

Clinical and laboratory features of patients with rheumatoid arthritis diagnosed at rheumatology services in the Brazilian municipality of Cascavel, PR, Brazil

Juliano Maximiano David¹, Rodrigo Antonio Mattei², Juliana Lustoza Mauad¹, Lauren Gabrielle de Almeida¹, Márcio Augusto Nogueira³, Poliana Vieira da Silva Menolli⁴, Rafael Andrade Menolli⁵

ABSTRACT

Introduction: Brazilian epidemiological studies on rheumatoid arthritis are scarce, thus all data currently available originate from the international literature. **Objectives:** To determine the incidence and some clinical and laboratory characteristics of patients with rheumatoid arthritis in the municipality of Cascavel, state of Paraná, Brazil. **Patients and methods:** Data were collected between August 2010 and July 2011 in all health services of the municipality of Cascavel that provided health care in Rheumatology: a university-affiliated hospital, a public outpatient clinic and four private clinics. **Results:** We identified 38 patients diagnosed with rheumatoid arthritis, resulting in an estimated incidence of 13.4 cases per 100,000 inhabitants/year. Thirty two patients were females, whose mean age was 47.6 years. The age group with the highest incidence was over 40 years. The mean time between first symptoms and diagnosis was 12.4 months. Rheumatoid factor was positive in 68.4% of the patients, and 18.4% already had radiological abnormalities at diagnosis. The pharmacological treatment of patients was also assessed and proved to be in accordance with those found in the literature. **Conclusion:** The incidence of rheumatoid arthritis obtained in the municipality of Cascavel was lower than those reported in international studies.

Keywords: rheumatoid arthritis, epidemiology, Brazil.

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INTRODUCTION

Rheumatoid arthritis (RA) is a systemic chronic inflammatory disease of autoimmune character and unknown etiology, which affects large and small joints symmetrically. It is more prevalent in women (female/male ratio of 2:1), and its incidence increases with age.¹

Rheumatoid arthritis affects approximately 0.5%–1% of the population, and, although not directly life-threatening, it

causes a reduction in the patient's quality of life and severe economic damages to society.²

The incidence of RA varies according to the population and geographic area studied. Most epidemiological studies have been conducted in developed countries, while reports on the incidence of RA in developing countries have been rare. Studies have shown a lower prevalence of RA in developing countries as compared with developed countries.³

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1. Medical student, Universidade Estadual do Oeste do Paraná – UNIOESTE

2. Pharmacist; Resident in Pharmaceutical Sciences; Clinical Analyses

3. Rheumatologist; Assistant Professor, UNIOESTE

4. Master's degree in Collective Health; Assistant Professor, UNIOESTE

5. Master's degree; Assistant Professor, UNIOESTE

Correspondence to: Rafael Andrade Menolli. Centro de Ciências Médicas e Farmacêuticas. Rua Universitária, 2069 – Bairro Universitário. CEP: 85819-110. Cascavel, PR, Brazil. E-mail: ramenolli@hotmail.com

This study aimed at assessing the incidence of RA in a Brazilian municipality and describing the clinical and laboratory characteristics of patients with RA.

PATIENTS AND METHODS

This study comprised the review of the medical records of patients diagnosed with RA in the municipality of Cascavel, state of Paraná (PR), Brazil, from August 2010 to July 2011. All rheumatology services of that municipality took part in this study as follows: a university-affiliated hospital of Western Paraná (Hospital Universitário do Oeste do Paraná – HUOP); the regional center of specialties of the intermunicipal health consortium of Western Paraná (*Centro Regional de Especialidades do Consórcio Intermunicipal de Saúde do Oeste do Paraná – CRE-CISOP*); and four private rheumatology clinics.

Data were collected through active search in the medical records of patients whose diagnosis of RA had been confirmed by a rheumatologist. Data were recorded in a specific spreadsheet, constructed and validated to minimize differences in data recording across different services. The following data were assessed: gender; age range; time from the first complaint until RA diagnosis; clinical and laboratory manifestations; and drug therapy. Clinical and laboratory data were assessed regarding their compliance with the 1987 American College of Rheumatology (ACR) criteria.⁴ The new 2010 ACR-EULAR criteria were not used, because they had not been published by the beginning of this study.

This study's exclusion criteria were as follows: 1) patients diagnosed with RA not living in the municipality of Cascavel; 2) residents of the municipality of Cascavel diagnosed with RA by a rheumatologist, but who did not meet the minimum ACR criteria.

The municipality of Cascavel is located in the Western region of the state of Paraná, in the Southern region of Brazil. In 2010, its population was 283,193 inhabitants (146,434 women and 139,771 men), according to data from the Brazilian Institute of Geography and Statistics (IBGE).⁵ Those figures were used to calculate the incidence of RA. The municipality of Cascavel is a regional pole of health care in the state of Paraná, providing health services in different medical specialties to the so-called Western macro-region, which comprises 25 municipalities and has approximately 470,000 inhabitants. It is not a specific pole for the treatment of RA, but offers specialized health care in private clinics and at the Brazilian Public Unified Health Care System (SUS), through the CRE-CISOP and the HUOP outpatient clinic.

Data were presented as frequencies, medians, and means \pm standard deviations, with 95% confidence interval (CI).

This study was approved by the Committee of Ethics and Research (n° 239-2010) of the Western Paraná State University (UNIOESTE), and its authors declare no conflict of interest.

RESULTS

This study identified 38 patients diagnosed with RA and living in the municipality of Cascavel. The incidence of cases of RA at the services assessed was 13.42 cases per 100,000 inhabitants/year. Of the 38 patients, 32 were females and 6, males. The incidence for the female gender was 21.9/100,000 inhabitants/year, and for the male gender, 4.3/100,000 inhabitants/year, resulting in female/male ratio of 5.3:1.

The mean age at the time of diagnosis was 47.6 ± 16.7 years (95% CI: 42.2–53.0), ranging from 17 to 76 years (median of 38 years). The mean time between the appearance of the first symptoms and disease diagnosis was 12.4 ± 12.6 months (95% CI: 7.8–17.0), ranging from 1 month to 60 months (median of 9 months). Table 1 shows the incidence and frequency of RA per age group.

In this study, the compliance with the 1987 ACR criteria for the diagnosis of RA was as follows: 22 patients met 4 of the 7 criteria; 12 patients met 5 criteria; 2 patients met 6 criteria; and 1 patient met 7 criteria. The most frequently met criterion was that of radiographic changes, observed in 7 patients, 6 of whom were of the female gender. Table 2 shows the clinical and laboratory manifestations comprising the ACR diagnostic criteria detected in the patients.

When diagnosed with RA, the patients also underwent the following laboratory tests: C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). Those measurements were elevated in 31 (81.6%) and 26 (68.4%) patients, respectively.

Table 1

Frequency of cases and incidence of rheumatoid arthritis according to the age group of patients diagnosed at rheumatology services in the municipality of Cascavel, PR, Brazil, in 2010–2011

Age group (years)	n	Frequency of cases (%)	Population	Incidence/100,000 inhabitants
< 20	1	2.7	91,964	1.09
20–29	7	18.9	53,969	12.97
30–39	3	8.1	46,545	6.45
40–49	9	24.3	40,217	22.38
50–59	8	21.6	27,795	28.78
60–69	5	13.5	15,294	32.69

Table 2
Clinical and laboratory manifestations comprised in the ACR diagnostic criteria detected in the patients studied

ACR criteria	n (%)
Edema in at least 3 joints	38 (100%)
Edema in hand joints	38 (100%)
Symmetrical edema	35 (92.1%)
Rheumatoid factor	26 (68.4%)
Morning stiffness	15 (39.5%)
Radiological changes	7 (18.4%)
Subcutaneous nodules	5 (13.2%)

ACR = American College of Rheumatology.

Table 3
Drug treatment prescribed for patients diagnosed with rheumatoid arthritis in the municipality of Cascavel, PR, Brazil

Drug	n (%)
Methotrexate	31 (81.6%)
Prednisone	27 (71.1%)
Non-steroidal anti-inflammatory drugs	17 (44.7%)
Hydroxychloroquine	6 (15.8%)
Sulfasalazine	1 (2.6%)

Table 4
Drug associations prescribed for patients diagnosed with rheumatoid arthritis in the municipality of Cascavel, PR, Brazil

Drug	n (%)
MTX + hydroxychloroquine	4 (10.5%)
MTX + leflunomide	1 (2.6%)
MTX + sulfasalazine	1 (2.6%)
MTX + cyclophosphamide	1 (2.6%)
Prednisone + NSAIDs	15 (39.5%)

MTX = methotrexate; NSAIDs = non-steroidal anti-inflammatory drugs.

Table 3 shows the specific drugs for RA used to treat the patients. Disease-modifying anti-rheumatic drugs (DMARDs) and non-steroidal anti-inflammatory drugs (NSAIDs) listed in Table 3 were used in combination for some patients. Table 4 shows such combinations.

DISCUSSION

Epidemiological studies on RA are mostly limited to developed countries,^{3,6} the incidence of RA in developing countries being unknown.^{3,6-8}

Compared with international indices, the incidence of RA found in the municipality of Cascavel (13.4/100,000 inhabitants/year) is lower than those of Northern Europe and the USA,⁸ which ranged from 20 and 50 cases per 100,000 inhabitants/year. The incidence of RA found in the municipality of Cascavel is closer to those found in Southern Europe (9 to 24 cases per 100,000 inhabitants/year).^{7,3} One reason for that might be the climate similarity between those countries and Southern Brazil (temperate climate).^{7,9} Table 5 lists the incidence data.

Studies on the incidence of RA in Brazil lack, hindering comparisons with other Brazilian places; however, data on the prevalence of RA in Brazil show lower indices than those reported in other places worldwide.^{6,10,11}

In addition to the variations in methodology and criteria between studies, another explanation for the lower prevalence and incidence of RA found in developing countries might be the lower degree of urbanization of those countries and the greater difficulty patients face in reaching health care centers in developing countries.¹²

Data from the Norfolk Arthritis Register have shown incidences of RA for the female and male genders of 54/100,000 inhabitants/year and 24.5/100,000 inhabitants/year, respectively, evidencing an approximately twice greater incidence of RA in the female gender.¹³ Those data are similar to those reported by Symmons *et al.*¹⁴ in another European study. The female/male ratio in the municipality of Cascavel was higher than that found in developed countries, although the incidences for both men and women were smaller. That difference in the incidences in our study might be related to the

Table 5
Comparison of the incidence of rheumatoid arthritis in the municipality of Cascavel, PR, Brazil, with international data (cases/100,000 inhabitants)

Author, study site	Time period	Total of RA cases (n)	Incidence (per 100,000 inhabitants)
Present study, municipality of Cascavel (Brazil)	2010–2011	38	13.4
Doran <i>et al.</i> , ¹⁷ Rochester (USA)	1985–1994	147	32.7
Carbonell <i>et al.</i> , ¹⁸ Spain	2004–2005	362	8.3
Kaipainen-Seppänen <i>et al.</i> , ²⁴ Finland	1985	413	39
Pedersen <i>et al.</i> , ²⁵ Southern Denmark	1995–2001	505	35
Drosos <i>et al.</i> , ²⁶ Greece	1987–1995	428	20

cultural attitude of the Brazilian male to search medical care only in the presence of symptoms, in addition to the difficulty in accessing health care services.¹⁵ Another Brazilian study has also reported a markedly high female/male ratio.¹⁰

The mean age found in this study coincides with that reported in the literature for the peak incidence of RA, that is, after the fourth decade of life.¹ Brazilian and international studies have reported similar age groups.^{16,17}

Considering the RA classification criteria, our study's data suggest lower positivity for the criterion 'presence or absence of subcutaneous nodules' as compared with the study carried out in the state of São Paulo in 2007¹⁶ (18% and 29%, respectively). This might be explained by the fact that the study from the state of São Paulo assesses prevalence, considering both new and old cases, while ours considered only the new cases, in which the characteristics of RA have not developed in its full severity. A French study,¹⁷ involving 14 rheumatology centers in the period from 2002 to 2005, has assessed 579 patients meeting the 1987 ACR criteria for the diagnosis of RA and reported the following results: arthritis in at least 3 joints, 95.7%; symmetrical arthritis, 92.9%; and morning stiffness, 95%. Comparing with our study, except for morning stiffness, those values do not differ much (100%, 92.1% and 39.5%, respectively), which might be explained by the fact of it being a study on prevalence.

Regarding positivity for the rheumatoid factor, our data are very similar to those of two other Brazilian studies (68.4% in the municipality of Cascavel, 71% in the municipality of São Paulo,¹⁵ and 63% in the municipality of Montes Claros¹⁰), although the other Brazilian studies were on prevalence. However, comparing with studies on incidence, the presence of the rheumatoid factor is greater than that reported in international studies.^{18,19}

The immediate beginning of treatment is important to reduce disease activity and prevent lesions that can generate functional disabilities. That treatment can be as follows: non-medicamentous; symptomatic; and with DMARDs. The symptomatic treatment should be performed with NSAIDs, and, when necessary, prednisone can be associated. If prednisone is used for a long time, calcium and vitamin D should be associated to prevent bone damage.²⁰ Only 17 patients (44.7%) were on NSAIDs during the period studied. That is in accordance with the literature, which recommends the use of NSAIDs at lower doses and for the shortest time possible to avoid complications. If the treatment with NSAIDs is

not effective to control pain, therapy with DMARDs should be considered.²⁰ Of the 17 patients on NSAIDs, 2 were on monotherapy, because they had mild symptoms of the disease.

The most common adverse effects in patients on NSAIDs are gastrointestinal symptoms,²⁰ explaining the large number of patients on a proton-pump inhibitor for gastric protection. In our study, omeprazole was used by 10 patients (26.3%).

In our study, 27 patients (71.1%) were on glucocorticoids, which are mainly used to control the exacerbations of the disease for both new and old cases.

Regarding DMARDs, 25 of 38 patients (65.8%) diagnosed with RA in the period studied and undergoing treatment, used methotrexate (MTX) in monotherapy. MTX is recommended for all patients diagnosed with RA, regardless of disease duration. It is considered the standard drug for the treatment of RA, because it is the best tolerated.²⁰⁻²² In addition, 2 patients (5.3%) used hydroxychloroquine in monotherapy. That drug is recommended for those who do not have a poor prognosis and whose disease activity is low. Drug treatment can also involve associations of 2 or more DMARDs. The best association is MTX and hydroxychloroquine, indicated for patients with moderate disease activity,²¹ and used for 4 patients (10.5%) in our study. Other associations recommended are MTX with leflunomide, for patients with long disease duration and low disease activity, and MTX with sulfasalazine, for patients with high disease activity and worse prognosis.²² In our study, each of those associations was used by 1 patient (2.6%).

The importance of studying the epidemiology of RA is based on the need of assessing the impact of that disease on the population health and also intended to help with the calculation and priorities of organizing health care.²³ Nevertheless, studies on the incidence of RA face some difficulties, such as establishing the point at which the disease actually starts, defining which criterion should be used for diagnosis, and the delay between symptom onset and medical care, which can falsely reduce the estimates on the incidence of that disease.^{8,23}

New criteria have been defined by the 2010 ACR-EULAR to help with the early diagnosis of RA.⁸ That might improve studies on incidence, because many rheumatologists identify and treat patients with RA based on their professional experience, even if the patient does not meet the 1987 ACR criteria.²³

Further studies involving other Brazilian regions should be carried out to establish whether that is a characteristic finding of the Brazilian population or only an isolated finding.

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