

Prediction of long-term disability in Chinese patients with multiple sclerosis: a prospective cohort study

Authors:

Yao Zhang, MD;^{a,b} Yan Xu, MD, PhD;^{a,b} Tao Xu, MD;^c Hexiang Yin, MD;^{a,b} Yicheng Zhu, MD;^b

Bin Peng, MD;^b Liying Cui, MD.^{b,d}

^a Center of Multiple sclerosis and related disorders.

^b Department of Neurology, Peking Union Medical College Hospital, Peking Union Medical College & Chinese Academy of Medical Sciences, Beijing, China.

^c Department of Epidemiology and Biostatistics Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences & School of Basic Medicine, Peking Union Medical College, Beijing, China.

^d Neurosciences Center, Chinese Academy of Medical Sciences, Beijing, China.

Corresponding Author

Yan Xu, MD & PhD

Center of multiple sclerosis and related disorders

Department of Neurology

Peking Union Medical College Hospital

Beijing, 100730, PR China

Tel: 86-10-69156371

Fax: 86-10-69156371

Email: xuyanpumch@hotmail.com

Abstract

Background: Much information about outcomes of multiple sclerosis (MS) has been studied in Caucasian cohorts. However, little is known about the predictors of long-term disability in Chinese patients with MS. The aim of this prospective, observational study is to identify the prognostic factors associated with long-term disability progression (expanded disability status scale, EDSS=6.0) in Chinese patients with relapsing-onset MS.

Methods: Based on data from the MSNMOBase registry within the neurology department of Peking Union Medical College Hospital (PUMCH) in China, this hospital-based cohort study was conducted to estimate the median time of attaining disability endpoint (EDSS = 6.0) by Kaplan-Meier curves, and identify factors that associated with disability progression by Cox proportional regression analysis.

Results: A total of 415 consecutive, eligible patients with MS were registered in the MSNMOBase of PUMCH and prospectively followed from 2011 to 2019. Of these patients, 365 patients with relapsing-onset MS were analyzed. The median time to reach an EDSS of 6.0 was 22.0 (95% CI 16.5-27.5) years. Age at disease onset greater than 50 years (HR 3.846, 95% CI 1.240–11.932, $P=0.020$), incomplete recovery from first attack (HR 2.107, 95% CI 1.168–3.800, $P=0.013$), and ≥ 2 relapses during the first 2 years after onset (HR 2.217, 95% CI 1.148–4.281, $P=0.018$) significantly associated with a higher hazard ratio to reach an EDSS of 6.0.

Conclusions: Our results confirm the importance of age at onset, recovery from the first attack, and number of relapses during the first 2 years after disease onset as predictors of disability progression in Chinese patients with relapsing-onset MS.

Key words: multiple sclerosis, disability, prognostic factors, expanded disability status scale

Abbreviations: MS, multiple sclerosis; RRMS, relapsing-remitting multiple sclerosis; PPMS, primary progressive MS; EDSS, expanded disability status scale; MRI, magnetic resonance imaging; SD, mean with standard deviation; IQR, median with interquartile range; HR, hazard ratio; CI, confidence intervals; LOMS, late onset MS

