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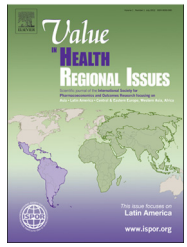

Health Care Cost for Multiple Sclerosis: The Case of a Health Insurer in Colombia

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ABSTRACT

Background: There have been many studies on the cost of multiple sclerosis in countries with high prevalence, whereas in Latin America such analyses are few. Taking into consideration the burden of this disease and the high financial impact of treatment on the health care system, it is necessary to know the behavior of cost of illness. **Objectives:** To describe the direct costs associated with health care in patients with multiple sclerosis affiliated with a health insurer in Colombia. **Methods:** An analysis of direct costs of disease was performed from the perspective of the third-party payer. A direct measurement from the technical costing "top-down" approach was used. Data were adjusted for inflation and expressed in 2014 US dollars. **Results:** The average annual cost per patient for the country was $29,339 (2010), $20,956 (2011), $23,892 (2012), $24,148 (2013), and $22,688 (2014). Drug therapy represented 86.1% of the total cost. Between 2010 and 2013, interferons accounted for the largest proportion of the costs of drug treatment (98.5% to 53%), whereas fingolimod showed an increase and accounted for 47% in 2014. **Conclusions:** Medications account for the largest proportion of disease costs, with few variations in the last 5 years; nevertheless, the increase in the use of new pharmaceuticals poses a challenge to maintain the financial balance of health insurance.

Keywords: Colombia, costs and cost analysis, health care costs, health expenditures, health insurance, multiple sclerosis, prevalence.

Introduction

Multiple sclerosis (MS) is the most common chronic autoimmune disease of the central nervous system in young adults. It is characterized by the loss of the motor and sensory functions, as a result of immune-mediated inflammation, demyelination, and subsequent axonal damage [1]. The prevalence of MS has been historically higher in the United States and Europe compared with Latin American countries and specifically those located in the tropical region. The frequency of this disease has been documented mainly in women with a 2:1 ratio [2–5]. According to the World Health Organization, it is estimated that more than 2 million people worldwide suffer from MS, which is one of the most common causes of disability in young adults. The worldwide and local prevalence of this disease is estimated to range from 15 to 250 per 100,000 inhabitants [1] and from 0.8 to 21.5 per 100,000 inhabitants, respectively, with Argentina and Brazil registering the highest rates [4,5]. The prevalence in Colombia ranges from 1.48 to 4.98 per 100,000 inhabitants depending on the geographic region [4,6–8].

Three decades ago, the treatment for MS was limited to handling its symptoms; nevertheless, in the 1990s, the introduction of interferon beta and glatiramer acetate brought relief to patients suffering from this disease. Two new molecules appeared recently that are potentially more efficient medications: natalizumab and fingolimod. These new pharmaceuticals do not provide a cure for MS, but decrease the rate of relapse. These molecules are more sophisticated. Therefore the production and commercialization cost is higher, which results in patients being unable to afford these treatments, thus depending largely on health care plans [9].

A number of studies and literature reviews have been conducted on the cost of this disease and its comorbidities in countries with high prevalence [10–25]. There have also been studies and reviews in Latin America, but to a smaller extent [26–28]. Currently, in Colombia only one analysis on the cost of MS has been published [29].

Earlier, the Colombian health care plan did not include medications for the treatment of MS because patients received medications via an additional procedure at the health services companies, and then these health companies billed the cost of

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the treatment to the Solidarity and Guarantee Fund (Fondo de Solidaridad y Garantía (FOSYGA) in Spanish) of the Ministry of Health and Social Protection. Since 2014, the pharmaceuticals for the treatment of MS were included in the health care plan because their cost was included in the annual premium per capita of the health care system, which is run by the health insurance companies [30]. Taking into consideration the burden of this disease and the high financial impact of the treatment on the health care system, it is necessary to know the behavior of the cost of MS. Thus, the objective of the present study was to describe the direct costs associated with the care of patients with MS who were members of a health insurance company in Colombia.

Methods

Context and Target Population

The model of health insurance in Colombia is called the General Social Security System for Health, whose objective is to guarantee universal coverage for the population. The government is in charge of assigning a fixed annual premium per user (annual premium per capita) that goes to the health services companies, which administrate these resources and establish the operational mechanisms to guarantee access to health services, in accordance with the items included in a list of benefits [31,32].

With regard to its administrative and financial structure, this health care system consists of the contributory regime and the subsidized regime. The former has been established for people who have a labor relationship, pensioners, self-employed, and in general those who can afford a health insurer; the latter is for poor and vulnerable people who do not have enough resources and require state-subsidized health care [31,32].

The present study was retrospective and involved cost analysis. The analysis was performed on an open and dynamic cohort of patients diagnosed with MS, which allowed the inclusion of patients as they were identified as well as their discharge on death or disenrollment during the period of study [33,34]. The cohort initially had 131 patients in 2010 and gradually increased to 159 patients through December 2014, distributed over 13 cities nationwide. The target population included members of one of the main insurers of the contributory system in Colombia as it gathered about 2,075,933 affiliates by December 2014, which accounted for 4.4% of the Colombian population that year.

Identification of Cases

The construction of the cohort was based on the identification of cases before and after 2010. The cases before 2010 were considered old cases for which data were captured from the information system of the insurer, which included the medical history systematized in the primary health care networks and claims of medications, where patients were verified to comply with two requirements—being diagnosed with MS under code G35 according to *CIE 10* [35] and being prescribed to take interferon beta, glatiramer acetate, natalizumab, or fingolimond. Once these patients were identified, a visit to the neurologist of the program was scheduled for consultation. For new patients, a care model was defined that included the assessment of suspicious cases of MS by a general practitioner with specific training, who performed the preliminary assessment of the diagnostic criteria and depending on the findings referred the patient to the neurologist. For both old and new cases, the neurologist of the treatment program was in charge of confirming the diagnosis and deciding on the inclusion of the patient in the cohort according to the institutional process for these patients [36]. The identification scheme of the cases is described in Figure 1. Confidentiality of information was guaranteed, the use of which was restricted to the present study in line with Colombian and international regulations [37,38].

Description of Costs

Only direct treatment costs were analyzed from the perspective of the third-party payer. On the basis of the data available in the information system of the insurer and the resources for the analysis, a direct measurement was made using the top-down technique for costs [39,40], which included the costs for each event such as supply of medications, procedures for diagnosis and treatment, specialized medical consultation, assistance at home, supplies, and other costs that included general practitioner assistance, paramedic assistance, and transportation assistance, assuming that all the aforementioned items were associated with the treatment of the disease, the outpatient

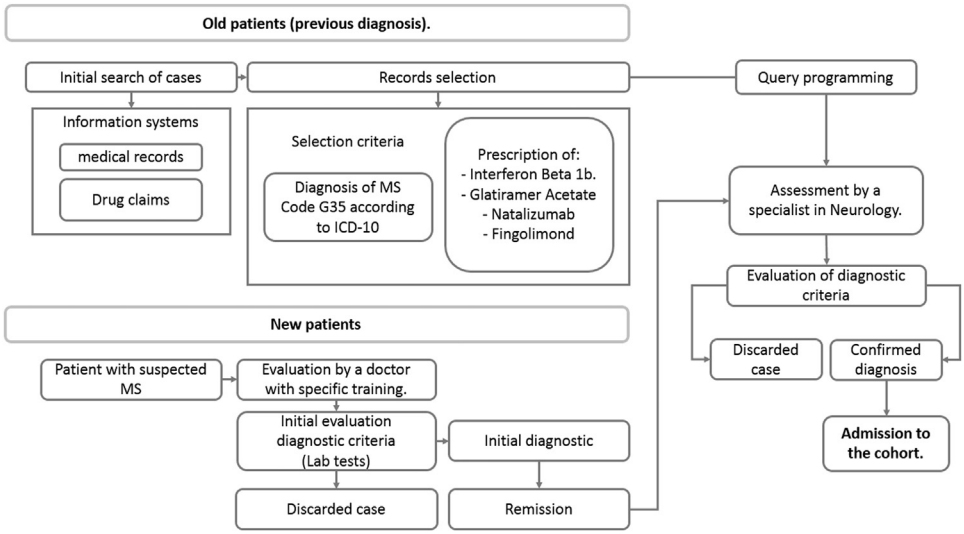

Fig. 1 – Scheme for identification of patients to be included in the cohort of MS. *ICD-10*, *International Classification of Diseases, Tenth Revision*; **MS, multiple sclerosis.**