Treatment Persistence of Cladribine Tablets Versus Other Oral Disease-Modifying Treatments for Multiple Sclerosis: Results From Danish, Norwegian, and Swedish Registries

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CONCLUSIONS

In this real-world study of pooled data from >3600 Scandinavian people with MS, both treatment-naïve and first-switch patients treated with cladribine tablets demonstrated significantly longer time-to-treatment switch and treatment discontinuation compared with other oral DMTs

INTRODUCTION

- Generating Learnings In MultiPle SclErosis (GLIMPSE) is a longitudinal study of prospectively collected registry data to compare real-world treatment outcomes in patients with relapsing multiple sclerosis (MS) treated with cladribine tablets versus other oral disease-modifying treatments (DMTs)
- Utilizing Danish, Norwegian, and Swedish registries offers large and diverse data sets that contain magnetic resonance imaging (MRI) analysis, allowing for comprehensive monitoring of disease activity and assessment of treatment efficacy

OBJECTIVES

To compare real-world time-to-treatment switch and discontinuation in patients on cladribine tablets 10 mg (3.5 mg/kg cumulative dose over 2 years) vs patients on other oral DMTs, including fingolimod, dimethyl fumarate, and teriflunomide

METHODS

- Data from Danish, Norwegian, and Swedish MS registries were pooled for 3621 treatment-naïve and 1721 first-switch patients with relapsing MS
- Differences in treatment persistence between first-line cladribine tablets and the three oral comparators were analyzed using a propensity score-based Inverse Probability of Treatment Weighted marginal Cox model
- The propensity score was derived using age, sex, country, disease duration, baseline Expanded Disability Status Scale score, pre-baseline relapse activity, and baseline MRI activity as adjusting covariates
- Treatment switching was defined as the initiation of a new DMT within 6 months of interrupting the index DMT. Discontinuation was defined as any treatment interruption with or without initiation of a subsequent DMT at any point

Cladribine tablets 10 mg (3.5 mg/kg cumulative dose over 2 years) are indicated for the treatment of patients with MS in the United States (relapsing forms of MS, including relapsing-remitting disease and active secondary progressive disease, in adults).

RESULTS

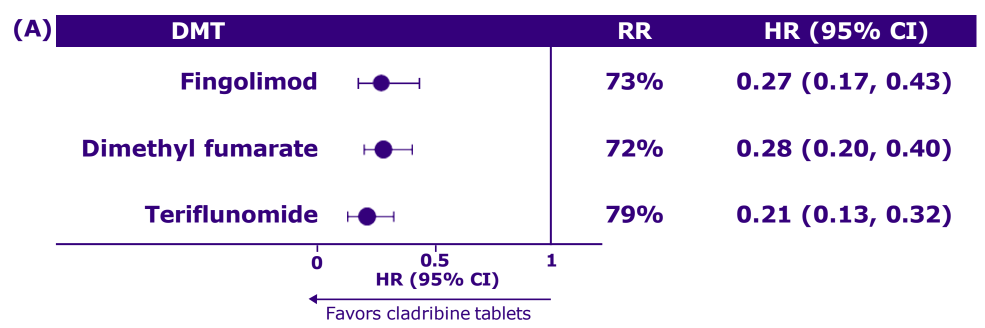
- In total, 3621 patients were included in the treatment-naïve cohort: mean age 38.7 years, 67% female, time since first symptom 3.4 years, and 1721 patients included in the first-switch cohort: mean age 41.7 years, 71% female, time since first symptom 7.9 years (**Table 1**)

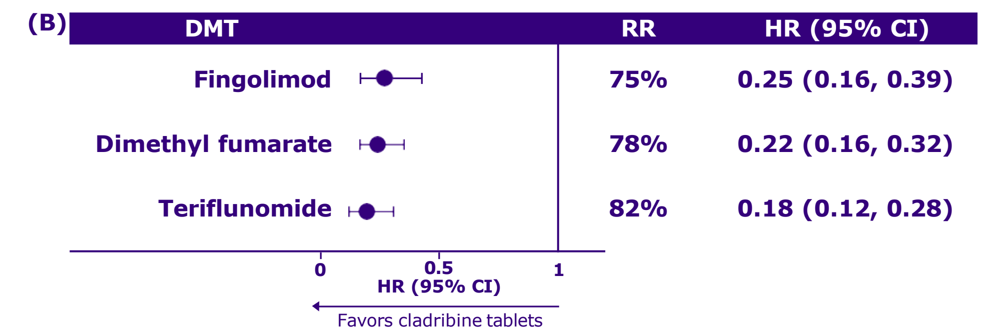
Table 1. Patient Characteristics

Characteristics	Treatment-naïve cohort (N=3621)				First-switch cohort (N=1721)			
	Cladribine tablets (n=462)	Fingolimod (n=115)	Dimethyl fumarate (n=1865)	Teriflunomide (n=1179)	Cladribine tablets (n=382)	Fingolimod (n=233)	Dimethyl fumarate (n=748)	Teriflunomide (n=358)
Age at baseline, years (SD)	38.1 (11.2)	36.8 (10.1)*	38.4 (10.9)	41.7 (11.1)*	38.9 (11.1)	41.0 (10.1)*	42.3 (11.3)	44.4 (10.6)*
Female, n (%)	321 (69.5)	64 (55.7)*	1293 (69.3)	756 (64.1)	267 (69.9)	159 (68.2)	561 (75.0)	241 (67.3)
Years since first symptoms, mean (SD)	3.6 (6.6)	2.9 (5.5)*	3.1 (5.6)*	3.9 (6.4)	6.6 (7.3)	6.9 (6.4)	8.5 (8.5)*	9.5 (8.7)*
Years on current treatment, mean (SD)	1.3 (1.1)	2.0 (1.4)	1.4 (1.1)	1.7 (1.4)	0.6 (1.1)	2.1 (1.5)	1.4 (1.3)	1.5 (1.3)
Baseline EDSS, median (IQR)	1.5 (1, 2.5)	2 (1, 3)*	1.5 (1, 2)	2 (1, 2.5)	1.5 (1, 2.5)	2 (1, 3)	2 (1, 2.5)	2 (1, 2.5)
≥1 pre-baseline relapse, n (%)	372 (80.5)	88 (76.5)	851 (45.6)*	811 (68.8)	334 (87.4)	208 (89.3)	541 (72.3)*	254 (71.0)*
Relapses within 1 year pre-baseline, mean (SD)	0.59 (0.58)	0.69 (0.68)*	0.42 (0.62)*	0.50 (0.59)	0.25 (0.56)	0.37 (0.59)*	0.24 (0.51)	0.18 (0.42)
Baseline MRI† - T1 Gd+ lesions, n (%)								
No T1 lesions present	156 (33.8)	29 (25.2)*	629 (33.7)*	21 (35.7)*	125 (32.7)	66 (28.3)	213 (28.5)	84 (23.5)*
T1 lesions present	176 (38.1)	45 (39.1)*	305 (16.4)*	213 (19.8)*	50 (13.1)	22 (9.4)	53 (7.1)	16 (4.5)*
MRI performed, T2 lesions not reported	96 (20.8)	32 (27.8)*	725 (38.9)*	447 (37.9)*	178 (46.6)	124 (53.2)	373 (49.9)	210 (58.7)*
No baseline MRI	34 (7.4)	9 (7.8)*	206 (11.1)*	98 (8.3)*	29 (7.6)	21 (9.0)	109 (14.6)	48 (13.4)*
Baseline MRI† - T2 lesions, n (%)								
No T2 lesions present	49 (10.6)	13 (11.3)*	419 (22.5)	316 (26.8)	145 (38.0)	48 (20.6)*	130 (17.4)*	68 (19.0)*
T2 lesions present	338 (73.2)	65 (56.5)*	583 (31.3)	374 (31.7)	145 (38.0)	57 (24.5)*	186 (24.9)*	62 (17.3)*
MRI performed, T1 lesions not reported	41 (8.9)	28 (24.4)*	657 (35.2)	391 (33.2)	63 (16.5)	107 (45.9)*	323 (43.2)*	180 (50.3)*
No baseline MRI	34 (7.4)	9 (7.8)*	206 (11.1)	98 (8.3)	29 (7.6)	21 (9.0)*	109 (14.6)*	48 (13.4)*

*Weighted standardized differences of >0.15 observed with fingolimod, dimethyl fumarate, or teriflunomide vs cladribine tablets. †Closest MRI to baseline within 12 months
EDSS, Expanded Disability Status Scale; **Gd+**, gadolinium-enhancing; **IQR**, interquartile range; **MRI**, magnetic resonance imaging; **SD**, standard deviation

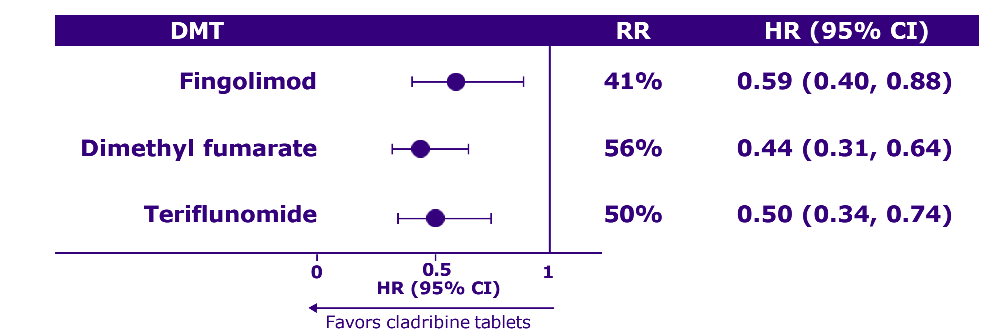
Figure 1. Cladribine Tablets vs Other DMTs: (A) Treatment Switching and (B) Treatment Discontinuation in the Treatment-naïve Cohort (n=3621)





CI, confidence interval; **DMT**, disease-modifying treatment; **HR**, hazard ratio; **RR**, rate reduction

Figure 2. Rate of Subsequent Switch in the First-switch Cohort (n=1721)



CI, confidence interval; **DMT**, disease-modifying treatment; **HR**, hazard ratio; **RR**, rate reduction

- In the treatment-naïve cohort, treatment with cladribine tablets were significantly associated with a 73%, 72%, and 79% reduction in the rate of treatment switching vs fingolimod, dimethyl fumarate, and teriflunomide, respectively (**Figure 1A**)
- Similarly in the same treatment-naïve cohort, cladribine tablets were associated with a 75%, 78%, and 82% reduction in the rate of treatment discontinuation vs fingolimod, dimethyl fumarate, and teriflunomide, respectively (**Figure 1B**)
- In the first-switch cohort (n=1721), cladribine tablets were significantly associated with a 41%, 56% and a 50% reduction in the rate of a subsequent switch vs fingolimod, dimethyl fumarate, and teriflunomide, respectively (**Figure 2**)

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