



THE TRANSMITTER

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Article Review

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Polyneuropathy associated with duodenal infusion of levodopa in Parkinson's disease: features, pathogenesis and management.

Patients with Parkinson's disease (PD) treated with oral levodopa have a higher prevalence of chronic, prevalently sensory, usually mild axonal polyneuropathy (PNP). Several studies showed a positive association among PNP, cumulative levodopa dosage, low serum B12 and high-homocysteine and methylmalonic acid level. Anecdotal severe acute or subacute PNPs thought to be Guillain-Barré syndrome have been reported in patients receiving continuous intraduodenal infusion of levodopa/carbidopa intestinal gel (LCIG). They report an additional acute case and by a systematic literature search also reviewed the clinical and laboratory features of 13 other acute and 21 subacute PNP cases occurring during LCIG treatment. In series with at least nine patients, the mean frequency of acute and subacute PNP is 13.6% and the mortality rate at 6 months in acute cases is 14%. The great majority of PNP cases displayed axonal sensory-motor and reduced vitamin B12 levels, and alterations of metabolites of 1-carbon pathway were found in most patients. They discuss the possible role of high-levodopa dosage, vitamin B12, B6 and folate deficiency and accumulation of homocysteine and methylmalonic acid in the pathogenesis to conclude that there is enough, although circumstantial, evidence that alterations of 1-carbon pathway are implicated also in acute and subacute PNP during LCIG usage. There is no solid proof for a dysimmune pathogenesis and in their opinion acute, subacute and chronic PNP, either after oral levodopa or LCIG, represent a continuum. Finally, recommendations for prevention and management of PNP occurring during LCIG treatment are proposed.

J Neurol Neurosurg Psychiatry. 2014 Aug 28. pii: jnnp-2014-308586. doi: 10.1136/jnnp-2014-308586. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/?term=25168395>

Predictors of dementia in Parkinson disease: A prospective cohort study.

They investigated an array of possible markers of early dementia in Parkinson disease. They performed a comprehensive assessment of autonomic, sleep, psychiatric, visual, olfactory, and motor manifestations in 80 patients with Parkinson disease who were dementia-free at baseline. After 4.4 years' follow-up, patients were evaluated for dementia. Predictive variables were assessed using logistic regression adjusting for disease duration, follow-up duration, age, and sex. Of 80 patients, 27 (34%) developed dementia. Patients destined to develop dementia were older and more often male (odds ratio [OR] = 3.64, $p = 0.023$). Those with baseline mild cognitive impairment had increased dementia risk (OR = 22.5, $p < 0.001$). REM sleep behavior disorder at baseline dramatically increased dementia risk (OR = 49.7, $p = 0.001$); however, neither daytime sleepiness nor insomnia predicted dementia. Higher baseline blood pressure increased dementia risk (OR = 1.37 per 10 mm Hg, $p = 0.032$). Orthostatic blood pressure drop was strongly associated with dementia risk (OR = 1.84 per 10

mm Hg, $p < 0.001$); having a systolic drop of >10 mm Hg increased dementia odds 7-fold (OR = 7.3, $p = 0.002$). Abnormal color vision increased dementia risk (OR = 3.3, $p = 0.014$), but olfactory dysfunction did not. Among baseline motor variables, proportion of gait involvement (OR = 1.12, $p = 0.023$), falls (OR = 3.02, $p = 0.042$), and freezing (OR = 2.63, $p = 0.013$), as well as the Purdue Pegboard Test (OR = 0.67, $p = 0.049$) and alternate tap test (OR = 0.97, $p = 0.033$) predicted dementia. The authors concluded that Cardiovascular autonomic dysfunction, REM sleep behavior disorder, color discrimination ability, and gait dysfunction strongly predict development of dementia in Parkinson disease.

Neurology. 2014 Aug 29. pii: 10.1212/WNL.0000000000000842. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/?term=25171928>

Effect of Advancing Age on Outcomes of Deep Brain Stimulation for Parkinson Disease.

Deep brain stimulation (DBS) is a well-established modality for the treatment of advanced Parkinson disease (PD). Recent studies have found DBS plus best medical therapy to be superior to best medical therapy alone for patients with PD and early motor complications. Although no specific age cutoff has been defined, most clinical studies have excluded patients older than 75 years of age. They hypothesize that increasing age would be associated with an increased number of postoperative complications. The objective was to evaluate the stepwise effect of increasing age (in 5-year epochs) on short-term complications following DBS surgery. A large, retrospective cohort study was performed using the Thomson Reuters MarketScan national database that examined 1757 patients who underwent DBS for PD during the period from 2000 to 2009. Primary measures examined included hospital length of stay and aggregate and individual complications within 90 days following surgery. Multivariate logistic regression analysis was used to calculate complication-related odds ratios (ORs) for each 5-year age epoch after controlling for covariates. Overall, 132 of 1757 patients (7.5%) experienced at least 1 complication within 90 days, including wound infections (3.6%), pneumonia (2.3%), hemorrhage or hematoma (1.4%), or pulmonary embolism (0.6%). After adjusting for covariates, we found that increasing age (ranging from <50 to 90 years of age) did not significantly affect overall 90-day complication rates (OR, 1.10 per 5-year increase [95% CI, 0.96-1.25]; $P = .17$). The 2 most common procedure-related complications, hemorrhage (OR, 0.82 [95% CI, 0.63-1.07]; $P = .14$) and infection (OR, 1.04 [95% CI, 0.87-1.24]; $P = .69$), did not significantly increase with age. The authors conclude that older patients with PD (>75 years) who were selected to undergo DBS surgery showed a similar 90-day complication risk (including postoperative hemorrhage or infection) compared with younger counterparts. The findings suggest that age alone should not be a primary exclusion factor for determining candidacy for DBS. Instead, a clear focus on patients with medication-refractory and difficult to control on-off fluctuations with preserved cognition, regardless of age, may allow for an expansion of the traditional therapeutic window.

JAMA Neurol. 2014 Aug 25. doi: 10.1001/jamaneurol.2014.1272. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/?term=25155481>

Committee Activities

Clinical Care Committee

- **Rotation of Committee Chair:** Leadership for the clinical care committee rotates amongst the PADRECCs. The West LA PADRECC leads the committee for September/October. Committee meets via conference call the first Tuesday of the month at 12pm (EST)
- **Standardize and Optimize Clinical Care:** Continues to discuss a variety of clinical issues to learn from each other's experience, establish usage patterns of existing and emerging therapies, and discuss ways to enhance overall patient care. The committee continues to provide clinical support to the Consortium network, and work on measures to standardize clinical care across the PADRECC network. Recent agenda items have included ongoing discussion on:
 - Use of Clinical Video Telehealth for movement disorders and home monitoring devices: Review of applications in clinical arena for subset of patients, and ways to expand access to CBOCs and remote areas where subspecialty expertise is not available. Research ideas pertaining to the use of home monitoring devices in movement disorders patients.
 - Palliative Care: Review of palliative care resources in the PADRECCs and potentially working together to provide resources to guide a fellow interested in the area of palliative care issues in the movement disorder patient
 - Therapy Topics: DBS target selection, Experience with various Neurotoxins, Use of newer anti-PD formulations (e.g. Neupro Patch) across the PADRECC's etc.
 - Quality improvement/assurance project looking at hospitalized PADRECC patients and use of dopamine-blocking medications
 - The use of DAT scans in clinical practice: Applications and pitfalls of use. Standardization of reads
 - The incorporation of yoga and other exercise modalities along with meditation and breathing in the care of the PD patient and how to enhance access of these modalities to our patients
- **PADRECC Transmitter:** PADRECC clinicians provide reviews of recent movement disorder publications that are included in the PADRECC Transmitter

Education Committee

- **PADRECC/EES Movement Disorder Series:** The 1st audio conference for FY 15 will be held **November 13, 2104** "Rehabilitation Tools & Practices for Common Movement Disorder Diseases." The audio conferences are archived on the National website www.parkinsons.va.gov under the Movement Disorder Series tab. All evaluations for CMEs are being done electronically via TMS and preregistration is required. Please see the **Dates to Remember** section below for listing of upcoming audio conferences.

- **Patient Education Video Project:** The My Parkinson's Story video series from FY 11& 12 are now available for viewing on the National PADRECC & VA Consortium Website: <http://www.parkinsons.va.gov/patients.asp> and on You Tube.
- **Enduring Materials Project:** In collaboration with EES, the committee developed an on-line TMS self-study program that offers CME credit for a 3 year period. The purpose of this program is to provide VHA healthcare professionals with a broadened medical awareness of **Mood Disorders in PD**. The program is **NOW** available on TMS:

https://www.tms.va.gov/learning/user/deeplink_redirect.jsp?linkId=ITEM_DETAILS&componentID=14771&componentTypeID=VA&revisionDate=1343926380000
- **Caregiver Support Telephone Education Group:** In collaboration with the National VA Caregiver Support Line (CSL), a telephone education group will be held **on September 23rd, 2014 at 3pm EST** specifically for Caregivers affiliated with the PADRECCs. Please contact your local PADRECC and ask to speak to the Associate Director of Education for additional information.
- **National Newsletter:** The National Newsletter is in the editing phase.
- **PADRECC Transmitter:** The committee continues to assemble and distribute this e-newsletter every other month.

Southwest PADRECC Service Area Updates

Southwest PADRECC

Director: Jeff Bronstein, MD

The SW PADRECC provides comprehensive evaluation and management of Veterans with parkinsonism, tremor and dystonia including deep brain stimulation and botulinum therapy for dystonia and blepharospasm. In our effort to reach Veterans across the region, a network of eight sites are located in Southern California; Las Vegas, Nevada; New Mexico, and Arizona as well as telehealth technology. A multi-interdisciplinary approach is used including our neurosurgeon, Jean-Philippe Langevin, MD.

In addition to the PADRECC-wide collaboration on the landmark deep brain stimulation study, other collaborative studies include cost analysis of DBS, detection of pre-symptomatic parkinsonism, evaluation of how PD persons make decisions which may shed information on impulse control disorders in PD. Basic science research includes investigating causes of PD such as mechanisms of pesticide toxicity and gene-environment interactions, testing new drugs in a zebrafish model, and studying molecular mechanisms underlying selective neuronal degeneration. Health services and clinical study projects include evaluating a nurse-led care management versus usual care, evaluating SPECT scanning for early PD diagnosis, evaluating drug treatment of advanced motor fluctuations, studying the cortical physiology of dystonia, studying the effect of DBS on non-movement PD symptoms; and investigating neuropathologic changes in brains of those with PD and other dementing illness.

Albuquerque, New Mexico PADRECC Site:

The New Mexico VA Health Care System encompasses a large rural area, over 21,000 square miles, including eastern Arizona, southern Colorado and West Texas. The Neurology Service has an active tele-neurology program and has seen over 650 patients to date.

The PADRECC team, Sarah Pirio Richardson, MD and JoAnn Harnar, RN have used tele-neurology to see follow-up PD patients and to manage DBS changes remotely. Tele-neurology also provides an important avenue for PD education. Surveys reveal a high rate of satisfaction, as well as cost and time savings.

Dates to Remember

October 31-November 2, 2014

American Academy of Neurology Fall Conference

Las Vegas, NV

<https://www.aan.com/conferences/2014-fall-conference/>

November 13, 2014

EES/PADRECC Movement Disorder Series

Topic: Rehabilitation Tools & Practices for Common Movement Disorder Diseases

<http://www.parkinsons.va.gov/>

January 8, 2015

EES/PADRECC Movement Disorder Series

Topic: TBA

<http://www.parkinsons.va.gov/>

March 12, 2015

EES/PADRECC Movement Disorder Series

Topic: TBA

<http://www.parkinsons.va.gov/>

March 23-25, 2015

2015 PAN Forum

Washington, DC

<http://www.parkinsonsaction.org/your-voice/pan-conference>

April 18-25, 2015

American Academy of Neurology Annual Meeting

Washington, DC

<https://www.aan.com/conferences/2015-annual-meeting/submit-your-abstract/>

May 14, 2015

EES/PADRECC Movement Disorder Series

Topic: Tardive Dyskinesia

<http://www.parkinsons.va.gov/>

June 14-18, 2015

25th Annual Movement Disorder Society International Congress

San Diego, CA

<http://www.movementdisorders.org/MDS.htm>

September 10, 2015

EES/PADRECC Movement Disorder Series

Topic: TBA

<http://www.parkinsons.va.gov/>