FAVOURABLE CHANGING COURSE OF MULTIPLE SCLEROSIS IN THE LAST 15 YEARS: THE ROLE OF NEUROLOGISTS

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Introduction and purpose

In the last years the face of multiple sclerosis (MS) has changed as shown by comparison of clinical trial populations. The aim of our study is to evaluate, in the real-world clinical setting, the beneficial changes of multiple sclerosis (MS) course and to investigate the influence of Neurologists' choices on these changes.

Methods

This is an observational, single-centre, 4-year follow-up study, carried on relapsing-remitting multiple sclerosis patients who consecutive started treatment with IFNB or GA at our center, between January 2000 and September 2011.

Inclusion criteria:

- ➢ *Naive* to previous treatments
- ➢ Baseline disability level ≤ 5.5

Exclusion criteria:

- ➢ Patients beginning treatments at another centre
- ➢ Patients included in sperimental *trials* before start of DMTs.

The 1068 (730 females, 338 males) included patients were divided in 3 large cohorts of patients:

- ➢ **FIRST COHORT:** patients began IFNβ or GA between January 1, 2000 and December 31, 2003;
- ➢ **MIDDLE COHORT:** patients began IFNβ or GA between January 1, 2004 and December 31, 2007;
- ➢ **LAST COHORT:** patients who began IFNβ or GA between January 1, 2008 and September 15, 2011.

We compared these 3 cohorts for baseline characteristics and for clinical and MRI variables during the 4-year follow-up. NEDA 3 patients, during the 4 years follow-up, were defined as no relapses, no disability worsening (defined as EDSS confirmed progression ≥ 1.0 point) and no active lesions (new T2-weighted or gadolinium-enhancing T1-weighted lesions) on MRI.

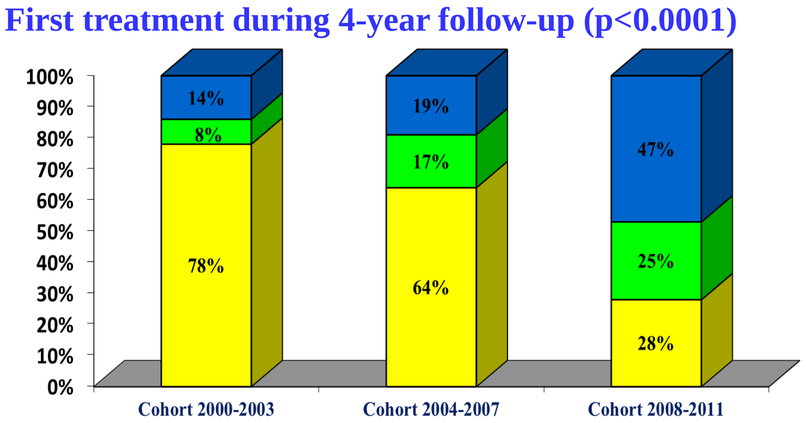
During the follow-up period, of the total of 1068 patients, 38 (3.6%) moved to another MS centre and 47 (4.4%) discontinued definitively the treatment. The reasons for discontinuation were: patient's decision (31); adverse events (6); suboptimal response to therapy (4); pregnancy (4); death (2).

Results

Baseline characteristics	First cohort (2000-2003) n=350	Middle cohort (2004-2007) n=324	Last cohort (2008-2011) n=394	p-value
DEMOGRAPHIC AND CLINICAL DATA				
Female/Male	241/109	230/94	259/135	ns
Mean age at onset (SD)	**28 years** (8.5)	**29 years** (9.2)	**30 years** (9.1)	0.05
Mean age at DMT start (SD)	34 years (9.2)	34 years (10)	34 (9.8)	ns
Disease duration (SD)	**66 months** (67)	**59 months** (69)	**47 months (64)**	**<0.0001**
Time between diagnosis and therapy (SD)	**30 months** (44)	**19 months** (38)	**11 months (31)**	**<0.0001**
Mean EDSS pre-DMT (SD)	1.7 (0.9)	1.7 (0.7)	1.7 (0.8)	ns
ARR 1 yrs pre-DMT	**1.5 (2.2)**	**1.8 (2.5)**	**2.3 (3.3)**	**<0.0001**
BRAIN MRI DATA (%)				
T2 lesions **< 9** **≥ 9**	 **23%** **77%**	 **33%** **67%**	 **53%** **47%**	**<0.0001**
Gd + lesions **0** **1-2** **>2**	 **50%** **32%** **18%**	 **39%** **45%** **16%**	 **46%** **41%** **13%**	**0.02**

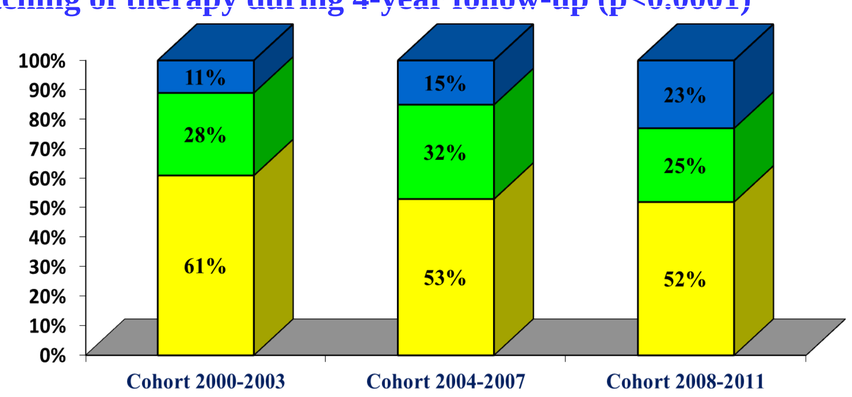
First treatment during 4-year follow-up (p<0.0001)

Figure (a) showed the distribution of first treatment in the 3 cohorts: yellow box, low-dose of IFN-β (Avonex and Rebif 22 mcg); green box, high-dose of IFN-β (Betaseron and Rebif 44 mcg) and blu box, GA.



Switching of therapy during 4-year follow-up (p<0.0001)

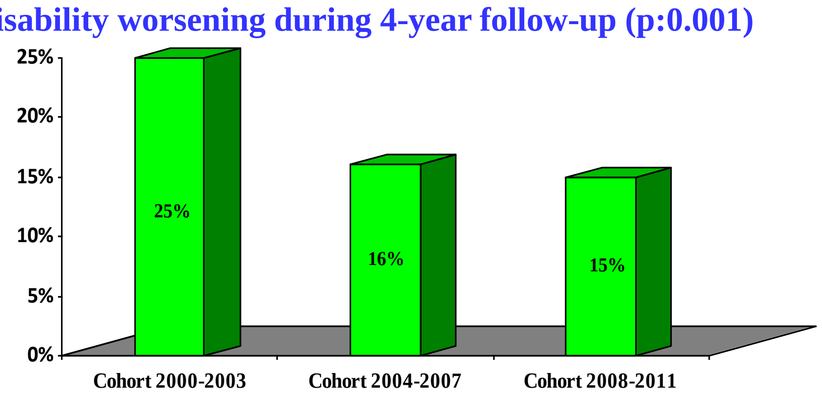
Figure (b) showed the treatment during the follow-up: yellow box, same treatment during the follow-up; green box, lateral switching; blu box, treatment escalation.



Comparing first cohort vs middle cohort vs last cohort during the 4 years of observation, the mean relapses were respectively 1.4 vs 1.1 vs 0.7 (p< 0.0001) and the ARR was respectively 0.4 vs 0.3 vs 0.2 (p < 0.0001). Active lesions during the follow-up were observed in 58.6% (205), 56.8% (184) and 55.3% (218) of respectively first cohort, middle cohort or last cohort of patients (p: ns). Disability worsening and NEDA3 patients during 4 years follow-up are showed in figure c and d.

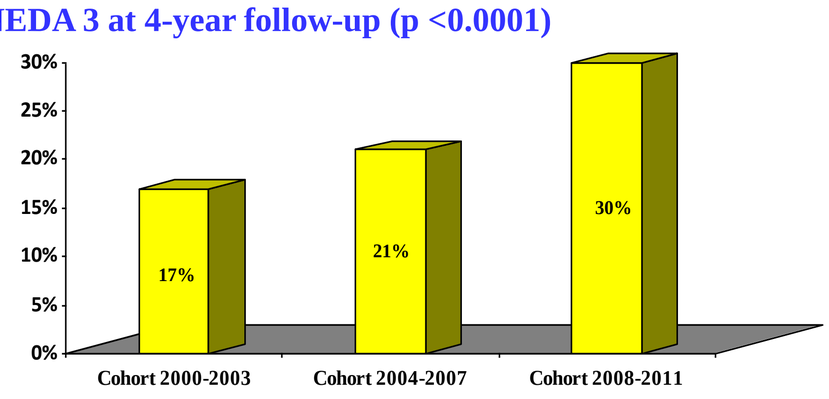
Disability worsening during 4-year follow-up (p:0.001)

Figure (c) showed the disability worsening at 4 years in the 3 cohorts.



NEDA 3 at 4-year follow-up (p <0.0001)

Figure (d) showed the proportion of NEDA3 patients at 4 years in the 3 cohorts.



Conclusions

Our study confirmed, in the clinical practice, the changing of MS course overtime and that both early treatment and early switching to second-line treatments in suboptimal responders are foudamental strategies to improve the course of the disease.

References

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