Propensity-matched comparison of early intensive and escalation treatment strategy in Finnish MS patients

Hänninen K[1], Viitala M[2], Atula S[3], Laakso SM[3], Kuusisto H[4], Soilu-Hänninen M[1]

[1]Turku University Hospital Neurocenter and Department of Neurology, University of Turku, Turku, Finland, [2]StellarQ Ltd., Turku, Finland, [3]Neurocenter, Helsinki University Hospital, Helsinki, Finland and Department of Neurosciences, University of Helsinki, Helsinki, Finland [4]Department of Neurology, Tampere University Hospital, Finland and Department of Health and Social Management, University of Eastern Finland, Kuopio, Finland.

CONCLUSION

✓ **Early intensive treatment, EIT, resulted in lower risk and longer time to disability progression than escalation treatment strategy, ESC, in relapsing-remitting MS patients.**

BACKGROUND & OBJECTIVE

- In current MS treatment strategies, high-efficacy disease-modifying therapies (DMTs) as first-line treatment are often reserved for patients with high disease activity. In patients with average disease activity, high-efficacy DMTs are traditionally used after unsuccessfull treatment with first-line DMTs.[1]
- Emerging evidence shows that early intensive treatment could be accociated with reduced long-term disability.[1,2]
- Our objective was to determine the effectiveness of EIT vs ESC treatment strategy on disability outcomes in Finnish MS patients.

METHODS

- 127 relapsing-remitting (RRMS) patients initiating infusion therapy as first DMT (early intensive treatment, EIT) and 1620 patients initially treated with injectable therapies, teriflunomide or dimethylfumarate (escalation treatment, ESC) were identified from the Finnish MS registry.
- Nearest neighbor propensity matching was performed for age, sex, year of DMT start, baseline EDSS (Expanded Disability Status Scale), relapse rate and time since first symptom.
- Odds ratio for disability progression at 3 years and survival analysis of time to disability progression in the two groups was determined.

RESULTS

- Odds ratio [95% CI] for disability progression at 3 years in the EIT group was 0.50 [0.25, 0.93] (**p=0.032**).
- Median survival time to disability progression in the ESC group was 74 months and not available in the EIT group because less than half of the patients progressed (HR for progression 0.66 [0.46, 0.94] (**p=0.021**).

Table 1. Baseline demographics and clinical characteristics after 1:1 propensity matching (caliper= 0.25)

Variable	EIT group (N=55)	ESC group (N=55)	p-value
Age at MS diagnosis (years)	33.1 (9.66)	34.4 (9.20)	0.500[t]
Sex-Female/male N (%)	40 (72.7) / 15 (27.3)	41 (74.5)/ 14 (25.5)	1.00[f]
Disease course- RRMS N (%)	55 (100)	55 (100)	-
Have smoked Yes/no N (%)	14 (25.5)/ 24 (43.6)	14 (25.5)/ 16 (29.1)	0.463[f]
EDSS at treatment onset Median [Min-Max]	2.0 [0.0-6.0]	2.0 [0.0-6.0]	0.742[w]
Time since first symptom to treatment (years)	2.4 (4.56)	2.5 (3.62)	**0.045[w*]**
Time since MS diagnosis to treatment (years)	0.2 (0.38)	0.2 (0.18)	0.111[w]
ARR 1 year prior treatment N; Mean (SD)	1.6 (0.85)	1.7 (0.94)	0.623[w]
ARR 3 years after treatment onset N; Mean (SD)	0.2 (0.35)	0.4 (0.72)	0.077[w]

EIT= Early intensive treatment
ESC= Escalation treatment
f Fisher's exact test (Agaresti, 2002)
t Student's t-test (Ott & Longnecker, 2015)
w Wilcoxon rank sum test (Hollander et al., 2014)
* Benjamini and Hochberg adjusted p-value (Benjamini & Hochberg, 1995) falls over 0.05

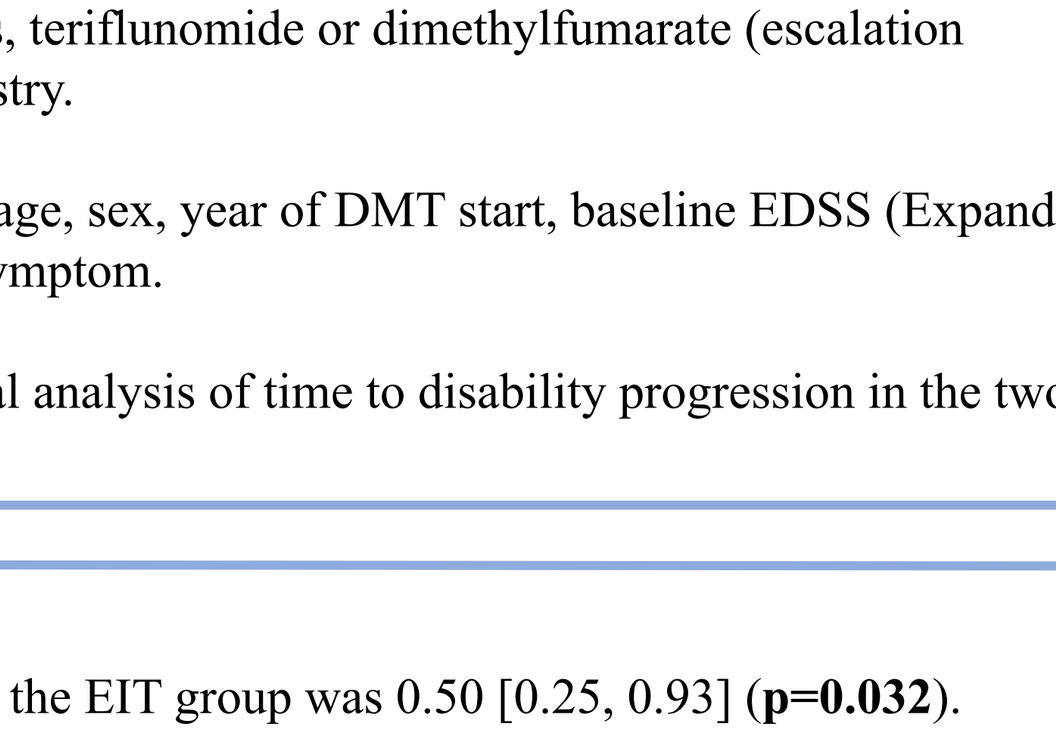

Figure 1. Kaplan-Meier analysis of time to disability progression

REFERENCES

1. Buron M, Chalmer T, Sellebjerg F, et al. Initial high-efficacy disease-modifying therapy in multiple sclerosis: A nationwide cohort study. Neurology 2020, ***95***, e1041-e1051.
2. He A, Merkel B, Brown JWL, et al; MSBase study group. Timing of high-efficacy therapy for multiple sclerosis: a retrospective observational cohort study. Lancet Neurol. 2020 Apr;19(4):307-316.

CORRESPONDENCE

Katariina Hänninen, MD
Turku University Hospital
Division of Clinical Neurosciences
FIN-20521 Turku Finland
katariina.hanninen@utu.fi