

Research on sex differences in Parkinson's disease (PD) often focuses on clinical differences, rather than socioeconomic differences. We studied a population of patients with idiopathic PD at an urban safety net hospital in Boston, Massachusetts to examine differences in demographic characteristics and disease features between affected men and women.

Our study included 445 idiopathic PD patients (41.3% female, aged 30–100 years, M = 68.3 years, SD = 11). Compared to men, a greater proportion of women were non-white, ($p = 0.03$) and a trend was observed in which women were older at diagnosis ($p = 0.08$), and more likely to be on public insurance than men ($p = 0.067$). After adjusting for age at diagnosis, insurance type, and race, women were found to experience motor fluctuations (Odds Ratio, OR = 2.07, $p = 0.004$) and dyskinesias (OR = 2.92, $p < 0.0001$) more frequently than men, but were less likely to be diagnosed with dementia (OR = 0.436), and to experience autonomic dysfunctions (OR = 0.513, $p = 0.038$) than men. An uncontrolled analysis demonstrated women to have more severe disease off medication than men, on the Hoehn and Yahr scale ($p = 0.0024$).

Our results further characterize how clinical features cluster differently in men and women with PD. In addition, we provide evidence that socioeconomic factors, such as race and insurance type, may modify clinical differences, such as disease severity.

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Movement Disorders

Parkinsonism after climbing high amplitude mountain: a case report

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Acute mountain sickness (AMS) is caused by climbing to a high altitude above 2,500 meters without acclimatization. Various clinical symptoms of AMS include headache, nausea, malaise, dizziness, and insomnia within 6 to 12 hours after reaching the high altitude. Neurological consequences like Parkinsonism following AMS without lesion of brain MRI have been reported rarely. A healthy 64-year-old man presented with gait disturbance. Neurological examination showed tremor of hands, limb rigidity, and bradykinesia. He had never climbed above 1,500 m before. Symptoms developed about 20 days after he had been climbing in the Baekdu Mountain up to 2,700 meters. Neurologic examination showed mental alertness and Unified Parkinson's Disease Rating Scale (UPDRS) part III (Motor examination) was checked 10 points by rating resting tremor of his hands (2), limb rigidity (4), gait (2) and bradykinesia (finger tapping 1, toe tapping 1). Routine laboratory examinations were normal in blood tests. His electrocardiogram and echocardiography were normal, and there were no lesions detected in the brain MRI including T2-weighted and FLAIR image. He was almost improved after parkinsonism persisted for about five months. We presume that Parkinsonism occurred by transient regional hypometabolism due to hypoxia in both globus pallidus although we did not perform functional imaging. We suggest that Parkinsonism can develop after climbing to a high altitude but they can be transient symptoms in case of no abnormalities on brain MRI. Additionally, people who plan to climb high altitudes above 2,500 m need sufficient acclimatization before climbing and must pay attention to speed of ascent.

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Movement Disorders

Clinical pattern of morbidity among Pakistani patients of Parkinson's disease

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Introduction: Parkinson's disease is one of the disorders of extra-pyramidal system characterized by rigidity, akinesia and tremors. The aim of this study was to describe the clinical spectrum of the disease from Pakistan, a developing country in south-east Asia.

Methods: This phase 2 study was conducted at Rawalpindi Medical College teaching hospital, Rawalpindi, Pakistan over a period of 1 year from Sept 2013 till July 2014. Patients with Parkinson's disease, were identified by ICD-9 coding system of the hospital medical records. An informed consent was obtained from all the participants. Neurology, radiology and the department of internal medicine coordinated simultaneously.

Results: A total of 53 patients were identified. 41 were males and 12 were females. Mean age of onset of the disease was 49 ± 2 years. 25 patients had onset of illness during the sixth or seventh decade of life. Mean duration of illness at the time of presentation was 5 ± 2 years. Rigidity, bradykinesia, tremors, primitive reflexes, difficulty in performing fine work and walking difficulty were the most common clinical features. 33 patients had predominantly unilateral symptoms. 10 patients had cognitive impairment. Cognitive decline was more common in the elderly and in patients with disease duration of longer than 6 years.

Conclusion: Our study results highly matched our findings in our phase 1 trial. Parkinson's disease is more common in males. Tremor, rigidity, walking difficulty, bradykinesia and difficulty in performing fine work are the commonest clinical features. Disease severity increases with duration of the disease. Cognitive impairment is not uncommon in these patients and is associated with disease duration and age of onset of the illness.

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Movement Disorders

Syntax, action verbs, and nouns in Parkinson's disease: dissociability, progression and executive influences

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In recent years, several studies have shown that deterioration of the basal ganglia leads to selective language impairments in the domains of syntax and action-verb processing. In particular, such disruptions have been repeatedly observed in Parkinson's disease (PD) patients. However, it remains unclear whether these deficits are language-specific and whether they are equally dissociable from other language disturbances – viz., processing of noun semantics. To address these issues, we administered linguistic and executive function (EF) tasks to two groups of non-demented PD patients, with and without mild cognitive impairment (PD-MCI and PD-nMCI, respectively). We compared these two groups with each other and with matched samples of healthy controls. Our results showed that PD patients exhibited linguistic

processing deficits even in the absence of MCI. However, not all language domains were equally related to EFs and MCI across samples. Whereas EFs predicted disturbances of syntax and noun semantics in both PD-nMCI and PD-MCI, they had no impact on action-verb processing impairments in either group. Critically, action-verb semantics and action-verb production were disrupted in patients in the absence of MCI and without any influence of EFs, suggesting a *sui generis* deficit present since the early stages of PD. These findings indicate that varied language domains are differentially related to the basal ganglia networks, contradicting popular approaches to neurolinguistics (This work was partially supported by grants from CONICET, CONICYT/FONDECYT Regular 1130920, COLCIENCIAS 1115-545-31374, contract: 392, FONCYT-PICT 2012-0412, FONCYT-PICT 2012-1309, and the INECO Foundation).

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Movement Disorders

Intrathecal baclofen therapy for rigospasticity in patients with corticobasal syndrome

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Background: Rigospasticity is a major factor that disturbs ADL in patients with corticobasal syndrome (CBS). Muscle relaxant agencies by oral administration with adequate dose induce sleepiness, however effect is not sufficient.

Objective: Intrathecal baclofen (ITB) therapy is effective to increased muscular tone conditions. We studied ITB effects on rigospasticity in patients with CBS.

Patients and methods: Three patients (two males, one female, averaged disease period 5.7 years) were studied. CBS was diagnosed by clinical course and symptoms, brain MRI, brain blood flow scintigraphy. MIBG scintigraphy was studied to exclude Parkinson's disease. ITB therapy was applied in two steps, first was screening trial with bolus injection by lumbar puncture, and second continuous therapy with pump implantation. Ashworth scale is used for evaluation of rigospasticity for major joints in each extremities. We evaluated rigospasticity at pre-screening, post screening trial, and post implantation of pump system.

Results: One patient was received only screening trial, and not received pump implantation operation. Two patient were performed pump implantation operation to continue ITB therapy. Ashworth scales in most severe extremity were decreased in all patients at screening trial (case1; 3.83 to 2.50 in left lower, case2; 3.33 to 1.00 in left lower, case3; 3.67 to 2.5 in right upper extremity). After pump implantation, decreased Ashworth scales stayed lower than pre ITB therapy.

Conclusion: ITB therapy has effect on rigospasticity in patients with CBS, and should be considered to improve ADL.

I have obtained patients' and our Institutional Review Board (IRB) approval for this paper.

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Movement Disorders

Primary restless legs syndrome in patients with type 2 diabetes mellitus : efficacy of magnesium & co enzyme q10 therapy

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Objective: Primary Restless Legs Syndrome (RLS) is frequently undiagnosed and poorly treated sleep disorder with prevalence 7–10% in general population and 20–30 % in diabetic population, we investigated the prevalence of RLS in type 2 DM and assessed the efficacy of Magnesium therapy.

Methods: One hundred patients with diagnosis of type 2 DM without other secondary causes of RLS were screened from data base of regional Narayana diabetic centre of excellence and research institute south India, were screened by essential diagnostic criteria developed by international Restless Legs Study group & severity of RLS and sleep quality were assessed by international Restless Legs Rating scale (IRLS) and Pittsburgh sleep quality index (PSQI) and patients with moderate – severe neuropathy based on nerve conduction study were excluded from our study. Magnesium dicitrate (600 mg) Co enzyme Q10 (100 mg) & was administered for 12 weeks.

Results: RLS was diagnosed in 17 of 100 with mean age 51.6 +/- 11.9, mean duration of diabetes 7.2 +/- 4.1 & mean BMI 27 +/- 4.21. The IRLS score was improved from 12.71 +/- 3.6 to 6.4 +/- 2.1 ($p < 0.001$) and noticeable change in quality of sleep with change in PSQI dropping from -4.5 (95% CI) to 2.0: $P < 0.03$) after 12 weeks, however no change in HBA1c parameter or in BMI was noted.

Conclusion: We find prevalence of primary RLS in type 2 diabetic patients higher than general population. High BMI is a possible risk factor. Magnesium & Co enzyme Q10 treatment can improve symptoms of RLS and quality of sleep, however long term efficacy in wider diabetic population needs to be investigated.

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Movement Disorders

Predictors of the placebo effect in clinical trials in Parkinson's disease: a meta-analysis

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Objective: To examine the predictors of the placebo effect in double-blind randomized controlled trials (RCTs) in Parkinson's disease (PD) using a meta-analysis with meta-regression models.

Methods: The PubMed, EMBASE, and Cochrane Central Register of Controlled Trials databases (up to December 2014) were searched. We selected and extracted data from double-blind RCTs in PD which reported the mean change in the Unified Parkinson's Disease Rating Scale (UPDRS) part III score. The impacts of the predictors were assessed with linear meta-regression analyses using a random effects model. Significant predictors were used in a multivariable meta-regression analysis.

Results: Forty two studies (comprising 5,239 participants on placebo) were included. The pooled effect size was -1.47 (95% confidence interval [CI] -2.22, -0.72; $p < 0.001$, $I^2 = 93.1\%$). The duration of treatment, use of concomitant levodopa, and the baseline UPDRS part III score were significant predictors in linear meta-regression analyses. A short duration of treatment ($\beta = 0.07$, 95% CI 0.02, 0.12; $p = 0.008$) and high baseline UPDRS part III score ($\beta = -0.30$, 95% CI -0.43, -0.16; $p < 0.001$) significantly increased the placebo effect size in the multivariable meta-regression analysis.

Conclusions: The duration of treatment and the baseline UPDRS part III score were the independent predictors of the magnitude of the placebo