SPMS Diagnosis: A Canadian Practice Audit

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Introduction

- An estimated 50% of relapsing-remitting multiple sclerosis (RRMS) patients will develop secondary-progressive disease (SPMS) within 15-20 years of MS onset; the average age at onset is 45 years (1,2).
- The lack of consensus on diagnostic criteria contributes to clinician uncertainty and a considerable diagnostic delay (3).

Objective

- To examine the clinical characteristics of patients potentially transitioning from RRMS to SPMS as well as SPMS patients in the Canadian practice setting.

Methods

- A retrospective chart review was completed in Canadian MS specialized centres and community neurology practices of MS patients who received their RRMS diagnosis 10 to 20 years ago and had a current EDSS of 3.0 to 6.5.

Results

- Data were collected for 708 patients at 15 centres (59% from 10 MS clinics, 41% from 5 community practices) (Figure 1).
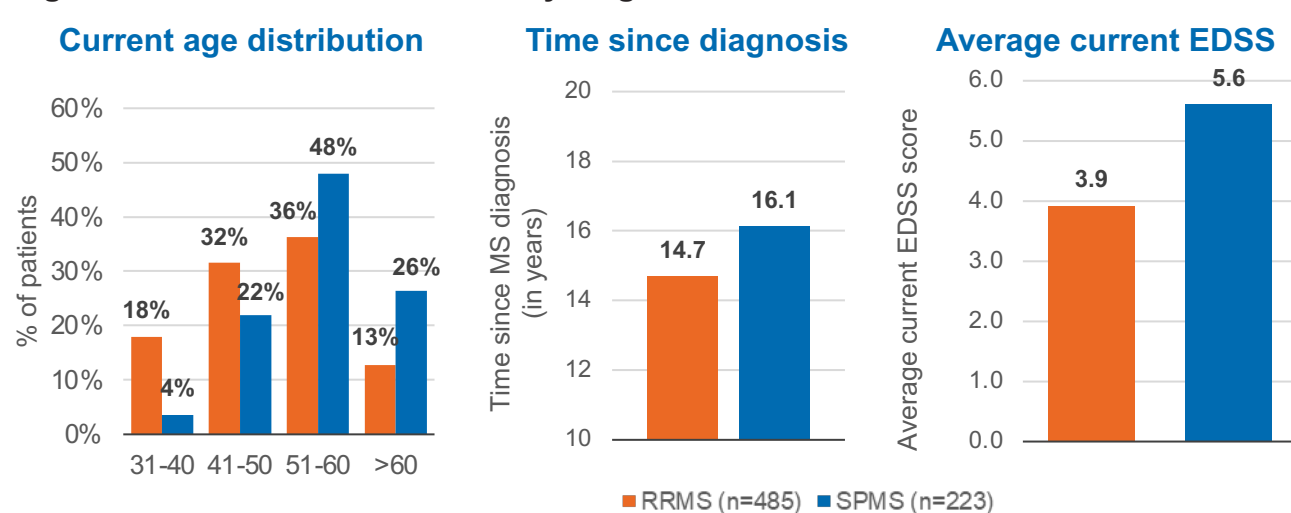
Figure 1. Overall population (n=708).
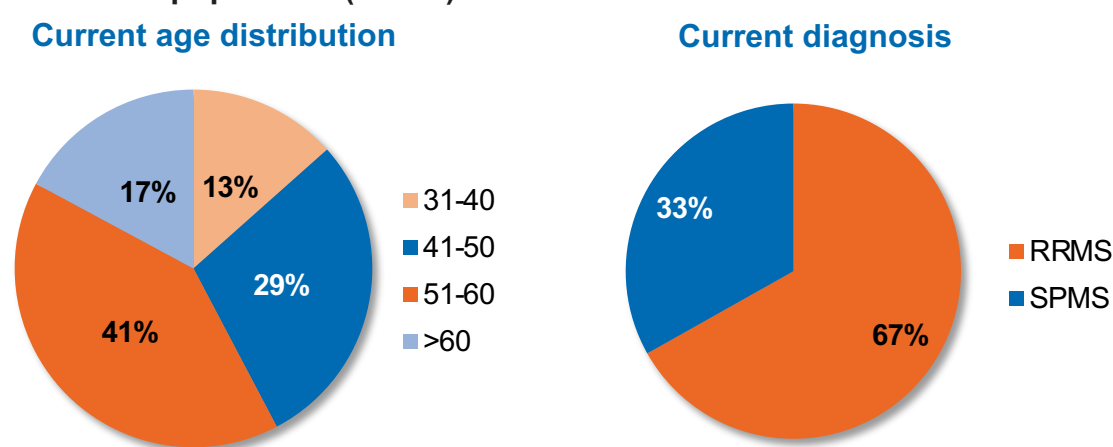
Abbreviations: RRMS, relapsing-remitting multiple sclerosis; SPMS, secondary-progressive multiple sclerosis

- In the overall population, the majority were aged >50 years (58%). The average duration of MS was 15.2 years (range 13.3-17.1 years).
- The SPMS group (n=223) was older (74% aged >50 years vs. 49%), had a higher current Expanded Disability Status Scale (EDSS) score (mean 5.6 vs. 3.9) and a longer time from MS diagnosis (mean 16.1 vs. 14.7 years) compared to the RRMS group (n=485) (Figure 2).

Figure 2. General characteristics by diagnosis.

Abbreviations: RRMS, relapsing-remitting multiple sclerosis; SPMS, secondary-progressive multiple sclerosis

Disease activity

- The proportion of patients with relapses was higher in the RRMS group vs. the SPMS group (22% vs. 16%) whereas the proportion of patients with new/expanding MRI lesions was lower (29% vs. 37%) (Table 1). A higher proportion of SPMS vs. RRMS patients had not undergone MRI within the past 2 years (19% vs. 6%).

Table 1. Evidence of disease activity in last 2 years by diagnosis.

Parameter	RRMS (n=485)	SPMS (n=223)
Change in EDSS	0.42	0.71
% of patients with relapses	22%	16%
% of patients with MRI	94%	81%
% of patients with MRI who had MRI activity	29%	37%
% of patients on DMT	84%	47%

Abbreviations: DMT, disease-modifying therapy; EDSS, Expanded Disability Status Scale; MRI, magnetic resonance imaging; RRMS, relapsing-remitting multiple sclerosis; SPMS, secondary-progressive multiple sclerosis

MS-related symptoms

- Records were examined for the incidence of three MS-related symptoms. A higher proportion of SPMS patients had signs of cognitive impairment (49% vs. 26%), urinary incontinence/bladder dysfunction (84% vs. 43%) and sexual dysfunction (29% vs. 12%) compared to the RRMS group (Table 2). The incidence of sexual dysfunction was most likely underestimated as it was unknown in 63% of cases.
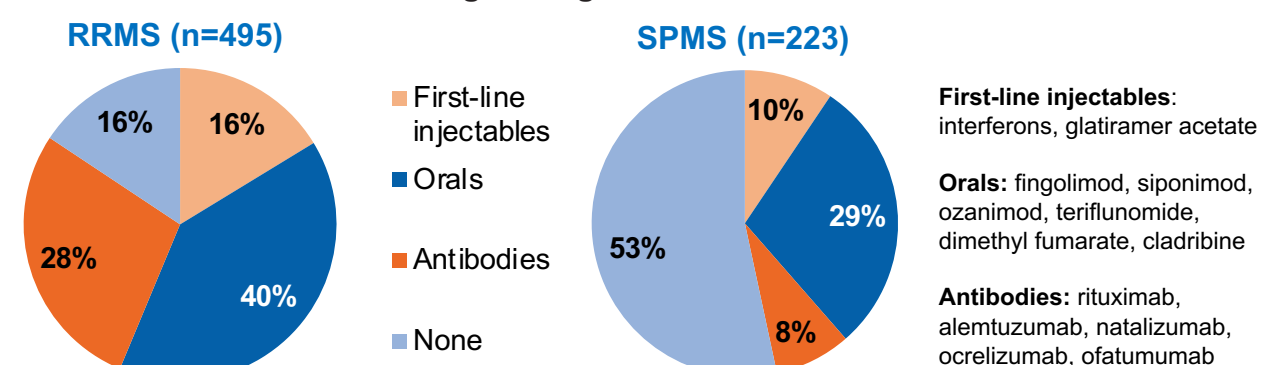
Table 2. Signs and symptoms in last 2 years by diagnosis.

Signs and symptoms	RRMS (n=485)	SPMS (n=223)
Cognitive dysfunction	26%	49%
Urinary/bladder dysfunction	43%	84%
Sexual dysfunction	12%	29%

Medication use

- A majority of SPMS patients (119/223, 53%) were not receiving a disease-modifying therapy (DMT) (Figure 3); the most common DMTs were oral agents (29%) and first-line injectables (10%). In contrast, 84% of RRMS patients were currently on treatment; the most common DMTs were oral agents (40%) and monoclonal antibodies (28%).

Figure 3. Medication use according to diagnosis

First-line injectables: interferons, glatiramer acetate

Orals: fingolimod, siponimod, ozanimod, teriflunomide, dimethyl fumarate, cladribine

Antibodies: rituximab, alemtuzumab, natalizumab, ocrelizumab, ofatumumab

Comparison to real world data

- SPMS patients in Canada resembled non-active SPMS (naSPMS) patients from the Adelphi Real World MS Disease Specific Programme (DSP) (4) (Table 3)

Table 3. Comparison of Canadian results to Adelphi Real World MS DSP (4).

Characteristics	Adelphi[4]		Canada
	aSPMS (N=1889)	naSPMS (N=665)	SPMS (n=223)
EDSS score in the past 12 months, mean (SD)	4.6 (1.72) n=1463	5.2 (1.76) n=606	5.6
Change in EDSS score in the past 12 months, mean (SD)	0.43 (0.56)	0.20 (0.49)	0.71 (past 2 years)
Number of PLwMS with MRI conducted in the past 12 months (% non-missing)	1657 (87.7%)	390 (58.7%)	172/212 (81% in last 2 years)
Proportion of PLwMS not on any DMT (%)	23.4	45.1	53.4

Abbreviations: aSPMS, active SPMS; DMT, disease-modifying therapy; EDSS, Expanded Disability Status Scale; MRI, magnetic resonance imaging; naSPMS, non-active SPMS; PLwMS, people living with multiple sclerosis; SD, standard deviation; SPMS, secondary-progressive multiple sclerosis

Conclusions

- SPMS is generally diagnosed about 16 years after MS onset when patients are aged >50 years and already have moderate-to-severe disability. SPMS patients are also more likely to be untreated. The above data could not determine if an SPMS diagnosis is delayed. Improved detection of worsening symptoms may enable earlier diagnosis of SPMS in younger patients before the onset of irreversible disability.
  – In Canada, SPMS patients resembled naSPMS patients from the Adelphi data base.

References

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Acknowledgments

Disclosures

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