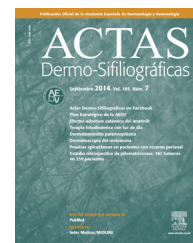




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## ORIGINAL ARTICLE

### Psoriasis and Ischemic Coronary Artery Disease<sup>☆</sup>



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#### KEYWORDS

Psoriasis;  
Cardiovascular  
disease;  
Arteriosclerosis;  
Acute myocardial  
infarction

#### Abstract

**Introduction:** Psoriasis is a chronic inflammatory disease associated with an increased risk of ischemic coronary artery disease (CAD) in some populations. We aimed to determine the association between these 2 diseases in our geographic area.

**Material and method:** We performed a cross-sectional study of patient records between 2005 and 2012 in the database (Abucacis, Datamart) that contains all medical case histories in the province of Castellón, Spain. Patients diagnosed with psoriasis were compared with a control group of patients diagnosed with melanocytic nevus. The prevalence of CAD and the presence or absence of the main cardiovascular risk factors were analyzed in each group.

**Results:** A total of 9181 patients with psoriasis and 21925 with melanocytic nevus were studied. Univariate logistic regression analysis showed that CAD was significantly associated with psoriasis, age (in years), sex, hypertension, diabetes mellitus, dyslipidemia, and obesity ( $P < .05$ ). On adjustment for age, sex, and the other cardiovascular risk factors, multivariate regression analysis established that psoriasis was independently associated with CAD ( $P < .029$ ).

**Conclusion:** Our findings in a large sample of patients in a Mediterranean area support the hypothesis that patients in this population have an increased risk of ischemic CAD.

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#### PALABRAS CLAVE

Psoriasis;  
Enfermedad  
cardiovascular;  
Arterioesclerosis;  
Infarto agudo de  
miocardio

#### Psoriasis y enfermedad arterial coronaria isquémica

#### Resumen

**Introducción:** La psoriasis es una enfermedad inflamatoria crónica que se ha asociado a un aumento de riesgo de enfermedad arterial coronaria isquémica (EACI) en algunas poblaciones. El objetivo de nuestro estudio fue determinar la asociación entre psoriasis y EACI en nuestro medio.

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**Material y método:** Se realizó un estudio transversal en la provincia de Castellón con datos procedentes del sistema de información asistencial Abucasis (Datamart) desde el año 2005 hasta el 2012. Se seleccionó a los pacientes con psoriasis y como grupo control a los pacientes con nevus melanocítico. Se estudió la prevalencia de EACI en ambos grupos estratificando por los principales factores de riesgo cardiovascular.

**Resultados:** Se estudiaron 9.181 pacientes con psoriasis y 21.925 con nevus melanocítico. En el análisis de regresión logística univariante la EACI se asoció significativamente a las variables psoriasis, edad (en años), sexo, hipertensión, diabetes mellitus, dislipidemia y obesidad ( $p < 0,05$ ). En el análisis de regresión logística multivariante, tras ajustar por edad, sexo y el resto de los factores de riesgo cardiovascular, se establece una relación independiente entre la presencia de EACI y psoriasis ( $p < 0,029$ ).

**Conclusión:** Nuestros resultados apoyan la existencia de mayor riesgo de EACI en pacientes con psoriasis en una población amplia del área mediterránea.

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## INTRODUCTION

Psoriasis is a chronic inflammatory disease that affects 2-3% of the adult population. Its pathophysiology is characterized by immune responses mediated by type 1 and type 17 helper T lymphocytes and synthesis of various cytokines that produce inflammation of the skin and joints. Other inflammatory markers, such as C-reactive protein, are also increased at the systemic level.<sup>1</sup> Proinflammatory mediators are involved in the onset of acute ischemic coronary artery disease (CAD), as in other chronic inflammatory diseases, such as rheumatoid arthritis or lupus erythematosus.<sup>2</sup> The European Guidelines on cardiovascular disease prevention recently included psoriasis as a risk factor for ischemic heart disease.<sup>3</sup>

Although an association between psoriasis and acute ischemic CAD has been found in various populations,<sup>4</sup> data for patients in the Mediterranean area are lacking, and differential characteristics for cardiovascular risk in this population have not been investigated. We designed a cross-sectional study to evaluate the association between psoriasis and risk of ischemic CAD in the province of Castellón, Spain.

The control population comprised patients with benign skin disease not caused by inflammatory processes, such as melanocytic nevus. The presence of nevus in all age groups and the absence of an association with inflammation enabled us to use these patients as a control group.

The objective of the study was to determine the prevalence of ischemic CAD in patients with psoriasis in our geographic area and to compare it with the prevalence of ischemic CAD in patients with melanocytic nevus.

## Material and Methods

### Study Design

We performed a cross-sectional study on the population of the province of Castellón using 2 groups: patients with psoriasis and patients with melanocytic nevus. Within these groups, we studied the prevalence of acute ischemic CAD depending on the corresponding diagnosis.

Datamart is the database that includes the electronic clinical history (Abucasis) for patients receiving health care in the Autonomous Community of Valencia. This database has been used in Castellón by attending physicians (both specialists and primary care physicians) since 2005. It is used by all dermatologists in Castellón. Diseases were semiautomatically coded according to the *International Classification of Diseases, Ninth Revision (ICD-9)* by assigning diagnoses to the patients' clinical histories. Diagnoses must be assigned and coded before treatment can be prescribed; therefore, almost all clinicians involved in patient care enter and code the diagnoses of the diseases they treat.

The province of Castellón has 604 564 inhabitants who are attended by professionals from the health districts of Vinaroz, General de Castellón, and La Plana. The population is distributed in small population centers; the largest city has fewer than 200 000 inhabitants.<sup>5</sup>

Our inclusion criteria were age over 20 years and psoriasis or melanocytic nevus according to the codes specified in the Datamart database. We selected the *ICD-9* codes for psoriasis (696), acute myocardial infarction (410, 411, and 412), angor pectoris (413),<sup>6</sup> and melanocytic nevus-benign neoplasm of skin (216 and 448.1), which were named benign skin tumor.

The study groups were adjusted for age and sex, and the main cardiovascular risk factors in the clinical history with the corresponding *ICE-9* diagnosis (sex, presence or absence of dyslipidemia, diabetes mellitus, hypertension, obesity, and smoking) were collected to verify or reject an independent association between ischemic CAD and psoriasis. Smoking is only coded in the clinical history when the patient requests cessation treatment.

The study was approved by the Ethics Committee of Hospital La Plana.

### Statistical Analysis

The differences in age between the groups were analyzed using the *t* test for independent samples: quantitative variables were assumed to be normally distributed because of the large sample size.

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