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Prevalence of polymyalgia rheumatica in Colombia: data from the national health registry 2012–2016

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Abstract

Polymyalgia rheumatica (PMR) affects elderly patients and is characterized by pain and stiffness of the shoulder girdle, pelvic girdle and cervical region, which can be associated with the presence of giant cell arteritis. Data on the epidemiology of this disease in Latin America are scarce. In Colombia, the Ministry of Health introduced SISPRO, a tool to collect nation-wide information from the health system. The information collected from SISPRO is available for scientific analysis. Using SISPRO data for the years 2012–2016, an analysis was made on the prevalence and characteristics of patients diagnosed with PMR. This is a descriptive epidemiological study using the International Statistical Classification of Diseases and Related Health Problems as search terms related to PMR, based on SISPRO data. Criteria for diagnosis are not explicitly addressed in each individual case. National records report 19,901 individuals diagnosed with PMR and estimated prevalence of 2 cases per 1000 inhabitants over 50 years old (based on a total population of 47,663,162), being more frequent in women (86% of cases), with a female/male ratio of 6.2:1. This is the first study that describes the demographic characteristics of PMR in Colombia. Our results are consistent with the age-related increase in prevalence and gender ratio. Likewise, there are differences between regions, which may be related to ancestry and environmental factors, which require further studies.

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Introduction

Polymyalgia rheumatica (PMR) is an inflammatory rheumatic disease with heterogeneous clinical presentation, characterized by pain and stiffness in the muscles of shoulders and pelvic girdle, accompanied by constitutional symptoms such as fever, weight loss and asthenia [1]. In general, the typical clinical picture lasts more than a month, with bilateral shoulder girdle aching, predominantly nocturnal, which increases with rest, associated with morning stiffness which makes it difficult to perform daily activities, and is accompanied by constitutional symptoms such as fatigue, malaise, anorexia, and weight loss. PMR typically affects people over 50 years of age, and 90% of those affected are older than 60 years of age at diagnosis, predominantly women [2–5]. The cause of PMR is unknown as well as why it is almost exclusively found over 50 years, with prevalence growing with age.

PMR has a strong association with giant cell arteritis, although it can also occur in isolation, and is one of the main indications for long-term glucocorticoid treatment [3,

4). There are no studies that describe the epidemiology of PMR in Colombia, and we only found figures from one other country in the region (Argentina) [6]. To identify potential causes, to inform health care decision-makers and to prioritize health resources, we decided to analyze the data on the epidemiology of PMR based on the official statistics of the Colombian Ministry of Health.

Materials and methods

The Colombian health system has one of the largest coverage in Latin America, reaching 94.9% of the population in 2017, according to the last official measurement [7]. The Ministry of Health has developed a tool to collect and store information, called Social Protection Comprehensive Information System (SISPRO, by its Spanish acronym). It has four components: health, pensions, occupational risks and social promotion. In the first component, the basic and minimum data that the General Social Security System for Health (SGSSS, by its Spanish acronym) requires for the processes of management, regulation and control are stored and processed; these data are taken from the Individual Registry of Provision of Services (RIPS, by its Spanish acronym). The information in these databases is accessible to the public, and the data to carry out this study were taken from the online dynamic tables of the Ministry of Health. We obtained the information for the whole country, for the period between January 1, 2012, and December 31, 2016. Following the STROBE guidelines for observational studies, we analyzed the RIPS databases using the codes of the International Classification of Diseases for PMR (M353). We analyzed variables such as gender, type of insurance and distribution in 5-year age groups, according to the official projections of the National Administrative Department of Statistics (DANE), based on the projections of the National Census 2005 [8]. To calculate the prevalence in Colombia, we performed an analysis by 5-year age groups in patients older than 50 years, as well as an analysis of the prevalence for each of the 32 departments of the country during the 5-year period analyzed. We made a description of the data obtained with summary measures in frequencies and percentage for qualitative variables.

Results

We identified a total of 19,901 cases of patients over 50 years of age with a primary diagnosis of PMR (both from outpatient and hospital services); this allowed us to calculate a prevalence of 2 cases per 1000 inhabitants over 50 years old. We could also identify a higher prevalence in women (86% of cases), with a female/male ratio of 6.2:1. When analyzing the prevalence of PMR by 5-year age groups, we found that the group with the highest prevalence is between 50 and 54 years: 2.4 per 1000 inhabitants (Table 1), and there is a progressive decrease in the prevalence in the older age 5-year groups (Table 2, Fig. 1). Due to the characteristics of the records, it is not possible to determine incidence rate or disease duration.

Table 2 Patients with a main diagnosis of polymyalgia rheumatica according to gender and age group between 2012 and 2016

Age group	Male		Female	
	Patients	Prevalence	Patients	Prevalence
50–54	557	0.4	5832	4.3
55–59	461	0.5	4224	3.8
60–64	473	0.6	2948	3.4
65–69	404	0.7	1924	2.9
70–74	335	0.8	1338	2.7
75–79	295	1.0	893	2.4
80 or more	336	1.2	838	2.1
Total	**2773**	**0.6**	**17,201**	**3.2**

Prevalence is calculated with the average population of the period as denominator per 1000 population

Table 1 Patients seen with a primary diagnosis of polymyalgia rheumatica according to age group between 2012 and 2016

Age group	2012	2013	2014	2015	2016	Total patients	Prevalence
50–54	1452	1417	1624	1440	1317	6369	2.4
55–59	1009	1010	1170	986	1044	4663	2.2
60–64	737	702	891	745	755	3407	2.0
65–69	465	466	578	540	567	2319	1.9
70–74	323	323	441	383	420	1669	1.9
75–79	196	209	358	273	325	1185	1.8
80 or more	174	206	353	292	358	1167	1.7
Total	**4292**	**4286**	**5353**	**4606**	**4688**	**19,901**	**2.0**

The column total patients corresponds to the number of people seen at some point in the 5-year period. The prevalence is calculated with the average population of the period as denominator×1000 inhabitants
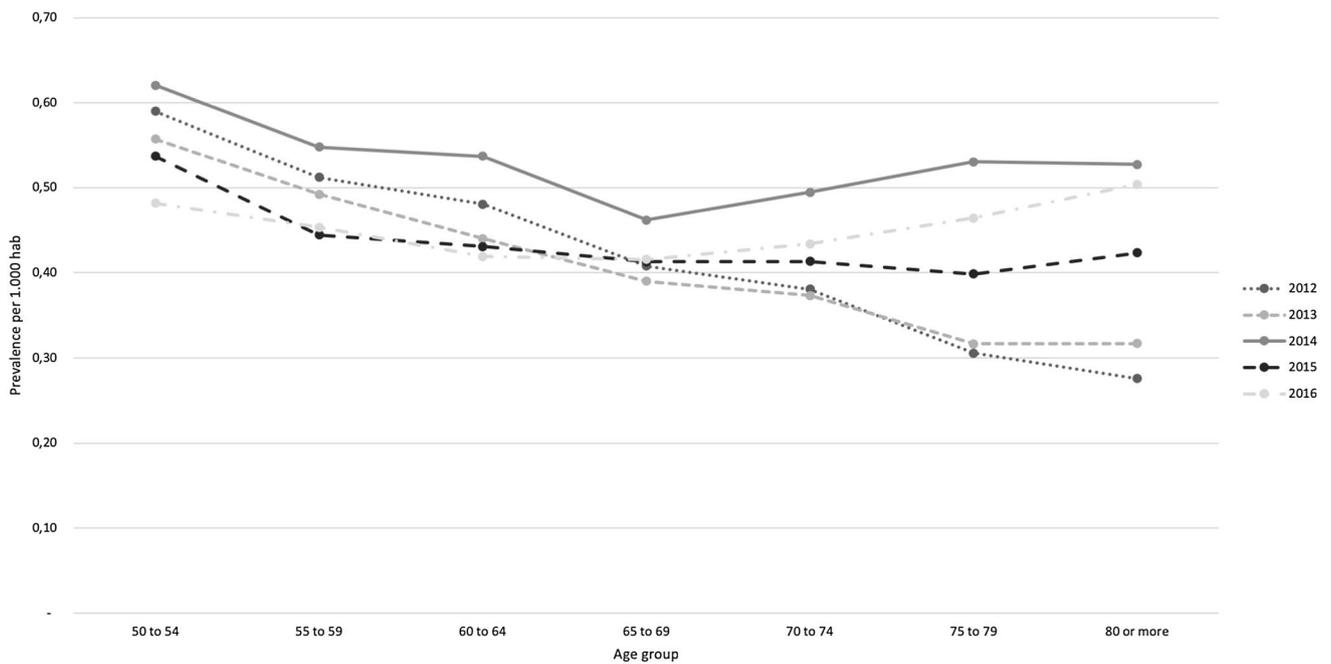
Fig. 1 Age-specific prevalence of patients with polymyalgia rheumatica during the years 2012–2016

The analysis of the type of coverage of patients with PMR according to the SGSSS regime showed that the majority belong to the contributory regime (75%), followed by the subsidized regime (21%), complementary plans (1%), and special regimes (3%).

Regarding the distribution of PMR by departments, we found a prevalence ranging from 0.1 to 3.8 per 1000 inhabitants over 50 years old (Fig. 2). The departments with the highest female prevalence of PMR are Antioquia and Cesar while those with the highest male prevalence of PMR are
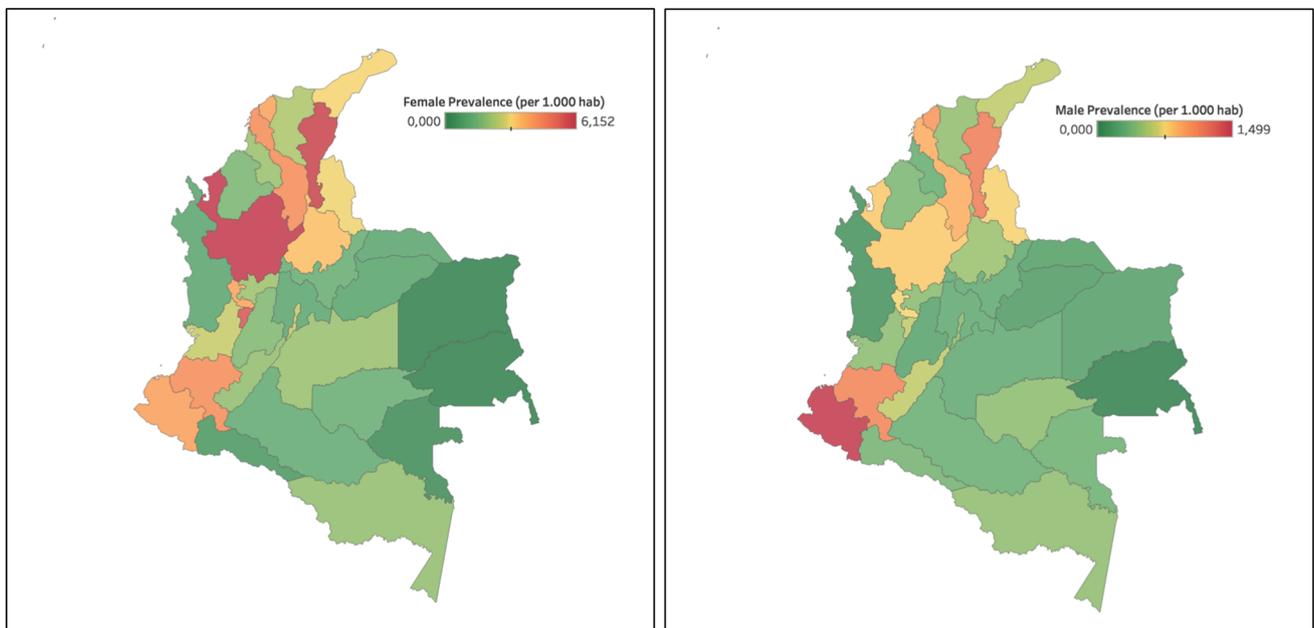

Fig. 2 Geographic distribution of the prevalence of polymyalgia rheumatica according by gender, between 2012 and 2016 by departments in Colombia per 100,000 population

in the southwestern region. The departments with the lowest prevalence of PMR are those with a greater number of black, mestizo and indigenous people, as well as with less industrial development and access to high-complexity medical centers (Amazonas, Arauca, Caquetá, Casanare, Chocó, Guainía, Guaviare, Putumayo, San Andrés, Vaupés, Vichada). The majority of registered patients are in Antioquia, followed by Bogotá D.C. and Valle del Cauca, where most of the rheumatology are concentrated.

Discussion

This is the first study on the prevalence of PMR in Colombia, which allows an epidemiological approach to the disease based on official statistics from the Colombian Ministry of Health. It should be noted, first, that Latin America is undergoing an accelerated process of demographic transition, with greater industrialization, economic development and aging of the population, which leads to an increase in the prevalence of chronic entities such as PMR [9].

There is a previous work in Colombia that describes a cohort of patients with PMR in the city of Medellín; the data from this work show a trend similar to that reported by our study, with a higher prevalence of this entity in women (79.7%) and in patients under 70 years, and a trend towards a lower prevalence among age groups over 70 years. It should be noted that this study corresponds to the region identified as having the highest prevalence in our study: the department of Antioquia [10]. This could be partly explained by the European ancestry in this department, which is higher than in other regions of Colombia, and by the fact that in the main city of the department (Medellín), the European and mestizo ancestry reaches 93.4% [11]. Our finding of a higher prevalence in the 50–54-year age group could perhaps be due to our early stage in the demographic transition. Prevalence in older age groups should increase as this particular cohort grows older [12].

Within the Latin American context, we only found a study carried out in Argentina [6], which showed a prevalence of 11.2 per 1000 inhabitants, higher than that found by us in Colombia, and even higher than the one reported by studies from other regions of the world. This study has in common with ours the higher prevalence in women (73.1% in the study in Argentina vs 86% in Colombia). Finally, contrary to the findings in the Medellín cohort and in our work, the prevalence in Argentina increases progressively until it reaches 22 per 1000 patients in the 71–80-year-old group, and then it begins to decrease, which is similar to what has been described in European population [6, 10]. The higher prevalence of PMR in Argentina compared to Colombia could be explained by the ancestral origin of the Argentine population, which had mass migration of Europeans during the last century, a phenomenon that did not occur in countries of northern South America, as is the case of Colombia.

A higher prevalence has been documented in the US population, as shown by the work of Lawrence et al., which describes a prevalence of 7 per 1000 people [13] and that of Salvarani et al., who show a similar prevalence of 6 per 1000 people, with a higher prevalence in women [14]. An interesting analysis conducted in Canada shows a higher prevalence in rural areas of 10 cases per 1000 people, and lower in urban areas, with 7.5 cases per 1000 inhabitants. Regarding gender distribution, this study also showed a higher prevalence in women [15].

Due to the nature of the SISPRO data, in our study we cannot calculate incidence data. However, it is worth noting that the studies showing the highest incidence are those from the Scandinavian countries [16, 17], and those with the lowest incidence are those from southern Europe and Asia [2, 18]; some of these studies show data associated with giant cell arteritis. In reviewing the data from studies from different regions of the world, we find that most of the studies report incidence rates, and mention that it is difficult to measure the prevalence, due to the variable clinical presentation of PMR [19]. The work by Doran [20] shows that the maximum incidence peak is at the age of 73, and that most of those affected are women (66.7%) [20]. The work by Smeeth et al. [19] in the United Kingdom showed a maximum incidence of appearance at 72.8 years, with a progressive increase in the different age groups of older adults; it also showed that PMR affects mostly women, but with a lower female/male ratio (2.6:1) compared to our results [19]. Another study that showed results similar to those of our study is that by Schaufelberger et al. [21], which showed a higher prevalence in women (71%), with an average age of onset of 72.9 years [21].

It is remarkable that the findings in South Korea show a lower prevalence (0.8 per 1000 inhabitants) in individuals over 50 years. The age group with the highest prevalence is 65–69 years (12.3 per 100,000 inhabitants), a value that is lower than the one reported for the European population in this same age group [22]. This fact could be explained by the possible environmental and genetic relationship in the etiopathogenesis of PMR evidenced in some studies, which have shown the relationship of some variants of HLA with PMR in European populations [23].

The fact that most of the patients (75%) belong to the contributory regime, which roughly covers half of the population (the better well-off), could perhaps reflect the lower possibility to access a rheumatologist in the other half of the population. This could lead to subdiagnosis in the most vulnerable part of the Colombian population.

The main limitation of this work is the possible underreporting or wrong reporting by doctors at the time of entering the ICD-10 code in the medical records, especially due

to the fact that one of the differential diagnoses is rheumatoid arthritis. Another limitation of our study is that, due to the nature of the data available, it is impossible to establish disease duration, severity, associated mortality or other clinical characteristics. Our study shows information taken from the database of the Colombian Ministry of Health, which is used to perform demographic and epidemiological analyses and projections for the care of patients with PMR in our country. Throughout the years, both quality of the data and disease awareness have been improving; this should result in better tools for decision-makers in the near future.

This is the first study that describes the prevalence of PMR in Colombia and is one of the few conducted in Latin America. Our study shows a lower prevalence of PMR compared to that described in other studies worldwide. The distribution of the disease in the country is heterogeneous, and it is likely that the cause of the low prevalence of the disease in some departments of the country is that these are areas with less economic development and with greater miscegenation.

Compliance with ethical standards

Conflict of interest Daniel Fernández-Ávila, Santiago Bernal-Macías, Diana Rincón-Riaño, Juan M Gutierrez and Diego Rosselli declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Ethical committee of Medicine Faculty of Pontificia Universidad Javerina 2018/20 and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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