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VOIDING DYSFUNCTION IN PARKINSON'S DISEASE: URODYNAMIC ABNORMALITIES AND URINARY SYMPTOMS

Aims of Study: Patients with Parkinson's disease (PD) often show lower urinary tract symptoms (LUTSs). The degree of LUTSs is correlated with the severity of the disease.(1) Although the LUTSs in PD are presumably associated with bladder dysfunction, whether the urodynamic abnormalities are correlated with the PD severity remains unknown. In addition, it is uncertain how LUTSs reflect the urodynamic abnormalities in patients with bladder dysfunction. To approach the latter question, it is essential to quantify LUTSs according to some defined criteria.

Methods: In total, 92 patients with PD had been referred for neuro-urological evaluation of their urinary symptoms during three years from November 1996. We have employed the international prostate symptom scores (IPSS) for quantitative evaluation of LUTSs in patients with PD, as reported previously.(1) Bladder dysfunction was appraised by the IPSS questionnaire and by urodynamic tests (cystometry and sphincter electromyography) in 70 patients, excluding 22 patients who were suspected to have infravesical obstruction.

Results: Urodynamic evaluation revealed detrusor hyperreflexia in 47 patients (67 %), hyporeflexia or areflexia in 11 (16 %), hyperreflexia with impaired contractile function in 6 (9 %), hyperreflexia with detrusor-sphincter dyssynergia in 2 (3 %) and normal function in 4 (6 %). The incidence of urodynamic abnormalities appeared to increase with the disease severity. However, the only urodynamic parameter that was correlated with the disease severity was the volume of post-void residual (PVR)(one-way ANOVA,  $p < 0.0001$ ). On the other hand, the symptom index scores increased with the disease severity ( $p < 0.003$ ).

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0.002) and the volume at first desire to void ( $r = -0.33, p < 0.02$ ), whereas the obstructive symptom scores were correlated with PVR ( $r = 0.32, p < 0.03$ ). Also, the irritative and obstructive symptom scores were good predictors for the presence of overactivity at storage phase ( $r = 0.53, p < 0.0001$ ) and the dysfunction at voiding phase ( $r = 0.42, p < 0.003$ ), respectively. QOL index was highly correlated with symptom index, especially with irritative symptoms ( $r = 0.63, p < 0.0001$ ). Among urodynamic findings, only the presence of overactivity at storage phase was correlated with QOL index ( $r = 0.34, p < 0.02$ ).

Conclusions: Urodynamic findings showed that the bladder dysfunction in PD is mainly detrusor hyperreflexia (79 %), although a minor population (16 %) exhibits hyporeflexia. Bladder dysfunction may progressively deteriorate with the advancement of the disease. However, none of urodynamic parameters except PVR were correlated with the disease severity, whereas LUTSs quantified by IPSS were correlated with the disease severity. The symptom scores were fairly accurate in predicting the likely urodynamic abnormalities. Our results suggested that the quantification of subjective urinary symptoms is useful to estimate the severity and type of bladder dysfunction.

Reference: (1) Assessment of voiding dysfunction in Parkinson's disease by the international prostate symptom scores. J. Neurol. Neurosurg. Psychiat. in press, 2000.