

Age at diagnosis over the last decades – Analysis of the German MS Registry

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for the German Multiple Sclerosis Register of the German National MS Society (DMSG)

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Introduction and Purpose:

There is an ongoing discussion concerning an increasing number of young female MS patients aged less than 30 years at diagnosis. The increasing risk is supposed to be influenced by changes of lifestyle. Late first pregnancy, obesity and smoking are discussed as risk factors as well. Furthermore the widespread access to MRI facilities may lead to earlier diagnosis. (1)

Methods:

Data from the German MS Registry was extracted in May 2017. Only patients with data available concerning the date of diagnosis, date of birth and sex at their first documented visit (N=43,123) were analysed. For some analyses we focused on new included patients within the first two years after diagnosis. To account for the widespread availability of MRI in 1990ies we started analyses regarding the diagnosis cohorts with the year of diagnosis in 1990. We analysed the percentage of MS patients with an age at diagnosis ≤ 18 and $\leq 30 > 18$ years for the whole population using 5-year intervals. Furthermore we investigated differences in sex ratio over time. Data transformation and statistical analyses were performed with software R.

Results:

The following results originate from analyses performed on all patients at first visit (N=43,123). The mean age at diagnosis was 35.7 (± 10.88) years and the mean time to diagnosis was 2.7 (± 4.97) years. 1,291 patients (2.99%) were ≤ 18 years and 14,272 patients (33.1%) were > 18 and ≤ 30 years old at the time of diagnosis. In the group with an age at diagnosis ≤ 18 years 74.8% (N=966) were females and in the group with an age at diagnosis > 18 and ≤ 30 years 72.2% (N=10,304) were females. Furthermore, we assessed the risk for early onset MS in regard to birth cohorts. The risk of diagnosis at age ≤ 18 years for patients born 1968-77 was 1.75% and in 1978-87: 6.1%. Patients born between 1968-77 had a risk for diagnosis at age > 18 and ≤ 30 years of 38.46% and in 1978-87: 77.96%.

	$\bar{\phi}$ -age (year)	$\bar{\phi}$ -age at diagnosis (year)	female (%)	$\bar{\phi}$ -MS duration (year)	EDSS-Score (median)
all patients at first visit (N=43,123)	44.08 (± 12.02)	35.7 (± 10.88)	70.7	11.07 (± 9.56)	3.0
new included patients within 2 years after diagnosis (N=13,823)	38.56 (± 11.59)	37.8 (± 11.57)	70.1	3.38 (± 5.08)	2.0
$\leq 18^*$ (N=267)	18.06 (± 1.39)	17.12 (± 1.16)	71.9	1.32 (± 1.18)	1.0
$> 18 \ \& \ \leq 30^*$ (N=4,016)	25.89 (± 3.28)	25.15 (± 3.21)	72.4	1.77 (± 2.08)	1.5
$> 30^*$ (N=9,540)	44.46 (± 8.70)	43.7 (± 8.69)	69.1	4.15 (± 5.84)	2.0

Table 1: Baseline data

* subset of new included patients within 2 years after diagnosis

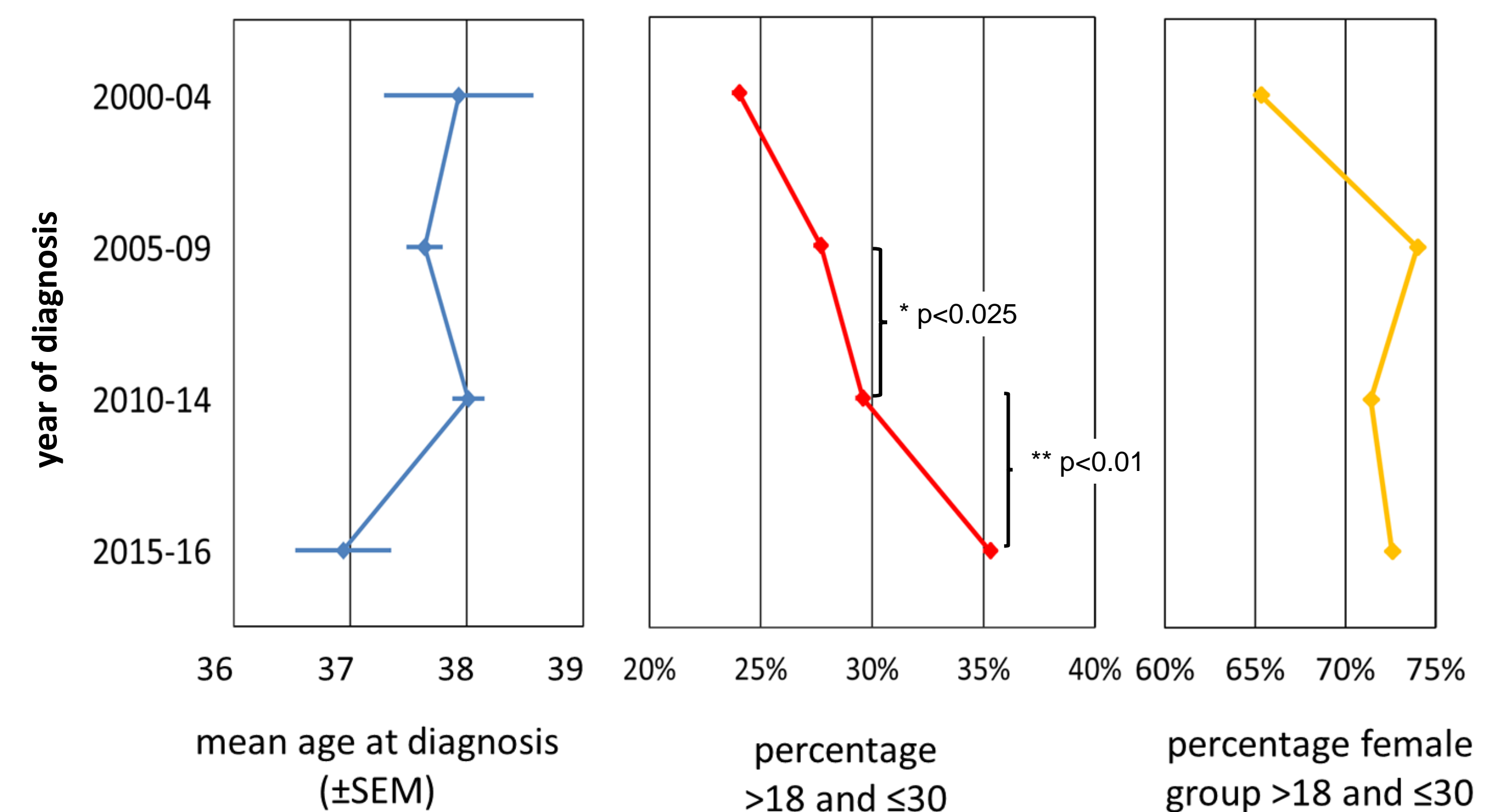


Figure 1: Distribution over diagnosis cohorts since the beginning of the German MS-Registry for new included patients within the first two years after diagnosis (N=13,823)

There is an increase in patients diagnosed at age > 18 and ≤ 30 in total and also for the female proportion.

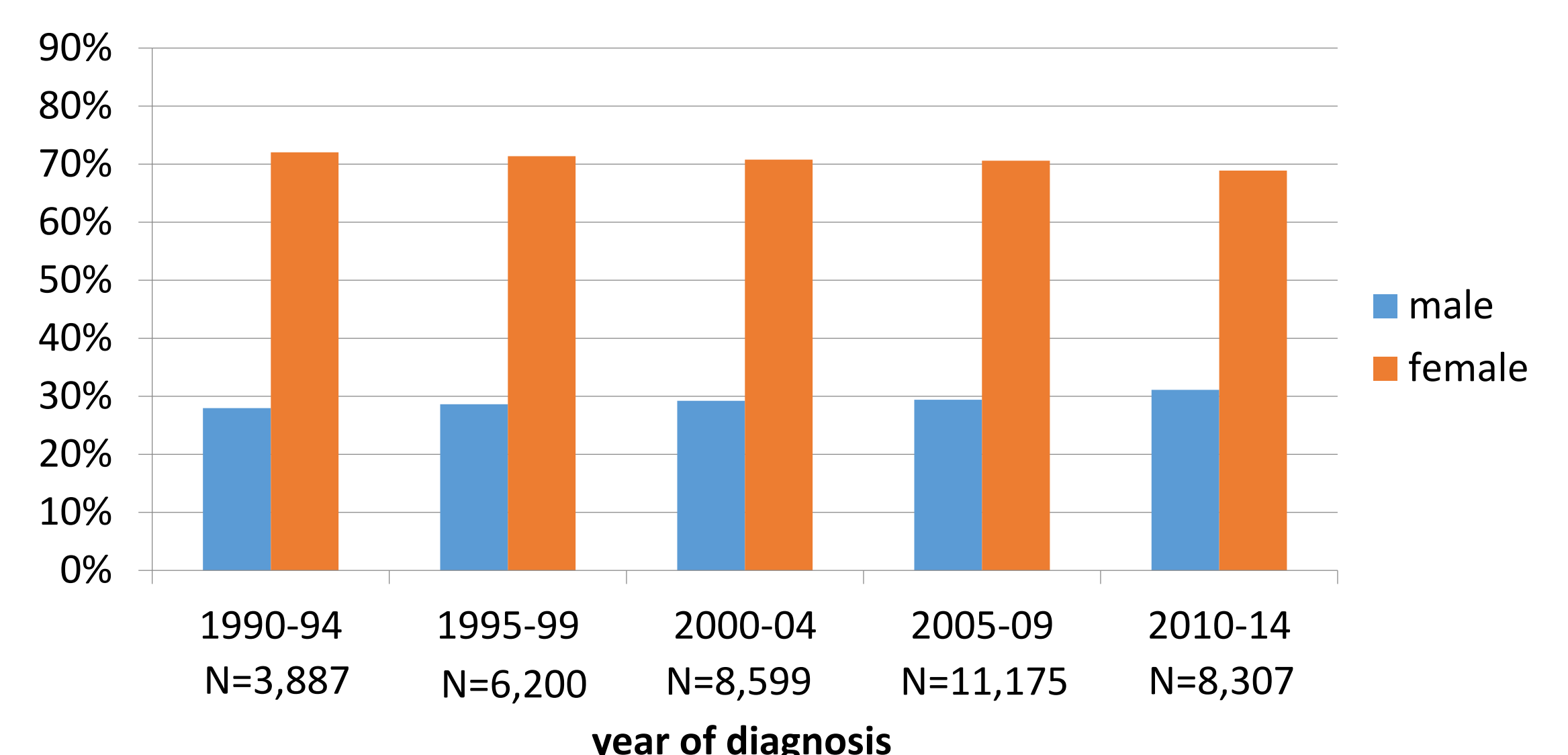


Figure 2: Sex ratios over the course of diagnosis cohorts

The sex ratio is constant over time. Data analyses are done for all patients (N=43,123) and 4,955 of these patients are diagnosed before 1990 or after 2014.

Conclusions:

The analysis of our data did reveal an increase of young women with an age ≤ 30 years at diagnosis over the last decades in regard to the diagnosis cohorts. Also we did see an indication for an increasing risk for patients born in recent decades to receive an early MS diagnosis (≤ 18 and ≤ 30 years). Further analyses are needed to control for possible biases e.g. concerning the type of documented patients in our centers, the inclusion start date of the register and possible survival effects, especially in the more recent birth-cohorts.

References:

(1) Magyari M. Gender differences in multiple sclerosis epidemiology and treatment response. Danish Medical Journal. 2016;63(3):1-18.

Disclosure

Kerstin Eichstädt, Christoph Kleinschnitz, Otto Rienhoff and Alexander Stahmann have nothing to disclose.

Peter Flachenecker has received speaker's fees and honoraria for advisory boards from Almirall, Bayer, Biogen, Genzyme, Merck-Serono, Novartis, Roche and Teva. He has participated in pharmaceutical company sponsored trials by Almirall, Biogen Idec and Novartis. None resulted in a conflict of interest.

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