

Urinary Disorders in Multiple Sclerosis; Clinical Study, Urodynamic Outcomes and Management (The Moroccan Experience)

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Abstract

Background: To review the clinical and urodynamic profile of multiple sclerosis (MS) patients with urinary disorders, their impact on life quality, and their management.

Methods: A prospective observational and descriptive study was conducted over a period of 5 years, from January 2016 to October 2020, on 270 MS patients followed up in neuro-urology consultations for their urinary disorders

Results: 135 patients had clinical dysuria (50%), 55 (20.37%) had stress urinary incontinence and 215 (79.62%) had an overactive bladder syndrome. The urodynamic evaluation showed dysuria in 100 (37.04%) patients, vesico-sphincter dyssnergiea in 66 (24.45%) and post mictional residual in 40 (14.82%). Cystomanometry showed detrusor hyperactivity in 60 (22.23%) patients, detrusor hypocontractility in 25 (9.25%) and leakage during filling in 20 (7.41%) patients. The profilometry showed sphincter hypertonia in 50 (18.52%). Anticholinergic drugs were administered in 60 (22.3%) patients, adrenergic alpha- antagonists in 150 (8.52%) and clean intermittent catheterization was indicated in 40 (14.82%) patients.

Conclusion: Urinary disorders in MS patients are variable, dominated by dysuria and bladder overactivity syndrome, and their impact on the life quality is significant. Urodynamic exploration had shown mainly detrusorian hyperactivity and sphincter hypertonia. The therapeutic management was based on anticholinergics, adrenergic alpha-antagonists and clean intermittent catheterization.

Keywords: Multiple Sclerosis; Urinary Disorders; Urodynamic Exploration; Anticholinergic; Adrenergic Alpha-antagonists

Abbreviations

MS: Multiple Sclerosis.

Background

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system (white matter), inflammatory and demyelinating. It is the most common disabling neurological disease of young adults. Symptoms evolve in relapses and are directly related to the

location of the demyelinating plaque; they may be cognitive, motor, sensory, bladder sexual and anorectal [1].

Urinary disorders are widely described, affecting nearly 80% of patients. They may even be a revelation of the neurological disease in 6 to 10% of cases. They always affect the functional prognosis, much more rarely the vital prognosis by uro-nephrological degradation, thus increasing the social and/or psychological handicap of the patients. They are a marker of the severity of the disease with a reduced life expectancy in case of early mictional disorders [2].

Urinary disorders represent the main irritative triggers of the disease and should be systematically detected. They are dominated by irritative signs (pollakiuria, urgency, urinary incontinence) in 37% to 99% of cases. Their management is dietetic, medicinal and rehabilitative [3].

Many studies have been conducted on this subject, enriching the literature. However, the limited Moroccan data on the epidemiology of mictional disorders in MS and their management is still very remarkable.

The aim of this study is to report on the clinical and urodynamic profile of MS patients with urinary disorders, their impact on the quality of life, and their management.

Methods

Patients

Inclusion criteria

Patients with MS and urinary disorders followed in our department were included in the study.

Exclusion criteria

Patients presenting a pathology other than MS that could cause urinary disorders were excluded from the study:

- Neurological diseases; cerebral vascular accident, cerebral abscess, cerebral tumors, medullary infarcts, medullary trauma, medullary process, cauda equina syndrome
- Urogynecological disorders; genital prolapse, benign or a malign prostate hypertrophy, pelvic tumors.

Procedures

Type of study

A prospective observational and descriptive study was conducted over a period of 05 years, from January 2016 to October 2020, on 270 MS patients followed up in neuro-urology consultation for their urinary disorders.

Medical record

All patients collected for this study had a medical record including data from the interrogation (age, sex, medical background, clinical symptomatology and associated mictional disorders) and physical examination (neuro-orthopaedic and perineal).

Assessment scales

Different scales were administered to our patients;

- The evaluation of urinary symptoms was based on : The Urinary Symptom Profile (USP)
- The assessment of the life quality in relation to the urinary disorders was done with the Qualiveen score
- Anorectal disorders were evaluated using the Neurogenic Bowel Disorder scale (NBD).
- The evaluation of physical disability in MS was based on the Expanded Disability Status Scale (EDSS).

Paraclinical examinations

At the end of the neuro-orthopaedic and perineal evaluation and according to the urinary disorders, paraclinical examinations were requested:

- Vesico-renal ultrasound with measurement of post voiding residue associated with prostatic ultrasound in men
- Renal function with measurement of urine creatinine clearance/24h,
- Urine cytobacteriological examination
- Urodynamic examination.

Statistical analysis

- Data were analyzed using Epi Info 7.0 software
- The parametric ANOVA test was performed for all variables.
- The results are considered significant for $p < 0.05$

Results

Sociodemographic data

Our study included 270 MS patients with urinary disorders, with a mean age of 38.4+/-12.5 years. A female predominance was noted with a sex ratio of 0.45 (85 M/185F).

Medical history was found in 24.6% of the patients, with hypertension predominating (9.2%). Surgical history was found in

31.3% of patients, predominantly caesarean sections (12.4%) and digestive surgery (9.4%).

Clinical data

Concerning the clinical forms of MS; RR form was predominant in 57.4% (155) of patients followed by PP form in 25.92% (70) of patients and RP form in 16.67% (45) of patients.

The average duration of MS was 6.2 years.

The clinical symptomatology consisted of retrobulbar optic neuritis, cognitive impairment, motor and/or sensory deficits, and urinary disorders. Anorectal disorders were also investigated. These data are presented in table 1.

Symptomatology	Patients
Retrobulbar optic neuritis	39,25% (106)
Cognitive deficit	59,25% (160)
Motor deficit:	
Monoparesis	42,96% (116)
Hemiparesis	45,92% (124)
Paraparesis	11,12% (30)
Sensory deficit	51,85% (140)
Urinary disorders	
Dysuria	50% (135)
Stress urinary incontinence	20,37% (55)
Bladder overactivity syndrome	79,62% (215)
Anorectal disorders	74,07% (200)

Table 1: Patients repartition according to clinical data.

The evaluation of life quality in relation to urinary disorders was done by the Qualiveen scale with; a mean of 1.3 in 52.17% of RR MS patients, a mean of 1.8 in 30.43% of PP MS patients and a mean of 2.9 in 17.39% of RP MS patients.

Paraclinical data

Our patients have benefited from the totality of the paraclinical assessment; the vesico-renal ultrasound had shown a hydronephrosis in 18.3% of the patients, the vesico-ureteral reflux has been found in 21.66% of the patients.

The results of the urodynamic exploration are shown in table 2.

Symptomatology	Patients
Flowmetry	
Dysuria	37,04%(100)
Vesico-sphincterian dyssynergiea	24,45%(66)
Post voiding residue	14,82%(40)
Cystomanometry	
Detrusor overactivity	22,23%(60)
Detrusor hypocontractility	9,25%(25)
Urinary leaks	7,41%(20)
Profilometry	
Sphincter hypertonia	18,52% (50)

Table 2: Patient repartition according to the outcomes of urodynamic exploration.

Therapeutic data

The management of the patients included drug and non-drug means; anticholinergics were administered in 22.3% (60) of patients, adrenergic alpha-antagonists in 18.52% (50) of patients, and clean intermittent catheterization was indicated in 14.82% (40) of patients.

Discussion

Urinary disorders are frequent in MS, they can appear during the evolution of the disease as well as being the revealing symptom of it, which allows us to predict the severity of the clinical symptomatology and the installation of morbidities in the short and medium term [3,4].

The average duration of onset of urinary disorders in MS is very variable, in our study it was 6.2 +/- 4.8 years while it is 6 to 10 years in the literature [5,6].

There is no relationship between the form of MS and the type of urinary disorders [7-9], but their prevalence increases proportionally with the duration of MS and the degree of physical disability (EDSS) [5,10].

Among the urinary symptoms found in MS, dysuria and bladder overactivity are the most frequent; dysuria may be due to; detrusor hypocontractility during bladder voiding, to vesico-sphincter dyssynergy or even to sphincter hypertonia, whereas bladder

overactivity is explained by involuntary detrusor contractions not inhibited by the nervous system [7]. Concerning stress urinary incontinence in MS, few studies have discussed it, its prevalence is similar to that in the general population. Therefore, we identify different predictive factors of stress urinary incontinence in MS patients, the most frequent of which are urogenital prolapse and urinary urgency incontinence. These factors should be searched and treated because they aggravate the urinary symptomatology of neurological origin [8,9].

In our study, clinical dysuria was found in 50% of the patients, the overactive bladder syndrome in 79.62% of the patients, which is consistent with the literature, while stress urinary incontinence was found in 20.37% of patients.

The life quality of patients with MS depends on the sensory-motor deficit, urinary disorders and sexual genital disorders [5,8,11,12].

In our study, a deterioration of the life quality related to urinary disorders was found in the majority of patients, independently of the form of MS.

Concerning the therapeutic management, adrenergic alpha-antagonists and anticholinergic drugs have proved respectively their efficacy in sphincter hypertonia and detrusorian hyperactivity. In case of significant post voiding residual, learning sessions of clean intermittent catheterization techniques are organized for the patients.

In our study, anticholinergics were administered in 22.3% of patients, adrenergic alpha-antagonists in 18.52% of patients, and clean intermittent catheterization was indicated in 14.82% of patients.

Urological complications including hydronephrosis, vesico-ureteral reflux and urinary tract infection are dreadful in MS. They are mainly due to a late management of lower urinary tract disorders [4,7,13].

In our study, hydronephrosis was found in 18.3% of patients, and vesicoureteral reflux in 21.66% of patients.

Conclusion

MS is the most common inflammatory disease of young adults with a polymorphic clinical presentation. We conducted this work to study urinary disorders in MS patients, which showed their clinical variability dominated by dysuria and bladder hyperactivity syndrome as well as their remarkable impact on the life quality of the patients. Urodynamic exploration had shown mainly detrusorian hyperactivity and sphincter hypertonia. The therapeutic management was based on anticholinergics, adrenergic alpha-antagonists and clean intermittent catheterization.

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