



541. Clinical features in idiopathic Parkinson's Disease: characterization of urinary symptoms according to Parkinson disease subtype



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Hypothesis and aims of the study

Among autonomic disorders in patients with idiopathic Parkinson's disease (iPD), bladder dysfunction is one of the most common, with a prevalence ranging between 27 and 85%.

Aims of the study were to evaluate the association between lower urinary tract symptoms (LUTS) and disease clinical features, the differences of LUTS between different clinical subtypes of PD and the impact of LUTS on Quality of Life (QoL).

Materials and Methods

This is a single-centre, prospective, observational study involving patients affected by iPD. Subjects were evaluated with the **unified Parkinson's disease rating scale (UPDRS) motor section part III** and **Hoehn-Yahr (H&Y) scale** to assess motor symptoms and the stage of disease severity. Cognitive function was assessed using **Mini Mental State examination (MMSE)** and **Montreal Cognitive Assessment (MOCA)**. Patients were divided into tremor-dominant type (TDT), akinetic-rigid type (ART), and mixed type (MXT) PD subgroups using part III of the Unified Parkinson's Disease Rating Scale. **Urinary symptoms** were evaluated with 3-day voiding diary, uroflowmetry and the Incontinence- Quality of Life questionnaires (I-QoL); psychological status by "Hamilton Anxiety Scale" (HAM-A) and "Hamilton Depression Scale" (HAM-D). Stata@ 17.0 was used as software for statistical analysis, with statistical significance set at $p < 0.05$. The medians and the interquartile ranges (IQR) were used to summarize continuous variables. Descriptive analysis was performed to compare each group, using the Kruskal-Wallis test for continuous variables and Fisher's exact test for categorical variables, respectively.

Results

Fifty-two patients (39M, 13F) were enrolled; mean (\pm SD) age was 66.5 ± 9.6 years. Mean (\pm SD) values of UPDRS and H&Y stage were 27.7 ± 10.3 and 2.4 ± 0.7 , respectively. All patients complained about at least one LUTS: 92% had urgency (53% of this had urge urinary incontinence), 83% had increased urinary frequency and 77% had nocturia. Disease duration was positively related to an increase in urinary frequency ($r=0.37$, $p=0.06$), nocturia ($r=0.29$, $p=0.03$) and negatively related to Qmax ($r=-0.33$, $p=0.01$). The rate of urinary frequency increased with the increase of HAM-D scale values ($r=0.49$, $p < 0.001$).

The number of nocturia episodes was expression of more severe disease, as expressed by UPDRS ($r= 0.37$, $p < 0.001$) and worse scores in HAM-A ($r=0.33$, $p=0.01$) and HAM-D scales ($r=0.28$, $p=0.04$). A correlation was observed between urinary frequency and HAM-A scores ($r=0.33$, $p=0.01$). No significant difference was observed between the subgroups (TDT, ART, MXT).

	Disease duration	Urinary Frequency	Nocturia
Nocturia	$r= 0.29$ $p= 0.09$		
Increase urinary frequency	$r= 0.37$ $p= 0.06$		
Q max	$r= -0.33$ $p= 0.01$		
HAM-D		$r= 0.49$ $p < 0.001$	$r= 0.28$ $p= 0.04$
UPDRS			$r= 0.37$ $p < 0.01$
HAM-A		$r= 0.33$ $p= 0.01$	$r= 0.33$ $p= 0.01$

Interpretation of results

As PD advances, non-motor symptoms pose a significant challenge in patients' management, and among these, LUTS are highly prevalent. The results of the present study demonstrate that the type and severity of LUTS did not significantly differ between the clinical subtypes of PD. Additionally, a correlation emerged between the severity of LUTS, motor impairment, and non-motor symptoms. Moreover, LUTS were significantly related to psychological features of the disease, as measured by HAM-A and HAM-D scales. Identifying and addressing LUTS in PD is crucial, as these symptoms have been shown to indicate a subgroup of newly diagnosed patients who are more susceptible to experiencing a rapid decline in their functional abilities.

Conclusions

Our results demonstrated that LUTS occurrence was irrespective to PD clinical features and that LUTS correlate with the severity of motor and non-motor impairment. To our knowledge, this study is one of the few showing a positive correlation between urinary incontinence with the cognitive involvement possibly reflecting the known role of the decline in nigrostriatal dopaminergic function.

References

- Sakakibara R, et al. Bladder function of patients with Parkinson's disease. Int J Urol 2014.