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Dermatoses in Latin American immigrants seen in a tertiary hospital

Europe, and in particular Spain, has become the destination of a considerable number of immigrants, 50% come from Latin America. The purpose of this study was to describe the cases of dermatoses seen in the immigrant Latin American population and compare them with those found in the control Spanish population. Over a year all the visits of economic immigrants seen in the Dermatology Section of the Hospital General Universitario de Alicante were prospectively recorded. During the study period 706 Latin American patients were seen. The most frequent dermatoses were eczema (18.2%), acne (6.5%) and non-genital viral warts (6.3%). The comparative study of dermatoses adjusted for age and sex, found a greater frequency of eczema, alopecia, melasma, herpes simplex, pilar keratosis, xerosis, and scabies ($p < 0.01$) in the Latin American population. On the other hand, melanocytic nevi and melanoma were less frequent in these patients ($p < 0.05$). We may say that the skin type and socio-sanitary conditions of the Latin American immigrant population lead to a greater frequency of eczema, melasma and scabies. In addition, the skin type and younger age favour a lower frequency of skin tumours.

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Nowadays there are notable inequalities among the different countries, many of which are immersed in political conflicts and others in which a large proportion of the population lives in poverty. There is a lack of aid for development and a widening gap between rich and poor countries. This situation has led to an increase in migration, with the result that Europe, and in particular Spain, has become the destination of a considerable number of immigrants.

In 2006, 4.14 million foreigners were registered in Spain, accounting for 9.3% of the population resident in this country. Of the foreign population, 1.9 million were born in Latin America. The lack of difficulties with the language and the cultural affinity have favoured a predominance of the Latin American population. These people have a very diverse range of skin types, since many of them have pigmented skin (American Indian or black), whereas others are pale-skinned, similar to the majority of the Spanish population. Dermatoses in Latin American immigrants could differ from those in the native population both due to the skin type and to the social situations associated with immigration. Nevertheless, this has not been studied so far in a European setting.

The purpose of this study is to describe the cases of dermatosis seen in the immigrant Latin American population and compare them with those found in the control Spanish population. We also performed a comparative study of the types of dermatosis seen in these immigrants, depending on their skin type.

Patients and methods

From 1st February 2005 to 31st January 2006, all the visits of economic immigrants seen in the different units of the Dermatology Section of the Hospital General Universitario de Alicante were prospectively recorded.

Dermatological health care is provided in two centres: the Specialities Centre (specialist out-patient clinic) and the General Hospital (specialized hospital clinic, operating theatre and the dermatological emergency department of the hospital). A visit is defined as each time a patient is seen in any of the health care units of the Dermatological Section.

An economic immigrant is defined as a person who was not born in any of the 25 member states of the European Union or in a country with a gross national product (GNP) per capita greater than that of Spain in January 2005 (the United States, Switzerland, Norway, Canada, Japan, Iceland, Kuwait or Israel). The children of immigrants born in Spain are considered immigrants.

We centred our study on Latin Americans, since the immigrant population in our area belongs mainly to this group. We defined three types of skin: a) white: including phototypes I, II, III and IV with Caucasian phenotype characteristics; b) American Indian: including phototypes III, IV and V with a phenotype specific to Latin America; c) black: including phototypes V and VI.

The demand (number of visits per 100 people registered) was calculated by estimating the number of Latin Amer-

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icans in the catchment area of our hospital based on the census of our province.

In order to compare the dermatoses in the Latin American population with those in the Spanish population, a control group was selected from the Spanish patients seen. This group was obtained by recording all the patients who attended any of the health care units on a specific day of each month of the study period. The age limit for the control group was 60 years, since only a very small number of Latin American patients were over this age. In addition, an analysis adjusted for age and sex was carried out due to the differences in these variables between the two populations.

For each new patient different epidemiological variables were collected (age, sex, country of birth, duration of stay in Spain, skin type), together with date of visit, area of dermatological health care, type and duration of skin diseases. The countries of birth were grouped by geographical areas: Latin America, North Africa, Eastern Europe, Sub-Saharan Africa and Asia. The cases of dermatoses detected were coded according to the international classification of disease criteria, (CIE-9, 9th edition). Skin diseases were classified as: a) infectious: dermatoses caused by microorganisms (virus, bacteria, fungi, parasites or ectoparasites); b) inflammatory: dermatoses due to activation of the immune response, excluding infectious dermatoses; c) tumoral: caused by a proliferation of cells not controlled by the organism's regulatory systems. These are subdivided into benign tumoral dermatoses and malignant tumoral dermatoses, depending on the capacity to infiltrate and invade neighbouring organs and provoke metastasis; d) pigment alterations; e) hair alterations; f) ungueal alterations; g) drug eruptions; h) vascular alterations; i) mucosal alterations; j) without lesions: patients with symptoms who have no lesions at the time of diagnosis and k) others. Cases of dermatoses in each skin type (American Indian, white or black) were compared with those in the other skin types.

The data were statistically analysed using the statistical programme SPSS version 12.0. for Windows (SPSS Inc; Illinois, EEUU). Quantitative variables were expressed as medians with their interquartile range (IQR). Qualitative or categorical variables were expressed as absolute and relative frequencies (as a percentage) of each of the values of the different variables. The $\chi 2$ test with Yates's correction was used to study the association between variables, or Fisher-s exact test when the conditions to apply the $\chi 2$ test were not met. A value of $p < 0.05$ was considered statistically significant. When comparing the dermatoses between the Latin American and Spanish populations the odds ratios (OR) with 95% confidence limits adjusted for age and sex were calculated.

Results

During the study period 39,160 visits were recorded. Of these 1625 (4.1%) were generated by 1085 immigrant patients, of whom 706 (65%) were Latin American. Latin American patients had a mean age of 30.05 years (± 16.49) with a predominance of women (61.2%). On the other hand, Spanish control patients had a mean age of 33.34 years (± 15.93), 56.1% women. *Table 1* shows the most important sociodemographic characteristics of the Latin American population compared with the Spanish population. Eighty percent of the Latin Americans came from Ecuador, Colombia or Argentina. The demand of Ecuadorians, Colombians and Argentinians was similar (around 9 visits), whereas that of patients from the Dominican Republic was much greater (19.2 visits) and that of Bolivians and Cubans considerably lower (4.5 visits). The demand of the Spanish population was 13.9 visits *(table 2)*.

The Latin American patients accounted for 1108 visits, in which 1246 cases of dermatoses were diagnosed; of these, 875 were recorded for the first time during the study period. Of the 875 pathologies, inflammatory pathology (41.5%) was the most common, followed by benign tumoral pathology (21.9%) and infectious pathology (16.8%). By type of dermatoses, the most frequent were eczema (18.2%), acne (6.5%) and non-genital viral warts (6.3%). *Table 3* shows the groups of pathologies and types of dermatoses diagnosed on more than 7 occasions.

Table 4 shows a comparison of the groups of dermatoses and dermatoses between the Latin American and Spanish populations, together with their analysis adjusted for age and sex. When comparing the groups of dermatoses between the immigrant Latin American and Spanish population after adjusting for age and sex, inflammatory dermatoses ($p = 0.001$) and pigment alterations ($p < 0.001$) were found to be more frequent in the Latin American population, whereas both malignant and benign tumoral pathology were less common in this population ($p < 0.001$). The comparative study of dermatoses after adjusting for age and sex found a greater frequency of eczema, alopecia, melasma, herpes simplex, pilar keratosis, xerosis, and scabies ($p \leq 0.04$) in the Latin American population. On the other hand, melanocytic nevi and melanoma were less frequent in these patients ($p < 0.001$).

Analysis of the different types of eczematous dermatitis showed a greater frequency of atopic dermatitis (4% *vs* 1.8%; $p = 0.006$), contact eczema (3.6% *vs* 2%; $p = 0.04$) and pityriasis alba (3.5% *vs* 0.2%; $p < 0.001$) in Latin Americans than in the Spanish population.

We compared the dermatoses in each skin type with the addition of the dermatoses in the other two skin types. Melanocytic nevi (9.8% *vs* 4.3%) ($p = 0.003$), seborrhoeic keratosis (4.9% *vs* 1.7%) ($p = 0.01$) and epidermal cysts (4.5% *vs* 1.6%) ($p = 0.02$) were found to be more frequent in patients with pale skin, whereas eczematous dermatitis (13.5% *vs* 20%) ($p = 0.03$) and melasma (0.4% *vs* 3.2%) ($p = 0.03$) were less frequent. In patients with American Indian type skin, melasma (3.5% *vs* 0.3%) ($p = 0.008$) was more frequent, whereas seborrhoeic keratosis (1.7% *vs* 4.3%) ($p = 0.04$) and epidermal cysts (1.2% *vs* 4.7%) ($p = 0.003$) were less frequent. In black skinned patients melanocytic nevi (2% *vs* 6.1%) ($p = 0.03$) were less frequent *(table 5)*.

Discussion

The progressive growth of the immigrant population in Europe should be taken into consideration in the field of dermatology. The skin type of these people is sometimes different to that of the European population, with the result that there has been a change in the frequency of certain dermatological pathologies and the way in which they present. Latin Americans make up the largest immi-

Table 1. Epidemiological characteristics of Latin American patients and Spanish control group

	Latin American population	Spanish population	p
Age, years	n = 695	n = 950	< 0.001
Median (IQR)	30 (17-41)	32 (21-48)	
Age group	N (%)	N (%)	
0-14 years	143 (20.6)	123 (12.9)	
15-44 years	418 (60.1)	541 (56.9)	
> 44 years	134 (19.3)	286 (30.1)	
Sex	N (%) n = 706	N (%) n = 950	0.04
Male	274 (38.8)	417 (43.9)	
Female	432 (61.2)	533 (56.1)	
Duration of stay in Spain, months	n = 679	-	
Median (IQR)	48 (24-60)	-	
Stay in months (n = 679)	N (%)	-	
0-24	187 (27.5)		
25-48	264 (38.9)		
> 48	228 (33.6)		
Type of patient	N (%) n = 706	-	
Immigrant	654 (92.6)		
Child of immigrants	52 (7.4)		
SKIN TYPE	N (%) n = 698	N (%) n = 949	< 0.001
American Indian	456 (65.3)	0	
White	204 (29.2)	948 (99.9)	
Black	38 (5.4)	1 (0.1)	
Profession	N (%) n = 676	N (%) n = 825	< 0.001
Student	194 (28.7)	239 (29.1)	
Domestic service	144 (21.3)	34 (4.1)	
Service sector	99 (14.6)	260 (31.5)	
Catering	61 (9)	28 (3.4)	
Construction	58 (8.6)	26 (3.2)	
Others	162 (17.8)	238 (28.8)	

IQR: interquartile range.

grant population in Spain (46% of all immigrants), a fact that together with their diverse range of skin types was the reason for this study.

Table 2. Spanish and Latin American demand by country

Country	N° patients (%)	N° visits	N° on census	N° visits per 100 people
Spain	*	37537	270216	13.9
Ecuador	234 (33.1)	376	4104	9.2
Colombia	190 (26.9)	287	3528	8.1
Argentina	144 (20.4)	196	2264	8.7
Dominican Rep.	27 (3.8)	41	214	19.2
Venezuela	22 (3.1)	32	347	9.2
Peru	19 (2.7)	29	304	9.5
Uruguay	17 (2.4)	25	414	6.0
Brazil	15 (2.1)	23	253	9.1
Bolivia	10 (1.4)	19	426	4.5
Cuba	10 (1.4)	15	340	4.4
Chile	9 (1.3)	15	201	7.5

N° of patients from other countries: Honduras 4 (0.6), Paraguay 3 (0.4); Mexico 2 (0.3).
**Information on the total number of Spanish patients seen is not available.*

It is noticeable that the demand for doctor visits of the Latin American population was less than that of the Spanish population (except in the case of patients from the Dominican Republic). We believe that this is due to the fact that, on the one hand, the Latin American population is younger and has fewer health problems, while on the other, these immigrants find it more difficult to visit the doctor due to their working conditions.

The most frequent types of dermatoses in Latin American patients were eczema, acne and non-genital viral warts. In our setting no similar studies are available to compare these data. However, outside Europe, we want to point out the article by M. Sánchez *et al.*, (New York) whose authors also found that eczema was the most frequent diagnosis in the Latin American population seen in state clinics, followed by viral warts and acne [1].

In our study we found that eczema, xerosis, pilar keratosis, alopecia, melasma, herpes simplex and scabies were more frequent in the Latin American population than in the Spanish controls; whereas melanocytic nevi and melanoma were less frequent in Latin Americans.

The most common types of eczema in Latin Americans were atopic dermatitis, pityriasis alba and contact eczema. A large proportion of this population has pigmented skin in which pityriasis alba appears to be more frequent and with greater clinical expression. On the other hand, the

Table 3. Types of dermatoses in the Latin American population

Types of dermatoses*	N° diagnosis (%) (n = 875)	Dermatoses	N° diagnosis (%) (n = 875)
Inflammatory diseases	363 (41.5)	Eczema	159 (18.2)
Benign tumours	192 (21.9)	- Atopic dermatitis	34 (3.9)
Infectious diseases	147 (16.8)	- Contact eczema	30 (3.4)
Pigment alterations	60 (6.9)	- Pityriasis alba	29 (3.3)
Hair alterations	32 (3.7)	- Other eczemas	28 (3.2)
Ungueal alterations	22 (2.5)	- Chronic eczema	26 (3)
Other dermatoses	18 (2.1)	- Dyshidrotic eczema	12 (1.4)
Malignant tumours	13 (1.5)	Alopecia	26 (3)
Drug eruptions	5 (0.6)	Seborrhoeic keratosis	23 (2.6)
Vascular alterations	4 (0.5)	Melasma	21 (2.4)
Mucosal alterations	3 (0.3)	Epidermal cyst	21 (2.4)
		Onychomycosis	20 (2.3)
		Molluscum contagiosum	17 (1.9)
		Angiomas and vascular changes	16 (1.8)
		Seborrhoeic dermatitis	16 (1.8)
		Ingrown toenail	16 (1.9)
		Pruritus	13 (1.5)
		Vitiligo	13 (1.5)
		Scar	11 (1.3)
		Urticaria	11 (1.3)
		Alopecia areata	9 (1)
		Dermatofibroma	9 (1)
		Herpes simplex	9 (1)
		Pilar keratosis	9 (1)
		Tinea	9 (1)
		Acne rosacea	8 (0.9)
		Scabies	8 (0.9)
		Folliculitis	8 (0.9)
		Solar lentigo	8 (0.9)
		Xerosis	8 (0.9)
		Condyloma acuminatum	7 (0.8)
		Postinflammatory hyperpigmentation	7 (0.8)
		Pityriasis versicolor	7 (0.8)

**No lesions 9 (1%), without diagnostic 7 (0.8%)*

occupational activity of the Latin American population, in which domestic service, catering and construction prevails, together with their skin type, leads to the development of contact eczema.

The greater frequency of melasma in the Latin American population coincides with that observed in other studies [1, 2]. When this pathology is studied in relation to skin type it is found to predominate in people with American Indian type skin as compared with those with pale skin, whose lighter skin seems to protect them from the development of melasma.

On univariate analysis we found that infectious pathology was more frequent in Latin American patients, although after standardising for age and sex this difference was found to be no longer statistically significant. The only infectious pathologies that were significantly more frequent in Latin Americans were scabies and herpes simplex. However, other infectious pathologies such as molluscum contagiosum (2% *vs* 1.2%), onychomycosis (2% *vs.* 1.3%) and tinea (1.1% *vs* 0.45%) were more frequent in Latin Americans but without reaching statistical significance. The poor sanitary-hygienic conditions in which some of the Latin Americans live may favour the greater frequency of scabies and other infectious pathologies.

The lower frequency of melanocytic nevi in the Latin American population in our study is due to the fact that most of them have pigmented skin. In these people, compared with other skin types, as reported in the literature [3-6], these lesions are less common; to which we should add that certain genetic peculiarities should also be considered. Likewise, the lower frequency of malignant tumoral pathology is explained by the fact that people with pigmented skin are less likely to develop skin cancer [7-10], since the melanine content and distribution of melanosomas has a protective effect [7].

In black-skinned Latin American patients the lower frequency of melanocytic nevi should be mentioned. This was to be expected since this pathology in persons with this type of skin is rare, as reported by other authors [3-5].

The limitations of this study arise from the characteristics of its design, since it is an analytical transversal study and therefore the subjects studied are selected during its evo-

Table 4. Types of dermatoses in which there were significant differences (with and without adjusting for age and sex) between the Latin American and Spanish population under 60 years old

Types of dermatoses	Population		P	Adjusted OR*	Ajusted P*
	Latin American (n = 830)	Spanish (n = 1107)			
	N (%)	N (%)			
Inflammatory diseases	354 (42.7)	371 (33.5)	< 0.001	1.37 (1.14-1.66)	0.001
Benign tumours	174 (21)	374 (33.8)	< 0.001	0.54 (0.44-0.66)	< 0.001
Infectious diseases	141 (17)	151 (13.6)	0.05	1.23 (0.95-1.58)	N.S
Pigment alterations	56 (6.7)	35 (3.2)	< 0.001	2.32 (1.49-3.61)	< 0.001
Malignant tumours	8 (1)	72 (6.5)	< 0.001	0.22 (0.1-0.48)	< 0.001
Dermatoses					
Eczema	157 (18.9)	94 (8.5)	< 0.001	2.32 (1.76-3.66)	< 0.001
Melanocytic nevus	48 (5.8)	144 (13)	< 0.001	0.38 (0.27-0.53)	< 0.001
Seborrhoeic keratosis	17 (2)	44 (4)	0.02	0.73 (0.41-1.32)	N.S.
Alopecia	26 (3.1)	12 (1.1)	0.002	3.14 (1.55-6.34)	0.001
Actinic keratosis	4 (0.5)	28 (2.5)	< 0.001	0.35 (1.21-1.65)	N.S
Onychomycosis	17 (2)	14 (1.3)	N.S.	2.07 (0.99-4.33)	0.053
Melasma	21 (2.5)	6 (0.5)	< 0.001	5.05 (1.99-12.7)	0.001
Basal cell carcinoma	4 (0.5)	22 (2)	0.008	0.45 (0.15-1.37)	N.S
Melanoma	0	13 (1.2)	0.004	ND	< 0.001
Herpes simplex	9 (1.1)	2 (0.2)	0.01	6.71 (1.42-31.7)	0.01
Hidradenitis suppurativa	1 (0.1)	10 (0.9)	0.02	0.14 (0.01-1.12)	N.S
Pilar keratosis	9 (1.1)	1 (0.1)	0.003	9.15 (1.15-72.8)	0.04
Xerosis	8 (1)	0	0.001	ND	< 0.001
Scabies	7 (0.8)	0	0.003	ND	< 0.001

ND: not done; NS: not significant.
[a]*Odds ratios adjusted for age and sex; 95% confidence limits are shown in parentheses.*

Table 5. Comparative study of most frequent dermatoses seen in patients from the main Latin American countries and in different skin types

Dermatoses	Skin type		
	American Indian (n = 575)	White (n = 244)	Black (n = 50)
	N (%)	N (%)	N (%)
Eczema	113 (19.7)	33 (13.5) **	12 (24)
Acne	40 (7)	14 (5.7)	2 (4)
Melanocytic nevus	26 (4.5)	24 (9.8) *	1 (2) **
Non-genital viral wart	36 (6.3)	18 (7.4)	1 (2)
Soft fibroma	23 (4)	10 (4.1)	3 (6)
Psoriasis	16 (2.8)	10 (4.1)	1 (2)
Alopecia	14 (2.4)	11 (4.5)	0
Seborrhoeic keratosis	10 (1.7) **	12 (4.9)**	1 (2)
Melasma	20 (3.5) *	1 (0.4) **	0
Epidermal cyst	7 (1.2) *	11 (4.5) **	3 (6)
Onychomycosis	15 (2.6)	5 (2)	0
Molluscum contagiosum	9 (1.6)	6 (2.5)	1 (2)
Angiomas and other vascular alterations	10 (1.7)	6 (2.5)	0
Seborrhoeic dermatitis	13 (2.3)	3 (1.2)	0
Ingrown toenail	12 (1.4)	4 (1.6)	0
Pruritus	9 (1.6)	3 (1.2)	1 (2)
Vitiligo	10 (1.7)	2 (0.8)	1 (2)

*$p < 0.01$; **$p < 0.05$.

lution, which implies that some cases of dermatoses may not have been considered. Another limitation is that the data on the immigrant population are only compared with those of a percentage of the Spanish population seen in the same period of time, and not the total native population.

In conclusion, we may say that the skin type and sociosanitary conditions of the Latin American population lead to a greater frequency of eczema, melasma and scabies. In addition, the skin type favours a lower frequency of skin tumours. We believe that further studies are needed to acquire a greater understanding of the dermatological pathology of Latin American immigrants. ■

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