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A decreasing risk of secondary progressive multiple sclerosis in Sweden 2005-2020

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Introduction:

The Swedish multiple sclerosis (MS) registry (SMSreg) has been collecting clinical data on MS patients since the start of the millennium and today covers over 85 % of the prevalent MS population in Sweden. In its annual reports, the SMSreg has noted a decreasing average Expanded Disability Status Scale (EDSS) score over recent decades.

Objectives/Aims:

To investigate if the risk of converting to secondary progressive MS (SPMS) has decreased among relapsing-remitting MS (RRMS) patients in recent decades.

Methods:

Patients from the SMSreg with complete data on date of birth, date of MS onset, disease course and year of SPMS conversion were included in the study. The proportion and incidence rate of SPMS within the MS population captured in the registry were investigated for each year in the period 2005 – 2020. Poisson regression, unadjusted and adjusted for sex and current age at calendar year was used to estimate the effect of calendar year on the proportion and incidence rate of SPMS. Finally, Kaplan-Meier analysis was used to estimate time from birth and from onset to SPMS conversion.

Results:

A total of 19,987 patients (88.3% of SMSreg) were included in this study. Between 2005 and 2020, the proportion of SPMS in SMSreg decreased from 23.3% to 21.9%, a decrease of 2% per calendar year after adjusting for sex and current age at calendar year (aRR 0.98, 95% CI 0.98 – 0.98, p-value<0.001). The incidence rate of SPMS per 100 person years among RRMS patients in the registry diminished from 2.7 in 2005 to 0.9 in 2020, a decrease of 7% per calendar year (aRR 0.93, 95% CI 0.92 – 0.93, p-value<0.001), after adjustment for sex and current age at calendar year. During the same period, the median age and median disease duration at SPMS conversion, estimated by Kaplan-Meier analysis, increased from 58 years of age to 64, and from 24 years from onset to 30 years. This result indicates that conversion occurs later in latter years. Interestingly, the average age at onset of those who converted to SPMS increased from 34 years of age to 38.5 years, indicating that the change in risk of SPMS primarily occurs in persons with younger age at onset.

Conclusion:

The risk for patients with RRMS for converting to SPMS has decreased significantly in the Sweden since 2005 and conversion now occurs later in life and a longer time after onset. The greatest change is seen in patients with an early onset of MS. It is tempting to speculate improved disease modification contributes by postponing the conversion to SPMS.

Disclosures:

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