Epidemiology of psoriatic arthritis

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SUMMARY

Epidemiological studies on psoriatic arthritis have long been hampered by the absence of widely accepted classification criteria. The development of the CASPAR (ClASsification criteria for Psoriatic ARthritis) criteria has recently provided the framework for conducting epidemiological studies in psoriatic arthritis using uniform recruitment criteria. However, so far, only a minority of studies have adopted such criteria. In addition to the lack of shared classification criteria, differences in study settings, designs, and ascertainment methods have contributed to yield substantial disparities in the estimates of the incidence (from 3,02 to 23,1 cases per 100,000 people) and prevalence (from 49,1 to 420 cases per 100,000 people) of psoriatic arthritis around the globe. Overall, the available data suggests that the prevalence of psoriasis in the general population is approximately 2-3%, with about a third of patients with psoriasis having arthritis. Therefore, psoriatic arthritis may affect 0,3-1,0% of the population, a frequency not dissimilar from that of rheumatoid arthritis. Future epidemiological studies should be carried out in larger numbers of patients diagnosed using consistent criteria.

Key words: *Psoriasis, Epidemiology, Prevalence, Incidence*

Reumatismo, 2012; 64 (2): 66-70

Epidemiology aims to investigate both the distribution of rheumatic diseases and the risk factors for their development. Epidemiologic studies on psoriatic arthritis (PsA) have long been hampered by the absence of widely accepted classification criteria. As a consequence, different studies have used different sets of criteria ranging from the European Spondyloarthropathy Study Group (ESSG) (1) and Wright & Moll (2) to *ad hoc* criteria, all of which are prone to some degree to misclassifying patients. In particular, the ESSG criteria have a relatively low sensitivity and specificity (1), while the Moll and Wright criteria tend to be overinclusive (2). The recent development of the CASPAR (ClASsification criteria for Psoriatic ARthritis) criteria has provided a more robust framework for conducting epidemiological studies in PsA given the high sensitivity (0.91) and specificity (0.99) of these criteria (3). In addition, the CASPAR criteria have been validated quite extensively and have been shown to perform well, at least in established PsA (3, 4). However, only a small minority of epidemiological studies in PsA have used the CASPAR criteria.

Other discrepancies between published studies include different study settings, designs, and ascertainment methods. These differences render difficult to compare the results from different studies, which have found widely varying estimates of incidence (from 3,02 to 23,1 cases per 100,000 people) and prevalence (from 49,1 to 420 cases per 100,000 people) (5-30). On the other hand, some differences may be genuine and reflect genetic or environmental factors. For instance, the frequency of PsA has consistently been reported to be quite low (up to 1/100,000) in Japan (7).

Most incidence studies available are retrospective in design and have used either medical records or else diagnostic or insurance codes to determine the incidence of PsA in general or Hospital populations (5-15) (Table I). Prospective studies have usually yielded higher incidence rates than retrospective studies. Data from a population-based incidence cohort suggests a rise of the incidence of PsA over the last three decades (12). However, it is debatable whether this rising incidence is genuine or simply reflects a greater awareness of physicians.

As for prevalence studies, the majority

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is cross-sectional and population-based, while a minority is retrospective and based on medical records. A few studies have examined the prevalence of PsA in the population of people with psoriasis. Recent cross-sectional surveys tend to yield higher prevalence estimates than retrospective prevalence studies. (5-30) (Table II).

Many studies have reported that the onset of psoriasis typically precedes the development of arthritis. Approximately 85% of patients develop psoriasis prior to arthritis, while in 5-10% of patients both conditions develop simultaneously, and in 5-10% arthritis precedes psoriasis. There is some evidence suggesting that the severity of psoriasis is associated with an increased *risk*, although not greater *severity* of arthritis (31).

The prevalence of psoriasis in the general population is circa 2-3%, with about a third of patients with psoriasis having arthritis.

Table I - Incidence studies of PsA.

Incidence of PsA in Population					
Country	**Type of study**	**Method**	**Criteria**	**Annual Incidence Cases/10^5 (95%CI)**	**Ref.**
Finland (1996)	Retrospective	Drug reimbursement certificate	Arthritis/ spinal+ psorias/ onicop.	6.1 (4.6–7.6)	5
USA (2000)	Retrospective Popular-based	Medical record system	Arthritis + psoriasis	6.6 (5.0–8.2)	6
Japan (2001)	Retrospective	Nationwide questionnaire	Amor and ESSG	~0.05	7
Sweden (2002)	Prospective popul.-based	Primary healthcare centres	Arthritis + psoriasis+ FR-	8 (4–15)	8
Greece (2003)	Retrospective	Hospital system records	ESSG	3.02 (1.55–4.49)	9
Finland (2003)	Prospective popul.-based	Health center + local hospitals outpatients	Periph. arthritis or spinal + psoriasis	23.1 (13.2–37.5)	10
Denmark (2008)	Cross-sectional	Interview + clin. exam. + medical records	Moll & Wright CASPAR	6 (3- 11)	11
USA (2009)	Retrospective Popul.-based	Medical records (R.E.P.)	CASPAR	7.2 (6.0 - 8.4)	12
Norway (2009)	Retrospective	Diagnostic ICD-codes	Psoriasis + Arthrhitis	6.9 (3.5–11.7)	13
Czech Republiic (2010)	Popul.-based Prospective	Primary healthcare centres	Vasey and Espinoza	3.6 (1.4-7.6)	14
Argentina (2011)	Popul.-based Prospective	Medical records Diagnotic code	CASPAR	6.26 (4.2 - 8.3)	15
Incidence of PsA in Psoriasis					
Country	**Type of study**	**Method**	**Criteria**	**Incidence estimate % (95%CI)**	**Ref.**
USA (2009)	Popul.based Retrospective	diagnostic codes + medical records	CASPAR	2,7% (2,1-3,5%) 3.1% after 10 years 5.1% after 20 years	16
UK, Italy, France, Spain and Germany (2010)	Cross-sectional	Adelphy Psoriasis Program questionnaire	Psoriasis + Arthrhitis	7,4% 20.5% after 30 years	17
Canada (2011)	Prospective Longitudinal cohort	Dermatology clinics	CASPAR	1,87 % (0,71-3,03%)	18

Therefore, PsA may occur in 0.3-1.0% of the population, a frequency similar to that of rheumatoid arthritis. (see Table 1-2).

Genetic factors have been linked to both psoriasis and PsA. In particular, HLA-B13, B16 and its splits HLA-B38 and HLA-

Table II - Prevalence studies of PsA.

Prevalence of PsA in Population					
Country	**Type of study**	**Method**	**Criteria**	**Prevalence estimate Cases/105 (95%CI)**	**Ref.**
USA (2000)	Retrospective Popul-based	Medical system records	Arthritis + psoriasis	101 (81-121)	6
Japan (2001)	Retrospective	Nationwide questionnaire	Amor and ESSG	~1,0	7
Northwest Greece (2003)	Retrospective	Medical system records	ESSG	56.6 (49.9-63.2)	9
Australia (2004)	Retrospective Popul.-based	Questionnaire	Psoriasis + arth/tenos/back pain/dact/enth	500 (0.0 - 900)	19
Greece (2005)	Cross-sectional Popul.-based	Standardized questionnaire.	ESSG	170 (100-240)	20
France (2005)	Cross-sectional Popul.-based	Telephone questionnaire + physical exam	ESSG	190 (80-350)	21
Italy (2005)	Cross-sectional Popul.-based	Questionnaire + physical exam	Arthrhitis/spinal inv + Psoriasis	420 (310-610)	22
USA (2005)	Cross-sectional	Questionnaire	Patient's Self-report	250 (180-310)	23
ICELAND (2007)	Cross-sectional	Interview + clin. exam. + medical records	Psoriasis + Arthrhitis	139 (112–169)	24
CHINA (2008)	Retrospective Popul.-based	Medical system records	ESSG - Amor	~ from 10 to 100	25
Denmark (2008)	Cross-sectional	Interview + clin. exam. + medical records	Moll & Wright CASPAR	150 (130-220) 140 (110-190)	11
USA (2009)	Retrospective Popul.-based	Medical records (R.E.P.)	CASPAR	158 (132-185)	12
Norway (2009)	Retrospective	Diagnostic ICD-codes	Psoriasis + Arthrhitis	127 (106–154)	13
Czech Republiic (2010)	Popul.-based Prospective	Primary healthcare centres	Vasey and Espinoza	49.1 (39.5–60.4)	14
Argentina (2011)	Popul.-based Prospective	Medical records Diagnotic code	CASPAR	74 (57-94)	15
Prevalence of PsA in Psoriasis					
Country	**Type of study**	**Method**	**Criteria**	**Prevalence estimate % (95%CI)**	**Ref.**
ITALY (1984)	Cross-sectional	Dermatologic clinic	Moll & Wright's	34%	26
ITALY (1995)	Cross-sectional	Dermatologic clinic	Expert diagnosis M&W Amor and ESSG	36% 22% 24%	27
ITALY (2005)	Cross-sectional	Hospitalized patients	ESSG	7.7% (6.0-9.5%)	28
USA (2005)	Cross-sectional	Questionnaire	Patient's Self-report	11% (9-14%)	23
Germany (2009)	Prospective cross-sectional	dermatol. centres	Moll & Wright	20.6%(18.6-22.7%)	29
UK (2009)	Prospective cross-sectional	Questionnaire+ clin. exam.	CASPAR	13.8% (7,1-24.1%)	30
UK - Italy, France, Spain and Germany (2010)	Cross-sectional	Adelphy Psoriasis Program Questionnaire	Psoriasis + Arthrhitis	8.1%	17

B39, B17, and Cw6 have been associated with psoriasis, while HLA-B7 and B27 have been associated with PsA (32).

Some environmental factors, including HIV infection, trauma, and psychological stress appear to increase susceptibility to developing PsA. In addition, a number of clinical features including nail dystrophy, scalp lesions, and intergluteal/perianal psoriasis have been mapped to a higher likelihood of PsA (16).

Patients with PsA have been found to have increased risk factors for cardiovascular disease including hypertension, dyslipidemia and insulin resistance (33). Other studies have shown subclinical atherosclerosis and an atherogenic lipid profile (34-36). There is an increased prevalence of the metabolic syndrome in patients with psoriasis, particularly in those with moderate to severe skin disease (37).

Studies that have investigated mortality in PsA have thus far produced conflicting results, with a community-based study showing no increase in mortality (6, 12) while the analysis of a hospital-based cohort estimated a combined Standardized Mortality Ratio (SMR) for both men and women to be 1.62 (38). Recently, a single-center study suggested that mortality rates in the PsA cohort were not significantly different from those of the UK general population (39).

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