Long-term follow up of treatment with interferon beta 1-b: a 23-year observational study in a single center cohort of 87 patients with multiple sclerosis

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Background

IFN-beta-1b is the first disease-modifying therapy approved for MS. Data from short and 10 year follow up of patients enrolled in clinical trials with IFN-beta demonstrated a safe profile and 30% reduction in relapses with early treatment that may improve long term outcome.

Objective

To describe outcomes of a cohort of patients treated with interferon (IFN) beta-1b 23 years ago.

Design/Methods

The study setting was an integrated health care system in southeastern Michigan. Electronic and chart medical records of patients who started treatment with IFN beta-1b in 1993-1994 were reviewed. Sociodemographic, relapses, EDSS and treatment data were collected. Descriptive statistics were used.

Results

Table 1: Descriptive information for demographics, IFN-beta-1b use

Variable	Response	All patients (N= 87)
Age at MS dx (n=86)	Mean + SD	35.0 ± 9.0
	Median (Range)	34 (17 to 56)
Gender	F	62 (71%)
	M	25 (29%)
Race	White	75 (86%)
	Black	10 (11%)
	Asian	1 (1%)
	Unknown	1 (1%)
Age at start of IFNβ-1b (n=87)	Mean + SD	40.4 ± 8.2
	Median (Range)	41 (20 to 60)
MS duration at start (n=86)	Mean + SD	5.9 ± 4.7
	Median (Range)	5 (0 to 20)
Duration of use (n=79)	<1 year	23 (29%)
	1 to <5 years	28 (35%)
	5 to <10 years	6 (8%)
	10 to <15 years	8 (10%)
	15+ years	14 (18%)

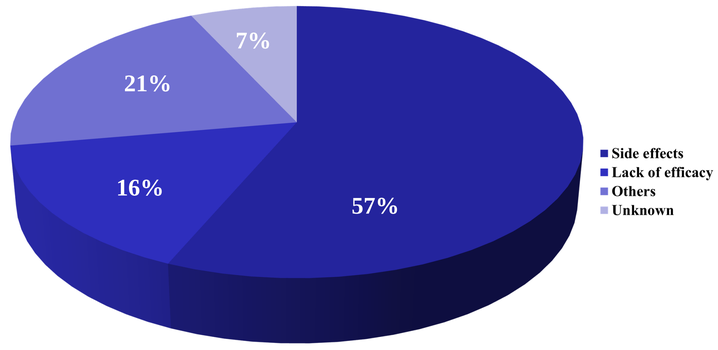
Results

EDSS changes over time

Table 2: EDSS

Variable	Response	All patients (N= 87)
EDSS at start of IFNβ-1b (n=80)	Mean + SD	3.9 ± 1.8
	Median (Range)	3.25 (0 to 7)
EDSS at last "visit" (n=64)	Mean + SD	4.4 ± 2.0
	Median (Range)	4 (1 to 8)
Difference in EDSS (n=60)	Mean + SD	0.5 ± 1.7
	Median (Range)	0.25 (-3 to 6)

Reasons for stopping IFNβ-1b (n=68)



Other	14 (21%)
Expense/Insurance	4 (6%)
Death/MI	1 (1%)
Cancer	1 (1%)
Pregnancy	1 (1%)
Difficulty administering	1 (1%)
Not specified	6 (9%)

Results

Reason for stopping	Duration of use (n=68)				
	<1 year (n=23)	1 to <5 years (n=28)	5 to <10 years (n=6)	10 to <15 years (n=8)	15+ years (n=3)
Side Effects	16 (70%)	18 (64%)	3 (50%)	1 (13%)	1 (33%)
Lack of efficacy	1 (4%)	4 (14%)	1 (17%)	5 (63%)	0
Other	5 (22%)	4 (14%)	1 (17%)	3 (38%)	1 (33%)
Expense/Insurance	1			3	
Death/MI	1				
Cancer	1				
Pregnancy		1			
Difficulty administering					1
Not specified	2	3	1		

Conclusion

- Of the 87 patients, 71% were female, 86% were white and mean age at diagnosis was 35 years
- 29% used IFNβ- 1b for less than 1 year, 35% for up to 5 years, 18% for 15+ years. 11 patients are still on IFNβ-1b
- Mean EDSS at start was 3.9 while at last visit was 4.4
- Side effects was the most common reason for stopping treatment in the patients with <5 years of use, while lack of efficacy was more common in the patients who stopped treatment after an extended duration of use
- We present the longest follow up of a clinical practice cohort of patients started on IFN beta-1b 23 years ago. While short term effect of interferon beta treatment is well known from clinical trials, understanding long term effect and benefit of treatment is important for this lifelong disease that affects young adults.

Disclosures

The authors have no financial conflict of interest.

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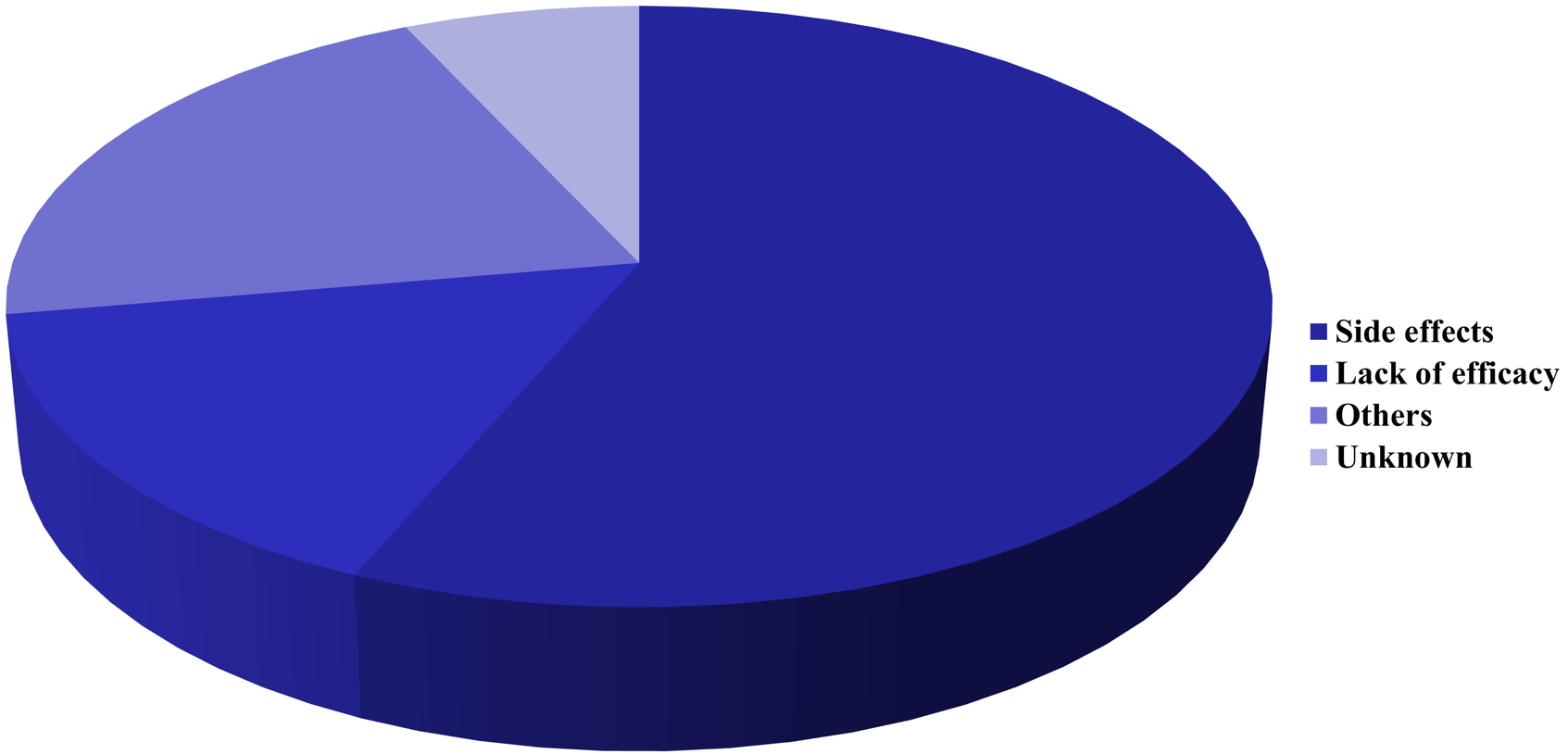

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