Clinical outcomes and treatment strategy of multiple sclerosis in China: Results from a real-world cross-sectional survey

P453

Authors: Xiao Zhang[1], Shuang Cai[1], Jie Cai[1], Yuxiang Yang[1], Wenhao Wang[1], Eddie Jones[2], Mia Berry[2]

[1]Novartis Pharma AG, Beijing, China, [2]Adelphi real world, Manchester, United Kingdom

SUMMARY

1 In patients with MS in China:
- Low no evidence of disease activity (NEDA) - 3 (27.4% in 2020-2021)
- Low percentage (30.1%) and late initiation of DMT
- Low satisfaction with current treatment (38.3% completely/moderately dissatisfied)

2 In Physicians in China:
- Physicians consider of treatment switch mostly based on relapse, but not on disability progression and radiological activity.

INTRODUCTION

- MS is a chronic disabling neurological disease mainly affecting young adults.
- Despite potential high MS disease burden in China, the data on clinical outcome in patients and treatment strategies in physicians is very limited.

OBJECTIVE

- To describe status of diagnosis, treatment, and clinical outcomes in patients with MS, as well as treatment strategies in neurologists in real-world clinical setting in China.

METHODS

Study design

- A secondary data analysis of data collected by Adelphi MS Disease Specific Program (DSP) , a cross-sectional survey conducted in neurologists and their MS patients in different district of China between June and August 2021 (**Fig.1**)

Study population

- **Patients**
1. Had a physician-made diagnosis of MS before or at the time of data collection.
2. ≥18 years at the time of data collection.
3. Living and being visited in China.
4. For rehabilitation specialists specifically: EDSS score ≥ 6 before or at the time of data collection.

- **Physicians**
1. Geographic distribution of potential participants
2. Be able to complete a diary of their patients. Must be seeing>3 MS patients per month.
3. Be actively involved in the treatment/management of patients with MS.

Statistical analysis

- Normally distributed continuous data was expressed as means and standard deviations.
- Comparison of means among 3 groups was tested by ANOVA, and post hoc pairwise comparison was tested using SNK-q test.
- Skewed variables was expressed as median and inter-quartile range (IQR)
- Comparison among 3 groups was tested by Kruskal-Wallis test, and post hoc pairwise comparison was tested using Mann-whitney U test.
- Categorical variables was expressed as frequency and percentage, and comparison among 3 groups was tested by Chi-Square test.
- All statistical analysis was performed using SPSS (ver 20.0) . A two-tailed p-value<0.05 was considered as statistically significant.

Figure 1. The three phases of the Adelphi Disease-Specific Programmes
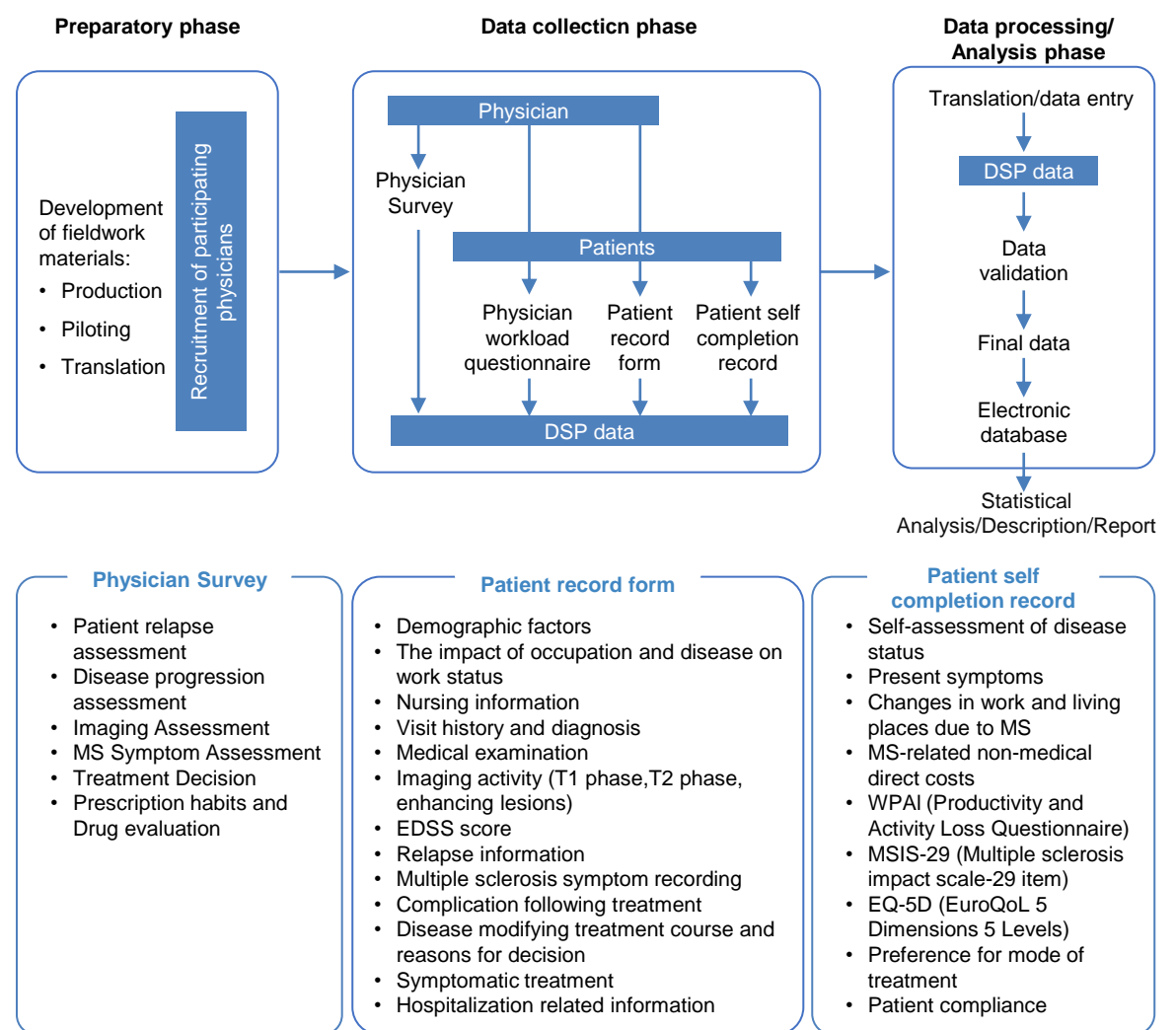
RESULTS

- A total of 161 physicians (151 neurologists and 10 rehabilitation specialists) provided information on 965 patients (**Table 1**) .
- Among 540 patients with complete data, 27.4% patients achieved NEDA - 3 in the past 12 months.

Table 1. Demographic factors and diagnosis and treatment of patients

Group	n	Age (yrs)	Female, n (%)	First MS diagnose: Time between initial symptom and initial consultation (yrs)	Time between initial consultation and MS diagnosis (yrs)	Consultations in the previous 12 months: Num of visits	Num of MRI	Num of EDSS	n	Employment status: Long term sick/retired/unemployed due to MS, n (%)
MS	956	43.1±12.3	654 (68.4)	0.14±0.18	0.18±0.24	6.4±4.7	1.7±0.8	1.0±1.6	820	116 (14.1)
RRMS	770	41.9±11.6	523 (67.9)	0.13±0.19	0.18±0.24	6.4±4.8	1.7±0.8	0.9±1.5	659	77 (11.7)
SPMS	103	49.6±13.4[bb]	75 (72.8)	0.15±0.19	0.18±0.23	7.4±3.7	1.9±0.9	1.1±1.4	85	21 (24.7)
PPMS	83	45.6±14.0[bbc]	56 (67.5)	0.15±0.17	0.19±0.26	5.8±4.7	1.7±0.9	1.8±2.2	76	18 (33.7)
P value		<0.001	0.593	0.175	0.719	0.003	0.047	<0.001		0.652

Group	n	Treatment: No treatment	Non-DMT treatment[d]	DMT treatment[e]	Time between diagnosis and initiation of first DMT[a,f] (years)	n	Satisfaction of current treatment: Moderately-Completely dissatisfied	Moderately-Completely satisfied
MS	954	395 (41.4)	272 (28.5)	287 (30.1)	2.5 (1.0,5.4)	974	363 (38.3)	372 (39.3)
RRMS	769	335 (43.6)	219 (28.5)	215 (28.0)	1.9 (0.8,4.2)	763	272 (35.6)	319 (41.8)
SPMS	103	33 (32.0)[b]	32 (31.1)	38 (36.9)	9.0 (4.3,11.8)[bb]	101	54 (53.5)[bb]	27 (26.7)[bb]
PPMS	82	27 (32.9)	21 (25.6)	34 (41.5)[b]	2.8 (1.7,4.7)[c]	83	37 (44.6)	26 (31.3)
P value		0.022	0.716	0.011	<0.0001		0.001	0.004

Notes: RRMS, Relapse-Remitting Multiple Sclerosis; SPMS, secondary-progressive multiple sclerosis; PPMS, primary-progressive multiple sclerosis; [a]Data presented as median (quartiles); Compared to RRMS, [b]P<0.05, [bb]P<0.01; Compared to SPMS, [c]P<0.05; [d]Non-DMT treatment: Azathioprine, Mycophenolate mofetil and Tacrolimus; [e]DMT treatment: interferon beta-1a ,Teriflunomide, Fingolimod, Siponimod, Dimethyl fumarate, Rituximab; [f]DMT with MS indication, Rituximab was not included

Figure 2. Physician treatment decisions after relapse
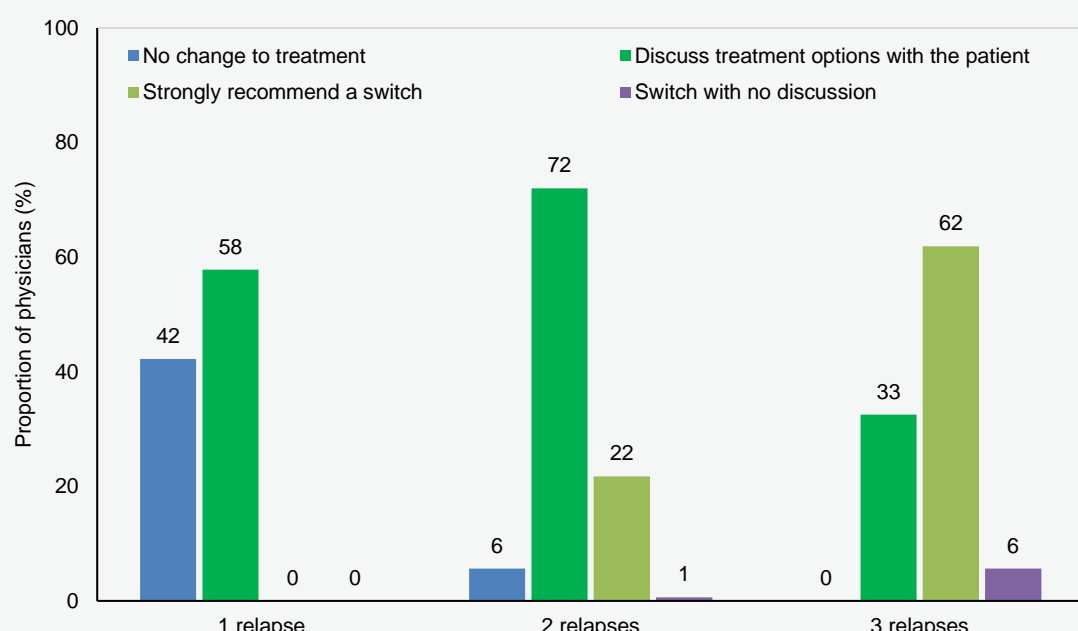
CONCLUSIONS

- This is the first multicenter, large-scale real-world study conducted in MS patients and physicians using DSP in China.
- Physicians consider of treatment switch mostly based on relapse, but not on disability progression and radiological activity, which may develop independently without relapse in MS.
- This study shows low percentage and late initiation of DMT, low NEDA-3, and low satisfaction with current treatment in MS patients, and the possible reasons include limited DMT, late initiation and conservative switching of DMT.
- Limitations: (1) Selection bias: MS patients from experienced physicians in tertiary hospitals were included in our study, the results may not be generalizable to the wider population; (2) the cross-sectional design cannot establish a cause-and-effect relationship.

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