Incidence and prevalence of psoriatic arthritis in Buenos Aires, Argentina: a 6-year health management organization-based study

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Abstract

Objectives. Studies regarding epidemiology of PsA are lacking in Latin America. We estimated the incidence and prevalence of PsA in a University Hospital-based Health Management Organization in Buenos Aires [Hospital Italiano Medical Care Program (HIMCP)].

Methods. Population: for incidence calculation, the population at risk was all adult members of the HIMCP, with continuous affiliation for at least 1 year from January 2000 to January 2006. Each person was followed until he/she voluntarily left the HIMCP, death or finalization of the study (final dates) contributing time at risk since January 2000 or enrolment date (whichever occurred later) to that final date. Case ascertainment: medical records of all patients with the problem psoriasis and/or PsA in the HIMCP problem-oriented computer-based patient record system, or registered in rheumatologists and/or dermatologists databases, were revised. Patients fulfilling CASPAR criteria were included. Statistical analysis: incidence rate (IR) was calculated with 95% CIs. Cumulative prevalence was estimated on 1 January 2006 (denominator population = 88 112).

Results. In the study period, 138 288 persons contributed a total of 558 878 person-years, of whom 35 developed PsA (IR 6.26; 95% CI 4.2, 8.3 cases per 100 000 person-years). There were 12 females: IR 3.64 (95% CI 1.6, 5.7) cases per 100 000 person-years; and 23 males: IR 10.02 (95% CI 5.9, 14.1) cases per 100 000 person-years. On 1 January 2006, 65 prevalent cases were identified: prevalence 74 (95% CI 57, 94) cases per 100 000 members.

Conclusions. The incidence and prevalence of PsA in this Latin American country was similar to that reported in other studies from Europe and the USA.

Key words: Epidemiology of psoriatic arthritis, Incidence psoriatic arthritis, Prevalence psoriatic arthritis.

Introduction

PsA is a chronic inflammatory arthropathy associated with psoriasis. Initially described as a variant of RA, it was then recognized as a unique entity with distinct clinical and radiological features [1, 2]. In 1964, the ACR, formerly the ARA, accepted PsA as a unique disorder.

Few population-based studies exist documenting the incidence and prevalence of PsA [3–7]. Recently, a systematic review of incidence and prevalence studies of PsA including 13 studies has been published [5] and since then some other studies in Europe and Asia have shown similar results [3, 8–10].

The systematic review suggested a wide variation of the incidence and prevalence of PsA among several countries and areas of the world [5]. Reported prevalence and incidence rates (IRs) of PsA were between 20 and 240 per 10^5 inhabitants [5, 11–16] and between 3 and 23.1 per 10^5 inhabitants (median 6.4; range 0.1–23.1 per 10^5 inhabitants) [5], respectively. European studies found...
relatively similar IRs [17–18], whereas a Japanese population study found a very low incidence [19] and a Finnish study found a 4-fold higher IR [20]. Authors of this review pointed out that the lack of studies in Africa, large parts of Asia, South America and Eastern Europe represents another important limitation in the understanding of geographical variations of PsA and of the possible role of genetic and environmental factors in the occurrence of the disease [5].

There are a number of challenges in conducting epidemiological studies in PsA. One of the most important problems was lack of validated classification criteria. The recently developed classification criteria for PsA [Classification criteria for Psoriatic Arthritis (CASPAR)] study group criteria for PsA have been recognized to be sensitive, specific, simple and easy to apply to data collected retrospectively [21–23]. The present study was undertaken to determine the incidence and prevalence of PsA in a health-care organization from Buenos Aires, the largest populated area in Argentina, using CASPAR criteria.

**Methods**

**Setting**

The population studied was the membership of the Hospital Italiano Medical Care Program (HIMCP), a prepaid health maintenance organization (HMO). HIMCP provides comprehensive medical and health services through two main hospitals and 24 medical office buildings to around 140 000 members primarily located in the urban areas around the Autonomous City of Buenos Aires, Argentina. The city covers an area of 202 km² and has a subtropical climate. It is located on the western bank of the Río de la Plata and has a population of 2 965 403 inhabitants. Ninety-seven per cent of the population is white and of European descent and the remaining 3% is a mixture of native Indians and other ethnicities [24] (Tables 1 and 2).

Argentina has an extremely segmented health system consisting of three large sectors: private, public and social security (the last two covering a population of nearly 18.3 million people). Public hospitals provide coverage to the population on demand and serves 35% of the Argentine population who has no insurance and relies solely on the public health sector of each province or district. The social security sector (Obras Sociales) consists of many different funds, mostly managed by trade unions and generally composed of workers within the same labour activity. This sector consists of about 300 entities, diverse in scope and size, which covers >50% of the population. Beneficiaries of the private system can freely choose their HMO. The HIMCP is a private health system insurance, selected by many metropolitan inhabitants because of the excellence of the services provided as well as the affordability of the insurance. Approximately 5–7% of the population in these geographic areas is affiliated to the HIMCP. The HIMCP population characteristics are highly representative of the metropolitan population of the Autonomous City of Buenos Aires, as demonstrated by 2001 census data [25] (Tables 1 and 2) covering a number of demographic and socio-economic categories. The present study was conducted with approval by the Institutional Review Board of the Hospital Italiano de Buenos Aires.

**Population**

For incidence calculation the population at risk was composed of all adult members (aged >18 years) of the HIMCP, who had continuous affiliation for at least 1 year from January 2000 to January 2006. Each person was followed until he/she was diagnosed with PsA, voluntarily left the HIMCP, death or finalization of the study (final dates) contributing time at risk since January 2000 or enrolment date (whichever occurred later) to that final date.

**Case ascertainment**

Multiple methods for case finding were used to ensure complete ascertainment: (i) medical records of all patients

**Table 1** Demographic data of the Autonomous City of Buenos Aires and HIMCP based on 2001 Argentinean census

<table>
<thead>
<tr>
<th>Age group, years</th>
<th>Autonomous City of Buenos Aires overall (%)</th>
<th>HIMCP overall (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–14</td>
<td>468 961 (17)</td>
<td>24 892 (18)</td>
</tr>
<tr>
<td>15–24</td>
<td>414 621 (15)</td>
<td>18 116 (13)</td>
</tr>
<tr>
<td>25–34</td>
<td>435 863 (16)</td>
<td>19 775 (14)</td>
</tr>
<tr>
<td>35–44</td>
<td>356 261 (13)</td>
<td>16 595 (12)</td>
</tr>
<tr>
<td>45–54</td>
<td>350 165 (13)</td>
<td>15 627 (11)</td>
</tr>
<tr>
<td>55–64</td>
<td>281 722 (10)</td>
<td>16 318 (12)</td>
</tr>
<tr>
<td>≥65</td>
<td>488 505 (17)</td>
<td>26 966 (20)</td>
</tr>
<tr>
<td>Total</td>
<td>2 796 198 (100)</td>
<td>138 288 (100)</td>
</tr>
</tbody>
</table>

**Table 2** Socio-economic level and ethnic origin of Autonomous City of Buenos Aires inhabitants and HIMCP affiliates, based on 2001 Argentinean census

<table>
<thead>
<tr>
<th>Socio-economic and ethnic characteristics</th>
<th>Autonomous City of Buenos Aires, %</th>
<th>HIMCP, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-economic class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper class</td>
<td>10.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Upper middle class</td>
<td>16.0</td>
<td>19.4</td>
</tr>
<tr>
<td>Middle class</td>
<td>30.0</td>
<td>37.5</td>
</tr>
<tr>
<td>Lower middle class</td>
<td>21.0</td>
<td>25.6</td>
</tr>
<tr>
<td>Lower class</td>
<td>17.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Poor</td>
<td>13.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Ethnic origin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>92.0</td>
<td>95.50</td>
</tr>
<tr>
<td>Asian</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td>African American</td>
<td>1.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Mestizo</td>
<td>3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
with the problem psoriasis and/or PsA and/or SpAs in the HIMCP problem-oriented electronic medical record (EMR). Since 1998 in the Hospital Italiano de Buenos Aires, a full Hospital Information System (HIS) was developed. More than 120,000 ambulatory visits and more than 2000 inpatient episodes are processed each month using our EMRs. Physicians enter diagnosis information in the EMR as narrative text, without restrictions, and later, a group of trained coders assign standard vocabulary codes to those text descriptions, using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision (ICD-10), International Classification of Primary Care (ICPC) and Systematized Nomenclature of Medicine—Clinical Terms (SNOMED CT) [26–28]; (ii) patients included in rheumatology databases; and (iii) patients with psoriasis included in dermatology databases. A list of cases was obtained from these sources, and all medical records were reviewed with a standard process by two rheumatologists (E.V. and J.R.) who subsequently determined whether patients fulfilled the PsA diagnostic criteria. The number of cases identified from each database is shown in Fig. 1. Confirmation of residence and affiliation status was obtained from the HIMCP registers.

Fig. 1 Flow chart of the cases identified from each data source.
Case definition

PsA was classified using the CASPAR criteria [21]. Psoriatic skin disease was accepted if observed by the investigators and/or if documented in medical records by a dermatologist or a rheumatologist. In addition, arthritis was accepted if observed by the investigators or documented in medical records by a rheumatologist. Axial disease was defined as inflammatory back pain and definite sacroiliitis on X-ray.

Monoarthritis, polyarthritis and oligoarthritis were defined as one, at least five, and two to four affected joints, respectively. For incidence, calculation diagnosis date was considered as the date the first related symptom was recorded and cases must have been enrolled with the HIMCP for at least 1 year before the date of diagnosis. In the case of patients with psoriasis, if there was at least one medical visit after the diagnosis without the mention of musculoskeletal complaints, the patient was considered as not having PsA. When, after the diagnosis that motivated the inclusion in one of the data sources (psoriasis, SpA, etc.), there was no further information in the medical record, this was considered as missing data and that patient was excluded (Fig. 1). For patients with some criteria of PsA but without enough information on medical records for the remaining criteria, dermatologists or general practitioners were contacted to verify diagnosis.

Statistical analysis

IR was calculated with 95% CIs. Age group rates were also calculated. Cumulative prevalence rate was estimated on 1 January 2006, and the denominator population was the number of adult HIMCP active members at that day \( n = 88,112 \).

Results

In the study period, 138,288 persons were followed for a total of 558,878 person-years, of whom 35 developed PsA. The IR was 6.26 (95% CI 4.2, 8.3) cases per 100,000 person-years. Mean (s.d.) age at diagnosis was 54 (16) years. There were 12 (44%) females; IR 3.64 (95% CI 1.6, 5.7) cases per 100,000 person-years; and 23 (66%) males; IR 10.02 (95% CI 5.9, 14.1) cases per 100,000 person-years. On 1 January 2006, 65 prevalent cases were identified: prevalence 74 (95% CI 57, 94) cases per 100,000 members. There were 24 women: prevalence: 45.8 (95% CI 22, 84.4) and 41 males: prevalence 114 (95% CI 70, 176) cases per 100,000 members. Some characteristics of incident and prevalent cases are shown in Table 3.

The IRs for different age groups are shown in Fig. 2. The IR in the age group of 18–44 years was: 4.55 (95% CI 2.2, 8.3) cases per 100,000 person-years (females 1.7 and males 8/100,000 person-years). In the age group of 45–64 years, IR was 11.6 (95% CI 6.9, 18.3) case per 100,000 person-years (females 7.7 and males 18.1/100,000 person-years); and in the age group of >65 years, IR was 3.8 (95% CI 1.5, 7.8) cases per 100,000 person-years (females 2.5 and males 6.1/100,000 person-years).

Twelve (34%) incident cases presented as monoarthritis with an IR of 2.1 (95% CI 1.1, 3.75) per 100,000 person-years; 18 (52%) presented as oligoarthritis with an IR of 3.2 (95% CI 1.9, 5.1) per 100,000 person-years; and 5 (14%) patients presented as polyarthritis with an IR 0.9 of (95% CI 0.2, 2.1) per 100,000 person-years.

Discussion

This is the first population-based study on the occurrence of PsA in Argentina and, to our knowledge, in South America. Point prevalence was 74 per 10^5 inhabitants.
Incidence figures are very similar to those previously reported in European and US studies [5]. The annual IR was found to be 6.1 (95% CI 4.6, 7.6) [6] per 100 000 inhabitants in Finland, 6.59 (95% CI 4.99, 8.19) per 100 000 inhabitants in Olmsted County (MN, USA) [7] and 6 (95% CI: 3, 11) per 100 000 person-years in Denmark [3]. Prevalence results in our study are among the lower rates reported [5].

There are methodological differences among different studies. One of the major concerns relates to the methods of case identification and case recording [5]. The differences in the methods of case identification reflect the absence of commonly accepted criteria for diagnosis and classification of the disease [5]. Since there is no gold standard available for diagnosing PsA, we adopted the CASPAR criteria that have shown high sensitivity and specificity [21, 23] and have been suggested as a basis for more valid and homogenous epidemiological studies, as they appear to be simple and highly specific for identification of PsA [5]. Most epidemiological studies do not mention specific published diagnostic criteria, with the exception of studies referring to the European Spondyloarthritis Study Group (ESSG) criteria [29], that have shown inadequate sensitivity for identification and differential diagnosis of PsA [30].

This could, in part, explain differences in results found in different studies. On the other hand, the other population study that used CASPAR criteria in Denmark found results very similar to our own study [3].

The different methods of case ascertainment represent another important methodological problem among studies. We used several sources for case identification, in the context of a systematic recording system, to reduce a potential underestimation of PsA cases. We could not, however, completely disregard some under-ascertainment, as some patients might have not been captured by any of the sources, and ~11% of the EMRs retrieved did not have enough information to verify the diagnosis.

Regarding gender, our results are similar to those of the Finnish [6] and Denmark [3] studies, with a preponderance of male cases. Instead, the Greek [18] and MN (USA) [7] studies found a slight preponderance of female cases. The peak of age-specific IRs (45–64 years) observed in our study was similar to those found in Finland, Greece and in Olmsted County, MN [6, 7, 18]. This suggests a common epidemiological profile of the disease in different populations.

Another limitation of our results could be that they are drawn from an HMO, and therefore contain a selection bias; nonetheless, comparison of this HMO population with the Autonomous City of Buenos Aires census data demonstrates that it is representative of the general population in demographic, ethnic and socio-economic characteristics. It is also worth mentioning that the HMO covers a wide area of the Autonomous City of Buenos Aires. For that reason, results obtained could be cautiously generalized to the Autonomous City of Buenos Aires.

In summary, we report here the first study in Argentina and possibly Latin America on the epidemiology of PsA. Incidence and prevalence figures, age and gender distribution are similar to those reported in previous studies. This report might help in understanding the geographical variations of PsA and of the possible role of genetic and environmental factors in the occurrence of the disease.

References

Disclosure statement: The authors have declared no conflicts of interest.