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Title: RELATIONSHIP BETWEEN URINARY SYMPTOMS AND DISEASE-RELATED PARAMETERS IN MULTIPLE SCLEROSIS

Aims of Study:

Voiding dysfunction often occurs in patients with multiple sclerosis (MS) and severely disturbs the quality of the patient's life. The reported incidence of voiding dysfunction in MS varies from 10 to 97 %. This variability seems to be mainly due to the difference in the sampling procedure of patients. The relationship between voiding dysfunction and the background or neurological features of the patients is considerably uncertain. We aimed to study the incidence of voiding dysfunction and its relation to the disease-related parameters (disease severity, disease duration, site of pathological lesions, age and sex).

Methods:

All patients with MS seen in our neurological department during three months (50 patients) were sampled on the consecutive basis, regardless of lower urinary tract symptoms. The presence of voiding dysfunction was quantitatively evaluated by the use of the International prostate symptom score (I-PSS). 47 patients had completed the I-PSS questionnaire. Arbitrarily, the patients with a symptom index score of 12 or higher were considered to have symptomatic voiding dysfunction. When the score in irritative symptoms or obstructive symptoms was ≥ 7 or ≥ 9 , the patients were considered to have symptomatic. According to Kurtzke expanded disability status scale (EDSS), the disease severity was scored from 0 to 10 at an interval of 0.5. When the disease severity was divided into three classes, mild (EDSS score, 0-3.0), moderate(3.5-6.0) and severe (6.5-10.0), 19 patients were classified to be at mild class, 11 at moderate class and 17 at severe class. The duration of illness ranged from 0 to 39 years with an average of 11.8. The site of pathological lesions in the central nervous system was examine by neurological and magnetic resonance imaging findings. Thirty patients had pathological lesions in the cerebrum, 16 in the cerebellum, 29 in the optic nerves, 27 in the brainstem and 34 in the spinal cord.

Results:

Of the 47 patients, 25 (53 %) were considered to have symptomatic voiding dysfunction. Even at mild class of the disease severity, 6 of 19 (32 %) patients were symptomatic. Eight (17 %) patients had irritative symptoms alone, whereas 9 (19 %) patients had obstructive symptoms alone. The irritative and obstructive symptoms were concomitant in 10 (21 %) patients. Compared with reports from Western countries, the ratio of obstructive symptoms to irritative symptoms was higher in Japan. Irritative symptom scores were well correlated with the EDSS scores ($r = 0.60$, $p < 0.0001$), whereas the correlation of obstructive symptom scores with the disease duration ($r = 0.32$, $p < 0.03$) was less significant. Also, irritative symptom scores were correlated with the disease duration ($r = 0.32$, $p < 0.03$), but obstructive symptom scores were not ($r = 0.09$, $p < 0.5$). Among the pathological lesions in the central nervous system, only the presence of

the spinal cord lesions was correlated with the symptom index scores ($\chi^2 = 8.7, p < 0.004$). The QOL index scores were significantly correlated with the EDSS scores ($r = 0.52, p < 0.0003$) and the symptom index scores ($r = 0.79, p < 0.0001$). The symptom index and QOL index scores were not significantly correlated with the age or the sex.

Conclusions:

This study suggests that the quantified urinary symptoms are useful to evaluate the voiding dysfunction in multiple sclerosis and may assist neurological diagnosis.