



## ORIGINAL ARTICLE

## Multiple sclerosis and alcohol use disorders: in-hospital mortality, extended hospital stays, and overexpenditures<sup>☆</sup>

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## KEYWORDS

Multiple sclerosis;  
Alcohol use disorders;  
Mortality;  
Hospital stay;  
Costs

## Abstract

**Introduction:** The objective of this study was to analyse the impact of alcohol use disorders (AUD) in patients with multiple sclerosis (MS) in terms of in-hospital mortality, extended hospital stays, and overexpenditures.

**Methods:** We conducted a retrospective observational study in a sample of MS patients obtained from minimal basic data sets from 87 Spanish hospitals recorded between 2008 and 2010. Mortality, length of hospital stays, and overexpenditures attributable to AUD were calculated. We used a multivariate analysis of covariance to control for such variables as age and sex, type of hospital, type of admission, other addictions, and comorbidities.

**Results:** The 10249 patients admitted for MS and aged 18–74 years included 215 patients with AUD. Patients with both MS and AUD were predominantly male, with more emergency admissions, a higher prevalence of tobacco or substance use disorders, and higher scores on the Charlson comorbidity index. Patients with MS and AUD had a very high in-hospital mortality rate (94.1%) and unusually lengthy stays (2.4 days), and they generated overexpenditures (1116.9 euros per patient).

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**Conclusions:** According to the results of this study, AUD in patients with MS results in significant increases in-hospital mortality and the length of the hospital stay and results in overexpenditures.

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## PALABRAS CLAVE

Esclerosis múltiple;  
Trastornos asociados  
al consumo de  
alcohol;  
Mortalidad;  
Estancia hospitalaria;  
Costes

## Esclerosis múltiple y trastornos asociados al consumo de alcohol: mortalidad atribuible, prolongación de estancias y exceso de costes hospitalarios

### Resumen

**Introducción:** El objetivo de este estudio es el análisis del impacto de los trastornos asociados al consumo de alcohol (TCA) en los pacientes con esclerosis múltiple (EM), en términos de exceso de mortalidad intrahospitalaria, prolongación de estancias y sobrecostes.

**Métodos:** Estudio observacional retrospectivo de una muestra de pacientes ingresados con EM recogidos en los conjuntos mínimos básicos de datos de 87 hospitales españoles durante el periodo 2008-2010. Se calculó la mortalidad, la prolongación de estancias y los sobrecostes atribuibles a los TCA controlando mediante análisis multivariado de la covarianza variables como la edad y el sexo, el tipo de hospital, el tipo de ingreso, otros trastornos adictivos y las comorbilidades.

**Resultados:** Se estudiaron 10.249 ingresos por EM de 18 a 74 años de edad, entre los cuales hubo 215 pacientes con TCA. Los ingresos con EM y TCA fueron predominantemente varones, mayor frecuencia de ingresos urgentes, con mayor prevalencia de trastornos por tabaco y drogas y con índices de comorbilidad de Charlson más elevados. Los pacientes con EM y TCA presentaron importantes excesos de mortalidad (94,1%), prolongación indebida de estancias (2,4 días) y sobrecostes por alta (1.116,9 euros).

**Conclusiones:** De acuerdo a los resultados de este estudio, los TCA en pacientes con EM aumentaron significativamente la mortalidad, la duración de la estancia hospitalaria y sus costes.

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## Introduction

The mortality rate of patients with multiple sclerosis (MS) is higher than that of the general population; life expectancy of these patients is 7–14 years shorter.<sup>1,2</sup> In many cases, death is due to causes which are unrelated to the disease and frequent among the general population: cardiovascular disease, cancer, chronic respiratory diseases, infections, and injury (including self-harm).<sup>3–6</sup> Both chronic and acute alcohol use disorders (AUD) may worsen the progression of MS. In these patients, AUDs may promote or aggravate such conditions as obesity, arterial hypertension, diabetes mellitus, pancreatitis, cirrhosis, stroke, and tumours.<sup>7</sup> The prevalence of anxiety and depression disorders,<sup>8–11</sup> suicidal ideation, and self-harm is also higher among patients with MS and AUDs.<sup>8,9,12,13</sup> AUDs are usually associated with tobacco use, and many of the disorders cited may worsen when patients with MS are heavy smokers or have nicotine dependence.<sup>14,15</sup>

AUDs may worsen cognitive impairment in patients with MS<sup>16,17</sup> and are associated with poorer treatment

compliance, which results in more severe disease progression.<sup>18,19</sup>

Despite the above, no studies have addressed the impact of AUDs on hospitalised patients with MS in Spain in terms of alcohol-attributable mortality, extended hospital stays, and overexpenditure.

In-hospital outcomes may also be influenced by such other variables as age, sex, hospital, type of admission (emergency vs scheduled), presence of other addictions, and comorbidities.<sup>20–24</sup> Therefore, any study aiming to evaluate the impact of AUDs on hospitalised patients with MS should consider the potential impact of confounding and the interaction effects of these predictive variables.

We gathered data from a sample of patients with MS, aged 18–74 years, from 87 Spanish centres, who were admitted to hospital between 2008 and 2010. We attempted to control for such confounding and interaction variables as age, sex, type of hospital, type of admission, concomitant addictions, and comorbidities.

The purpose of this study is to analyse the potential impact of AUDs on mortality, extended hospital stays, and overexpenditure for hospitalised patients with MS.

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