

THE EFFECT OF RELAPSES AND TIME TO ONSET OF PROGRESSION ON DISABILITY ACCUMULATION IN MULTIPLE SCLEROSIS

A. Scalfari¹, A. Neuhaus³, M. Daumer³, P.A. Muraro¹, G. Ebers²

¹Imperial College, Centre of Neuroscience, Department of Medicine, Hammersmith Hospital, London, UK

²Department of Neurology, Oxford University, Oxford, UK

³Sylvia Lawry Centre, Munich, Germany

a.scalfari@imperial.ac.uk

Background: Mechanisms driving disability accumulation in Multiple Sclerosis (MS) are incompletely understood.

Objective: To assess the predictive value of acute relapses and time to the onset of progressive phase.

Methods: In a population of 534 secondary progressive (SP) MS patients from the London Ontario database, multiple Cox regression models were used to estimate risk of developing disability according to number of attacks in the first 2 years (Y1-2) and from year 3 to the onset of SP (Y3-SP). The independent predictive effect of time to onset of progression (OPP) was also assessed.

Results: The risk of developing disability increased with the number of Y1-2 attacks and decreased proportionally with the number of Y3-SP attacks (HR for attaining DSS 6: 2 relapses in Y1-2 and 0 relapses in Y3-SP = 1.47; 2 relapses in Y1-2 and 4 relapses in Y3-SP = 1.01). The timing of the second attack significantly influenced the outcomes. A second relapse in Y3 (HR = 0.91) rather than in Y2 (HR = 1.47) reversed the risk of attaining DSS 6. A longer time to OPP significantly associated with longer times to and lower risk of attaining DSS 6 from disease onset (5 Vs 0 years interval HR= 0.50; p<0.001).

Conclusions: The predictive effect of relapses is limited to the first two years of the disease. The onset of progression is a key determinant of long term prognosis and its latency is an important predictor of late disability accumulation.