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Is Alcohol Harmful for Patients with Multiple Sclerosis?

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Abstract

Objective: Alcohol consumption has been linked with increased risk and worse outcomes in multiple sclerosis (MS). However, the results are not uniform and conflicting data on the matter have been published. This systematic review addresses the association of alcohol with increased risk and worse outcomes in MS.

Method: Systematic review of the literature, searching for the terms "Alcohol" AND "Multiple Sclerosis" OR "MS" in the Medline, PubMed, Lilacs, SciELO and Google Scholar databases. References from selected articles were used to identify studies that might not previously have been recognized as pertinent to this review. The period established for searching for articles started in 1983, after publication of Poser's criteria for diagnosing MS and finished on July 31, 2016.

Results: The initial search identified 1399 potential papers from the search terms selected. After exclusion of duplications and articles that did not fulfil the criteria of the review, 30 papers were selected for full-text discussion. Eleven research articles published between 2004 and 2016 were included in this review. Alcohol consumption was considered to be a risk factor for development of MS by some authors but not by others. Some studies even reported that drinking small amounts of alcohol had a protective effect against developing MS. Alcohol seemed to have a negative effect on disability progression in MS. Data from different countries and cultures may have played a role in the results from the studies.

Conclusion: It has been suggested that alcohol use might be related both to bad and to good outcomes in MS. There are no recommendations on doses that might be acceptable.

Keywords: Multiple sclerosis; Alcohol; Addiction; Disability; Drinking; Epidemiology

Introduction

Multiple sclerosis (MS) is a chronic immune-mediated, inflammatory demyelinating disease of the central nervous system (CNS) that affects both the brain and spinal cord. The cause of MS is not fully understood, but the disease is believed to relate to an abnormal immune response in individuals who are genetically predisposed. An association of personal predisposition and environmental conditions may result in immune-mediated inflammation of the CNS and culminate in neuronal loss. The disease usually manifests in bouts of neurological disabilities and later progresses to dysfunction of many areas of the CNS. It can affect motor and sensory functions, coordination, cognition, vision and sphincter control. It is often associated with fatigue, pain, depression, anxiety and sleep disorders, thus leading to considerable personal, social and economic losses [1].

Lifestyle/environmental factors may have an important role in determining the risk of MS. These are harder to accurately study and quantify than are genetic factors. However, it is important to identify these potential determinants of risk and worse outcomes in MS, since they are potentially preventable [2].

Depression, anxiety disorders, social withdrawal and cognitive deficits often affect the quality of life of patients with MS [3]. Chronic diseases like MS may negatively affect friendships and family relations. Patients may find themselves out of work while still relatively young and may find it difficult to deal with relapsing and/or progressive neurological disabilities. Ultimately, patients with MS may resort to alcohol, smoking, illicit drugs and even reckless behavior, within their lifestyle choices [4,5]. If these personal choices are associated with worse outcomes from the disease, then preventing such options is an important part of treatment. In addition, these choices may potentiate disabilities relating to MS. For example, the cognitive dysfunction associated with MS may be augmented by dysfunction relating to excessive alcohol consumption.

The present study systematically reviewed the potential influence of alcohol misuse in MS.

Method

The authors independently searched for the terms "Alcohol" AND "Multiple Sclerosis" OR "MS" in the Medline, PubMed, Lilacs, SciELO and Google Scholar databases. The period established for searching for articles started in 1983, after publication of Poser's criteria for diagnosing MS and finished on July 31, 2016. Summaries of articles in any language containing those words in English (in the title, keywords or abstract) were reviewed independently. The authors selected papers with relevant information on the potential influence of alcohol on the

development of or outcomes from MS. Only papers presenting data were included in the review. Previous articles reviewing this subject were used as a potential source of further papers that had not been identified in the database search. The review was conducted systematically, in accordance with the PRISMA-P guidelines [6,7].

Results

The initial search identified 1399 papers fulfilling the selection criteria from the search terms chosen for this review. Many of these articles were present in several databases and, after exclusion of duplications; there were 342 papers with the search terms that had been selected. From reading titles and abstracts, 312 papers did not fulfil the specified criteria and, therefore, 30 papers were initially selected for full consideration. In the end, eleven research articles published between 2004 and 2016 were included in this review [8-18]. Papers discussing the role of lifestyle habits in relation to MS were typically very recent publications. A summary of the data from these papers is shown in Table 1.

Authors	Year	Country	Population	Type of study	Assessment	Main results
Quesnel and Feinstein [8]	2004	Canada	140 patients with MS	Cross-sectional	Psychiatric diagnosis associated to higher alcohol consumption	Higher lifetime prevalence of anxiety, suicidal ideation, substance abuse and family history of mental illness
Bombardie et al. [9]	2004	USA	708 patients with MS	Cross-sectional (Retrospective information about the previous month)	Questionnaire on the use of alcohol	The prevalence of alcohol misuse was 14% in this population of patients
Pekmezovic et al. [10]	2006	Serbia	210 patients with MS, 210 matched controls	Case-control	Questionnaire on the use of alcohol (type of drink, quantity, frequency)	Significant association between alcohol consumption and development of MS
Turner et al. [11]	2009	USA	2625 patients with MS	Cross-sectional (Retrospective information)	Retrospective questionnaire on life habits	The prevalence of alcohol misuse was 13.9% for those who developed MS
D'hooghe et al. [12]	2012	Belgium	1372 patients with MS	Prospective database	Follow-up epidemiological study based on large databases	Consumption of alcoholic beverages, coffee and fish were inversely associated with progression of disability in relapsing onset MS, but not in progressive-onset MS
Foster et al. [13]	2012	USA	272 patients with MS 151 control subjects	Cross-sectional (Retrospective information)	Retrospective assessment of alcohol consumption over 15 years	The duration of alcohol consumption was associated with disability and MRI findings in MS.
Massa et al. [14]	2013	USA	(a) 92,275 women followed from 1980 to 2004 (b) 95,051 women followed from 1991 to 2005	Prospective database	Follow-up epidemiological study based on large databases	Alcohol consumption was not related to the risk of developing MS.
Beier et al. [15]	2014	USA	157 patients with MS	Cross-sectional (Retrospective information)	Individual interviews	Excessive consumption of alcohol by 40% of patients
Hedström et al. [16]	2014	Sweden	(a) 745 patients with MS and 1761 control subjects (b) 5874 patients with MS and 5246 control subjects	Prospective database	Follow-up epidemiological study based on large databases	Dose-dependent inverse association between alcohol consumption and risk of developing MS (statistically significant for both genders)
Weiland et al. [17]	2014	Australia	2469 patients with MS	Cross-sectional (Retrospective information)	Online platform	Most (61.5%) consumed less than 15 g of alcohol weekly; a few (0.8%) drank large amounts.
Fragoso et al. [18]	2015	Brazil	168 patients with MS 168 control subjects	Cross-sectional (Retrospective information about the previous mount)	Cross-sectional study, individual interviews	Control subjects had significantly higher alcohol consumption.

Table 1: Systematic review if studies assessing use of alcohol among patients with multiple sclerosis.

The results from these studies were not uniform. For example, the rate of excessive alcohol consumption by patients with MS ranged from 3% [18] to 40% [15]. Two studies showed an inverse relationship between the habit of drinking alcohol and the progression of disability in MS [12,16]. These two studies concluded that there was no evidence-based data to recommend that patients withdraw completely

from alcohol. On the other hand, another study showed that the duration of alcohol consumption by patients with MS was correlated with disability and lesion load in magnetic resonance imaging examinations [13]. A very large epidemiological database showed that alcohol consumption was not a risk factor for the development of MS [14,19,20].

It is relevant to observe that papers from the Middle East studying risk factors for MS did not include alcohol as a potential protective or risk-promoting factor [21-23]. This highlights the importance of the cultural and religious background involved in studying this particular risk factor.

Discussion

The effects of alcohol in MS need to be studied in greater detail. Two methodologically sound reviews supported the idea that alcohol consumption may have a protective effect on the development of MS in the general population [2,19]. These were not included in the present analyses because they did not present the original data from patients. Other studies showed that small to moderate alcohol drinking may be beneficial in protecting against disability progression [12,16]. Therefore, the widely-held concept that alcohol can only be deleterious in relation to MS onset and progression needs to be revised. The problem is to decide what is an acceptable amount of alcohol that can be drunk without causing deleterious effects.

Attitudes towards alcohol, tobacco, illicit drugs and reckless behavior may differ among different populations. Cultural, socioeconomic, religious and familial situations may have affected the results in the papers examined here, which were obtained in seven different countries. Nearly half of the papers on the subject were from the United States, and the others were from Canada, Belgium, Sweden, Serbia, Australia and Brazil. Definitive statements cannot be made through comparing data from populations that are so different. Likewise, it is not correct to draw conclusions that are applicable to the whole world from data obtained in only seven countries. Other environmental factors like sun exposure, dietary habits, obesity and a sedentary lifestyle may have influenced the results in different populations. While some studies were prospective, others were retrospective. Among the latter, some considered the last month's consumption of alcohol, while others considered longer periods prior to the interview. With this diversity of methodological approaches, it is difficult to reach conclusions.

Despite the numerous health and social consequences of alcohol consumption, routine screening and intervention for people with MS remain uncommon. Brief screening and regular advice to reduce or refrain from excessive alcohol consumption could easily be incorporated into the regular course of medical care. On the other hand, strict recommendations for alcohol withdrawal are not evidence-based and might even be deleterious to disease progression. Therefore, it needs to be asked whether small amounts of alcohol should be accepted and even encouraged, within the lifestyles of patients with MS. We hope that this review will serve as a basis for further work on the subject.

Disclosure

Part of this work is cited in the chapter "Alcohol, tobacco and illicit drugs in multiple sclerosis" in the book "Multiple Sclerosis Modified by Diet and Lifestyle", Editor Ronald R Watson, Elsevier [24]. The authors obtained authorization from Elsevier to submit this paper.

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