Work ability in multiple sclerosis
The impact of immunomodulating treatments and adjusted working conditions

Anne Wickström

Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt förvar i Hörsal D Unod T 9, byggnad 1D, onsdagen den 3 juni, kl. 09:00.

Avhandlingen kommer att försvaras på svenska.

Fakultetsopponent: professor, Sten Fredrikson
Institutionen för klinisk neurovetenskap, Karolinska Institutet Stockholm, Sverige.
The purpose of the thesis was to investigate how disease factors in multiple sclerosis, immunomodulating treatments and work requirements influence the ability to work or study in patients with multiple sclerosis.

In paper I - III the effect of treatment with the natalizumab on work ability was investigated. After one year of treatment the patients had increased their numbers of worked hours per week corresponding to 29% net change of their level of employment (p<0.001). The economic value of this increase was calculated to 3216 euro per person per year. The patients also reported improved physical and cognitive ability in relation to the work requirements. Short disease duration, younger age and lower Expanded Disability Status Scale (EDSS) grade at start of treatment predicted a positive effect on work ability. In addition, improved walking ability correlated significantly with reduced sick leave.

When comparing two MS-populations, one exposed to any of the disease-modifying drugs that has been available between 1997 and 2013, and the other population from the era before introduction of these drugs, it was found that the level of sickness absence was significantly higher in the unexposed population (66 % vs 38 %) (p<0.001). In addition, the proportion of patients with full-time sickness absence was higher in the unexposed compared to the drug-exposed population (32 % vs 16 %) (p<0.001). Furthermore, the median EDSS was lower in the exposed compared to the unexposed MS population (p<0.001).

One MS-cohort from Umeå was compared with a corresponding cohort from Linköping regarding work ability. The proportion of patients who participated in the work force or were studying was significantly higher in Umeå (p=0.022). One explanation can be that MS patients in the Umeå had significantly lower physical and cognitive requirements in their employments due to adapted work conditions.

**Conclusion** Our results indicate that patients in the inflammatory phase of the disease may retain their work ability several years after disease onset if they are subjected to effective anti-inflammatory treatment regimens from disease onset. Furthermore, work ability may be additionally improved by adjusted working conditions even in the progressive phase of the disease.