The Epidemiology and Impact of Comorbidity of Multiple Sclerosis (MS) in Canada (ECoMS)

Focus on psychiatric comorbidity

Key points

- Psychiatric comorbidities are pervasive in MS. Depression and anxiety were the most widely experienced comorbid conditions at diagnosis and throughout the disease course.
- The consequences of psychiatric comorbidity are significant.
- Depression and anxiety were associated with higher rates of smoking, alcohol dependence, pain, fatigue, and a reduced quality of life.
- Mood and anxiety disorders were associated with worsened MS disability and mortality risk .
- Given these findings, mental health services should be integrated into standard care for people with MS.

Background

- Multiple sclerosis is a chronic, debilitating disease of the brain and spinal cord that affects approximately 2.5 million persons worldwide (2013). [1]
- The relatively young onset age and the chronic nature of MS translates into higher societal costs than either stroke or Alzheimer's disease.[2]
- Though the physical symptoms of the disease take precedence in defining its progression, there are also detrimental emotional changes.

Aims and Data sources

ECoMS is a cross-Canada CIHR-funded research team, with the long-term goal of improving the health of persons with MS by reducing the impact of comorbidity. Research began in 2009 across 4 Canadian provinces, using two main data sources:

Province-wide health administrative databases

- Hospitalizations
- Physician visits
- Prescriptions dispensed
- Socioeconomic status
- Demographic infomation

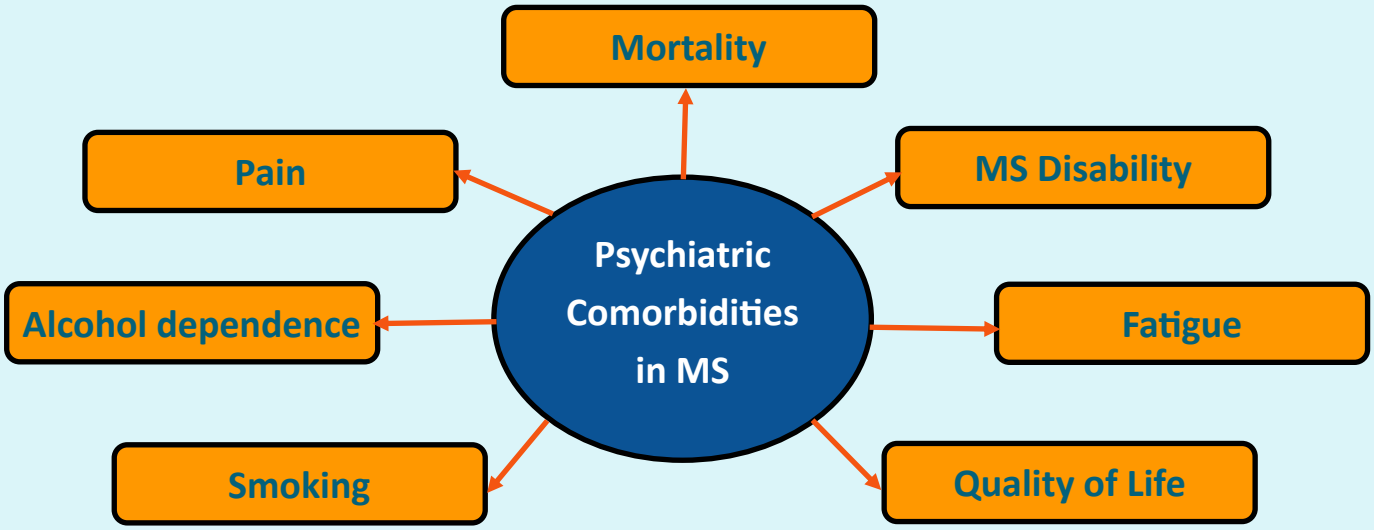
Longitudinal cohort

949 patients were recruited from 4 MS clinics across Canada. Each participant completed specific questionnaires at three points over a two year period. Clinical data were obtained from medical records.

Comorbidity is the co-existence of two or more health conditions

Incidence and prevalence of psychiatric conditions in MS

- All persons with MS were at a significantly higher risk of depression, anxiety, bi-polar disorder, and schizophrenia, relative to the general population.[3]
- The higher risk for depression was even greater for men with MS than for women with MS.[3]
- Within the longitudinal cohort of 949 patients followed for two years, 54% were symptomatically anxious and 35% were depressed.
- Among 1250 new cases of MS followed for an average of 9 years, nearly half met the administrative definition for a mood or anxiety disorder.[5]



Impact on health outcomes

- Many people with MS experience reductions in **quality of life**. Depression was the second most important predictor of quality of life among MS patients, second only to MS-related disability. [6]
- **Tobacco and alcohol use** can lead to damage of the brain, which is already compromised in people with MS. Both depression and anxiety were associated with smoking and alcohol dependence.[4]
- **Fatigue** is a pervasive, debilitating symptom of MS. Both depression and anxiety increased the risk of fatigue.[7]
- **Pain** is also a detrimental and common symptom of MS. Both depression and anxiety were associated with disruptive pain that limited daily activities. Anxiety led to worsening pain over time.[8]

Impact on disability progression and mortality

- The course of MS is highly unpredictable, and can vary substantially from person to person.
- Mood and anxiety disorders significantly increased the risk of disability progression over time among new cases of MS.[5]
- Women with a comorbid psychiatric condition were at a particularly increased risk of worsened disability.
- Of the mood and anxiety disorders studied, depression was the most significant moderator of disability.[5]
- Having comorbid MS and depression or bipolar disorder significantly increased mortality risk. [9]

To reduce the burden of these comorbidities, healthcare providers should focus on early detection and treatment. Pharmacological and non-pharmacological therapies for depression have been shown to be effective in the MS population.[10]

Future Directions

- Appropriate mental health services should be integrated into the standard care for people with MS.
- Screening for depression and anxiety should be implemented in MS clinics, where appropriate mental health care can be provided.
- Further research should explore the impact of interventions to treat psychiatric conditions on health outcomes like quality of life and disability progression.

References: **1.** Multiple Sclerosis International Federation: Atlas of MS 2013: Mapping multiple sclerosis around the world. 2013. **2.** Pugliatti M, et al.: The epidemiology of multiple sclerosis in Europe. Eur J Neurol 2006;13:700–722. **3.** Marrie RA, et al.: Differences in the burden of psychiatric comorbidity in MS vs the general population. Neurology 2015;85:1972–1979. **4.** McKay KA, et al.: Adverse health behaviours are associated with depression and anxiety in multiple sclerosis: A prospective multisite study. Mult Scler J 2016;22:685–693. **5.** McKay KA, et al. Association between psychiatric comorbidity and disability progression of multiple sclerosis. *Submission in progress*. **6.** Berrigan LI, et al.: Health-related quality of life in multiple sclerosis: Direct and indirect effects of comorbidity. Neurology 2016;86:1–8. **7.** Fiest KM, et al.: Fatigue and comorbidities in multiple sclerosis. Int J MS Care 2016;18:96–104. **8.** Fiest KM, et al.: Comorbidity is associated with pain-related activity limitations in multiple sclerosis. Mult Scler Relat Disord 2015;4:470–476. **9.** Marrie RA, et al.: Effect of comorbidity on mortality in multiple sclerosis. Neurology 2015;85:240–247. **10.** Fiest KM, et al.: Systematic review and meta-analysis of interventions for depression and anxiety in persons with multiple sclerosis. Mult Scler Relat Disord 2016;5:12–26.