is a common movement disorder in adults and older adults. There are many different types of tremor and many conditions that present with tremor as a symptom. This article discusses the causes of tremor, and through the use of a case study, helps NPs understand the assessment of tremor and differentiate two common neurologic disorders that can present with tremor: essential tremor and Parkinson disease.

Title: Using social exchange theory to understand non-terminal palliative care referral practices for Parkinson's disease patients.

Author(s): Prizer, Lindsay P.; Gay, Jennifer L.; Perkins, Molly M.; Wilson, Mark G.; Emerson, Kerstin G.; Glass, Anne P.; Miyasaki, Janis M.

Background: A palliative approach is recommended in the care of Parkinson's disease patients; however, many patients only receive this care in the form of hospice at the end of life. Physician attitudes about palliative care have been shown to influence referrals for patients with chronic disease, and negative physician perceptions may affect early palliative referrals for Parkinson's disease patients.

Aim: To use Social Exchange Theory to examine the association between neurologist-perceived costs and benefits of palliative care referral for Parkinson's disease patients and their reported referral practices.

Design: A cross-sectional survey study of neurologists. Setting/participants: A total of 62 neurologists recruited from the National Parkinson Foundation, the Medical Association of Georgia, and the American Academy of Neurology's clinician database. Results: Participants reported significantly stronger endorsement of the rewards (M = 3.34, SD = 0.37) of palliative care referrals than the costs (M = 2.13, SD = 0.30; t(61) = −16.10, p < 0.0001). A Poisson regression found that perceived costs, perceived rewards, physician type, and the number of complementary clinicians in practice were significant predictors of palliative care referral.

Conclusion: Physicians may be more likely to refer patients to non-terminal palliative care if (1) they work in interdisciplinary settings and/or (2) previous personal or patient experience with palliative care was positive. They may be less likely to refer if (1) they fear a loss of autonomy in patient care, (2) they are unaware of available programs, and/or (3) they believe they address palliative needs. Initiatives to educate neurologists on the benefits and availability of non-terminal palliative services could improve patient access to this care.

Title: Management of Parkinson Disease in 2017: Personalized Approaches for Patient-Specific Needs.

Author(s): Okun, Michael S

Abstract: The article discusses various aspects of the diagnosis and treatment of Parkinson's disease (PD) as of 2017, and it mentions personalized approaches for patient-specific needs, pharmacological therapy, and the use of deep brain stimulation (DBS) for PD patients with severe motor symptoms. Infusion therapy and surgical interventions are examined, as well as the therapeutic use of drugs such as levodopa, rasagiline, and pramipexole.

Title: A Cross-Language Study of Acoustic Predictors of Speech Intelligibility in Individuals With Parkinson's Disease.

Author(s): Yunjung Kim; Yaelin Choi

Purpose: The present study aimed to compare acoustic models of speech intelligibility in individuals with the same disease (Parkinson's disease [PD]) and presumably similar underlying neuropathologies but with different native languages (American English [AE] and Korean).

Method: A total of 48 speakers from the 4 speaker groups (AE speakers with PD, Korean speakers with PD, healthy English speakers, and healthy Korean speakers) were asked to read a paragraph in their native languages. Four acoustic variables were analyzed: acoustic vowel space, voice onset time contrast scores, normalized pairwise variability index, and articulation rate. Speech intelligibility scores were obtained from scaled estimates of sentences extracted from the paragraph.

Results: The findings indicated that the multiple regression models of speech intelligibility were different in Korean and AE, even with the same set of predictor variables and with speakers matched on speech intelligibility across languages. Analysis of the descriptive data for the acoustic variables showed the expected compression of the vowel space in speakers with PD in both languages, lower normalized pairwise variability index scores in Korean compared with AE, and no differences within or across language in articulation rate.

Conclusions: The results indicate that the basis of an intelligibility deficit in dysarthria is likely to depend on the native language of the speaker and listener. Additional research is required to explore other potential predictor variables, as well as additional language comparisons to pursue cross-linguistic considerations in classification and diagnosis of dysarthria types.

Title: Urinary Incontinence, Incident Parkinsonism, and Parkinson's Disease Pathology in Older Adults.

Author(s): Buchman, Noa M.; Leurgans, Sue E.; Shah, Raj J.; VanderHorst, Veronique; Wilson, Robert S.; Bachner, Yaacov G.; Tanne, David; Schneider, Julie A.; Bennett, David A.; Buchman, Aron S.

Objective: To test the hypothesis that urinary incontinence (UI) is associated with incident parkinsonism in older adults.

Methods: We used data from 2,617 older persons without dementia. Assessment included baseline self-report UI and annual structured exam which assessed parkinsonian signs, motor performances, cognitive function, and self-report disabilities. We used a series of Cox proportional hazards models to examine the association of UI with parkinsonism and adverse health outcomes and a mixed-effect model to examine the association of UI with the annual rate of cognitive decline. In decedents, regression models were used to examine if UI proximate to death was related to postmortem indices of neuropathologies.

Results: At baseline, more than 45% of participants reported some degree of UI. Over an average of nearly 8 years of follow-up, UI was associated with incident parkinsonism (hazard ratio [HR] = 1.07, 95% CI = 1.02, 1.12), death (HR = 1.07, 95% CI = 1.03, 1.11), incident ADL disability (HR = 1.11, 95% CI = 1.07, 1.16), and incident mobility disability (HR = 1.07, 95% CI = 1.02, 1.13). UI was not related to incident MCI (HR = 1.02, 95% CI = 0.97, 1.07), incident AD dementia (HR = 1.00, 95% CI = 0.95, 1.05) or to the rate of cognitive decline (Estimate = -.002, standard error = .002, p = .167). In 1,024 decedents with brain autopsy, UI proximate to death was related to PD pathology (Lewy body pathology and nigral neuronal loss), but not Alzheimer's disease pathology or other age-related neuropathologies.

Conclusion: UI in older adults is associated with incident parkinsonism and may identify older adults at risk for accumulating PD brain pathology.

Title: New guidelines on Parkinson's disease.

Abstract: This guideline covers diagnosing and managing Parkinson's disease in people aged 18 and over. It aims to improve care from the time of diagnosis, including monitoring and managing symptoms, providing information and support, and palliative care.

Sources Used
The following databases are searched on a regular basis in the development of this bulletin: Amed, British Nursing Index, Cinahl, Medline