Indicators of disease activity in people with MS treated with DMTs for mild/moderate MS: time to clinical and/or subclinical activity

msregister

P473

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Background

Disease activity (DA) in people with MS (PwMS) is defined by various clinical and imaging parameters typically associated with an increased risk of future relapses and a faster disability progression.

Objective

To determine the proportion of PwMS with DA during a period of 5 years after initiation of DMT for mild/moderate MS, considering different clinical criteria for DA Identification/classification.

Methods

- Data as of 01-03-2023 from the German MS Registry
- Inclusion criteria:
  - relapsing-remitting disease course
  - MS diagnosis ≥2017
  - initial DMT for mild/moderate disease courses (dimethyl/diroximel fumarate, glatiramer acetate, [peg-] interferon beta, teriflunomide)
  - ≥1 follow-up after initial DMT
- DA criteria
  - Relapse activity (≥1 relapse)
  - MRI activity (≥1 gd+/new T2 lesion)
  - 3-month confirmed disability progression (CDP; ≥1-point EDSS increase if EDSS≤5.5, ≥0.5-point EDSS increase if EDSS≥6.0)
- Frequency of DA was estimated using Kaplan-Meier estimators (delay was censored on the last neurological consultation)

Results

1159 PwMS were analysed (70.9% female; mean age at MS onset: 33.8 [±10.4] years; mean time to MS diagnosis: 1.14 [±3.2] years) (Tab. 1)

Table 1. Characteristics of PwMS
DMT - Disease modifying therapy; EDSS - Expanded Disability Status Scale ; MS – Multiple sclerosis; SD - Standard deviation

Variables	PwMS (N=1159)
Sex, N (%)	
Male	337 (29.1)
Female	822 (70.9)
Age at MS onset [years], mean (± SD)	33.8 (10.4)
Time to MS diagnosis [years], mean (± SD)	1,14 (3.2)
Age at DMT initiation [years], mean (± SD)	36.0 (10.9)
Disease Duration at DMT initiation [years], mean (± SD)	2.1 (4.3)
EDSS at DMT initiation, median (25%; 75%-quantiles)	1.0 (0.0; 2.0)
Initial DMT, N (%)	
dimethyl/diroximel fumarate	354 (30.6)
glatiramer acetate	419 (36.2)
[peg-] interferon beta	235 (20.3)
teriflunomide	151 (13.0)

In a mean observation period of 2.6 (±1.6) years from DMT start, 32.4% (n=376) of PwMS met ≥1 criterion of DA during DMT

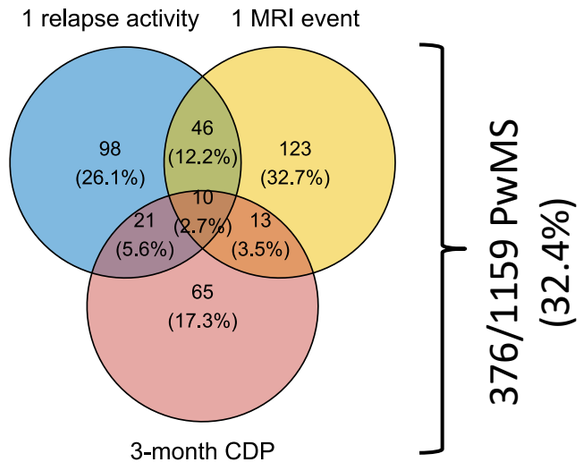

Figure 1. Venn diagram with overlapping proportions of different criteria of disease activity. CDP - confirmed disability progression; DMT - Disease modifying therapy ; MRI - Magnetic resonance imaging

Within 5 years, 38.9% were estimated to have had ≥1 MRI event (≥2: 11.6%), 31.4% one relapse (≥2: 8.7%) and 23.9% 3-month CDP (6-month CDP: 19.0%) (Fig. 2).

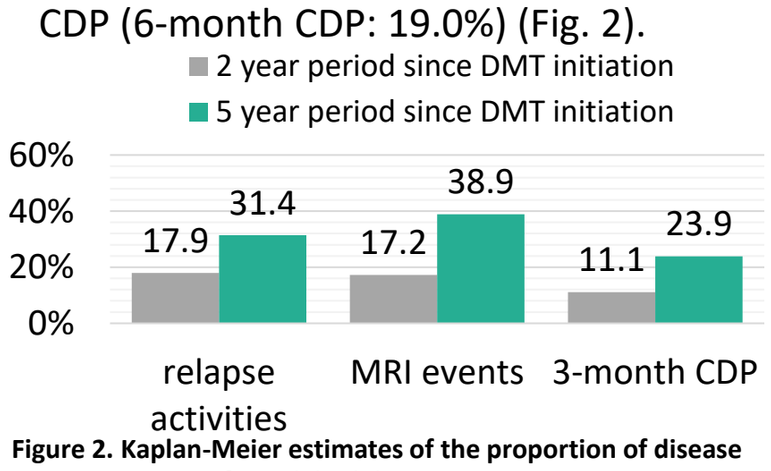

Figure 2. Kaplan-Meier estimates of the proportion of disease activity. CDP - confirmed disability progression; DMT - Disease modifying therapy ; MRI - Magnetic resonance imaging

Considering the occurrence of each two activities of the same category or a 6-month confirmation period, we see that the time to event to occurrence is considerably longer.(Figure 3).

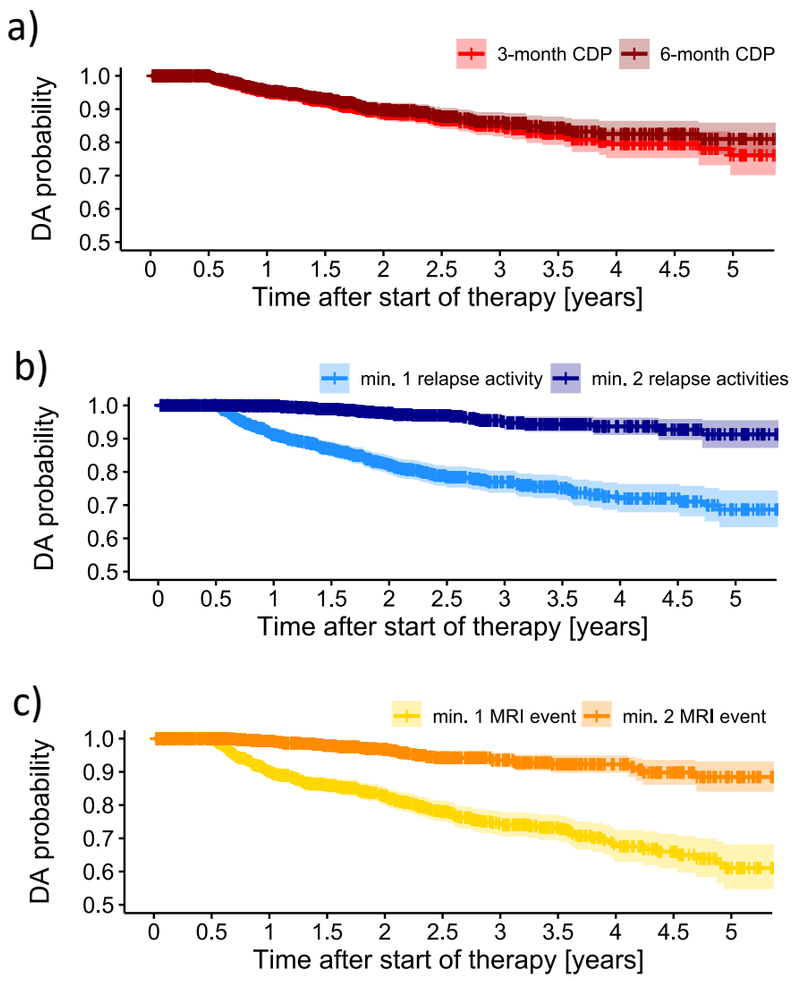

Figure 3. Kaplan-Meier estimates of time to disease activity categorised by [a] CDP, [b] relapse activity and [c] MRI event (N= 1159).
CDP - confirmed disability progression; MRI - Magnetic resonance imaging; MS – Multiple sclerosis

Conclusions

- At least one indicator of DA was detected in about one-third of PwMS treated with DMTs for mild/moderate disease courses within the observation period of 5 years
- MRI activity and relapses are the most common indicators of DA
- Careful monitoring is required to assess an adequate response to DMT as the basis for a potential switch decision to DMTs of individual higher efficacy (Refer to poster P473)

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