Malignant and premalignant skin lesions: knowledge, habits and sun protection campaigns

Lesões cutâneas malignas e pré-malignas: conhecimentos, hábitos e campanhas de prevenção solar

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Abstract

Objective: To determine the morbidity of malignant and pre-malignant skin lesions and people's knowledge about preventing sun exposure and dangerous habits.
Methods: A retrospective longitudinal study and one descriptive transversal study were conducted with a population of 25,956 inhabitants using the Abucasis® program, and 201 questionnaires were administered to patients in an emergency department; SPSS 15.0 for Windows program was then used.
Results: In six years there were 228 cases of actinic keratosis, 26 melanoma and 32 malignant neoplasms of the skin. It was found that 63.7% of the population believed that sufficient solar prevention campaigns were not performed, 50.2% were unaware of the warning signs of skin cancer, and the most widely used measure used for protection was the use of sunscreens.
Conclusion: The morbidity of malignant and premalignant skin lesions in the Manises population quadrupled and the knowledge about preventing sun exposure is insufficient.

Resumo

Objetivo: Determinar a morbilidade de lesões malignas e pré-malignas da pele e o conhecimento da população sobre prevenção solar e hábitos perigosos.
Métodos: Aplica-se um estudo longitudinal retrospetivo e outro descritivo transversal a uma população de 25.956 habitantes utilizando o programa Abucasis® e realizando 201 inquéritos a doentes do serviço de urgências; posteriormente utiliza-se o programa SPSS 15.0 para Windows.
Resultados: Em seis anos registaram-se 228 casos de queratose actínica, 26 de melanoma e 32 de neoplasias malignas da pele. Encontramos que 63,7% da população crê que não se realizam suficientes campanhas de prevenção solar, 50,2% desconhece os sinais de alarme do cancro de pele e a medida de proteção mais utilizada é a utilização de filtros solares.
Conclusão: A morbilidade de lesões malignas e pré-malignas da pele na população de Manises quadruplicou e o conhecimento acerca da prevenção solar é insuficiente.

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Introduction

Cutaneous malignant melanoma (CMM), described in the year 1806 by René Laënnac,[1] is the atypical transformation of melanocytes in the basal layer of the epidermis, expanding both toward the more superficial layers as well as the deepest.[2] In early stages it is curable, but untreated it is very aggressive can produce lymphatic and hematogenous metastases that cause high mortality.[2]

Currently there are 160,000 cases of melanoma diagnosed worldwide. Due to the incessant increase of skin cancer of the melanoma type, it is of utmost importance to know both the risk factors as well as the protection against this disease.[3,4]

The dysplastic nevus is the most important risk factor for melanoma. Skin lesions with a diameter of more than 6 mm, which are prominent, asymmetrical, with poorly defined edges and variable pigmentation should be observed by dermatologists. We must also mention actinic keratosis, a premalignant lesion characterized by squamous or crusted growth in more or less continuous sun-exposed areas. Until recently, this lesion was characteristic of people of more advanced age, but cases have begun to appear among the younger population.[5]

The new culture of tanned skin as something healthy and attractive can become the main opposition to changing the habits of photo protection. Artificial tanning is one of the new habits among the younger population, and a well-established risk factor for CMM, and probably also for squamous and basal cell carcinomas.[6] Therefore, exposure to artificial tanning at an early age is associated with a significantly greater risk of basal cell carcinoma.

However, due to the fact that its development takes place in an organ such as skin, with a great accessibility to exploration and easy diagnosis in the majority of cases, increasingly more melanoma are treated at an early stage, with the majority of them being curable.[6]

Manises is a municipality of 30,508 inhabitants with direct access to various Mediterranean beaches of the Valencian Community (Spain), and is situated in the province of Valencia.

The objectives of the study are: to determine the morbidity of malignant lesions or lesions that may produce cancer in the future, in the population of Manises, between 2006 and 2012; to determine whether the population of Manises is informed about the sun exposure preventive behavior, and if it presents adherence to such behaviors; to determine the exposure habits and prevention of the population of Manises during daily prolonged sun exposure; and, to determine the knowledge about the risks of sun exposure in the sample that responded to the questionnaire. The final objective is to establish the source of information about preventing sun exposure in the population of Manises. The initial hypothesis is that the continuous increase in the number of cases of skin cancer is related to the new habits of sun exposure, with deficient knowledge about the risks of sun exposure and a lack of information about preventing sun exposure, or obtaining that information from inappropriate sources.

Methods

To achieve the objectives of the research, two different studies were used. The first study was a retrospective, longitudinal study to know the morbidity of malignant and premalignant skin lesions, in the population of Manises. The second study was a descriptive cross-sectional study to know all the data related to preventing sun exposure of the inhabitants.

In the first study, the primary care computer program of Abucasis® was used to obtain data on individuals older than 15 years old who were diagnosed with melanoma (ICD International Classification of Diseases- C43), malignant neoplasm of the skin (ICD- C44), and actinic keratosis (ICD-L57), with the population of Manises older than 15 years totaling 25,956 inhabitants.[7] For the second study, 201 questionnaires were fulfilled in the emergency room of the Manises Health Center, in the time interval between January and April of 2013.

For the first study, the inclusion criteria were defined as: age (≥ 15 years), belonging to the municipality of Manises, being diagnosed with mela-

noma (ICD- C43), skin neoplasm (ICD- C44) and / or actinic keratosis (ICD- L57); as exclusion criteria, not meeting any of the above. For the second study, inclusion criteria were established as; being between 20 - 50 years of age, to be a resident of Manises, and knowing the Spanish language; as an exclusion criterion, not complying with any of the aforementioned.

Statistical analysis was performed with the SPSS 15.0 for Windows program. Frequency and contingency tables were obtained. New variables (phenotype, degree of protection...), based on the variables established in the surveys, were created. Data analysis was performed using a chi-square test, with $p < 0.05$ considered significant.

The development of the study met the international standards of ethics in research involving human beings.

Results

Results of the first study

Between 2006 - 2012, 228 cases of actinic keratosis, 26 of melanoma and 32 of malignant skin neoplasm were reported. Independent analysis revealed that actinic keratosis occurred mainly in individuals between 51 - 80 years of age, with a female predominance at all ages, and isolated cases appeared in both sexes in the younger population. The largest melanoma incidence was between 21 - 70 years, with a peak between the age groups of 21-30 and 51-60 years. Similar to actinic keratosis, the proportion of women was higher in nearly all of the age groups, except in the groups of 31-40 and 81-90 years. Finally, malignant skin lesions had a much later appearance: the first cases appeared after 30 years of age, and its peak incidence was between 61 and 80 years. At younger ages it was clearly female, a fact that was inverted in ages greater than 71 years.

Results of the second study

Description of demographic and physical characteristics of the sample

The age of participants ranged from 20 - 50 years, with a mean age of 35 years. Women composed 69.2% of the sample (139 participants). Those with red or blonde hair constituted 10% of the sample, 44.3% had light brown hair, and 45.7% dark brown or black hair. Dark eyes appeared in 72.1% of the sample, and 22.9% had light eyes. Regarding the level of education, 30.34% had graduated from school (compulsory schooling), 20.39% higher education, 20.39% vocational training, 7.46% completed secondary school, and 3.48% had primary education, and 17.94% did not indicate their level of study.

Habits of exposure and prevention in the population of Manises during daily and prolonged exposure to the sun

Of the participants, 54.7% spent the majority of time in a closed and covered space, 34.8% considered that they spent half their time under the roof and the other half exposed to the sun, while 3% spent most of their time exposed to the sun. Finally, 64.2% spent little leisure time exposed to the sun. On the other hand, 66.2% considered that in the past they were not exposed to sunlight for a prolonged period.

Regarding sun protection, those who wore only one kind of protection were grouped as low protection, which corresponded to 16.4%; in medium protection were those who used two types of protection, corresponding to 16.9%; and in high protection were those that indicated three or more options for protection, which represented 54.2%; finally, 10.4% indicated that they did not use any type of protection. A SPF protective factor for the body between 25 and 50 was used by 95 individuals; less than SPF 25 by 46 individuals, and greater than SPF 50 by 29 individuals. While 87 referred to using SPF between 25 and 50 for the face, 43 used a SPF > 50 and 32 used an SPF < 25. Furthermore, 14.4% applied sunscreen each hour, 30.8% every two or three hours, 8% every four or five hours, 23.4% when remembered, and 14.9% only one time.

Another habit studied was the utilization of tanning bed, and only 24.4% referred to its use.

Among 62 individuals of the group between 20 - 30 years of age, 17 referred to the use of a tanning bed. Between 31 - 40 years of age (a total of 60 people), 17 also used tanning beds. And, of the 74 individuals between 41-50 years old, only 15 affirmed the use of tanning beds.

Knowledge about risks and consequences of sun exposure in the sample

Table 1 provides the opinions about the effects of a prolonged or intense sun exposure.

Table 2 shows the results about the importance for the respondents of the sun protection methods.

The question "know the warning signs of skin cancer?" presented quite equitable outcomes: 48.8% were knowledgeable, as compared to 50.2%. Still, 81.6% did not go to the dermatologist to prevent or avoid skin cancer. And lastly, when asked their risk of skin cancer: 29.9% and 26.9% were considered to have low risk and a medium risk, respectively.

Information of the population of Manises about behaviors for preventing sun exposure and adherence to these behaviors

Solar prevention campaigns were considered insufficient by 128 individuals (63.7%), a statistically significant fact when it is related to insufficient information about skin cancer ($p < 0.001$). Moreover, 66.2% believed there was not sufficient information about skin cancer, and positive relationships existed when referring to the warning signs of skin cancer ($p = 0.006$). Regarding the information about preventing sun exposure, it came mainly from the media (59.2%) and had a significant association with solar exposure in the past ($p < 0.02$), and to be tanned was synonymous with being healthy ($p = 0.006$).

With regard to sun exposure risk behaviors, we found that of the 150 individuals who considered avoiding sun exposure between 12 and 5pm to be an important measure, 34 of them engaged in sun exposure between 10am - 12pm, 69 between 12pm - 4pm, 16 between 4pm - 6pm, 14 after 6pm; the other 14 selected two options and three indicated more than three options.

On the other hand, table 3 relates the importance that respondents gave for applying protective cream as frequently as they did.

When asking if it was normal to be burned on the first day at the beach, 60 answered yes (47 of them thought it was not normal for this to happen, ten that was a little bit, and three that was quite

Table 1. Effects of a prolonged or intense sun exposure

Variables	Yes (%)	Sufficient (%)	Little (%)	No (%)	D.K./N.A. (%)	p-value
Sun can cause burns	88.6	7.0	1	0.5	3	< 0.001
Sun causes premature aging	83.6	9.5	2.5	1	3.5	< 0.001
Sun can cause skin cancer	87.6	6	1.5	1.5	3.5	< 0.001
Being tan is synonymous of being healthy	8	7.5	15.4	65.2	4	< 0.001
When it is cloudy the sun is dangerous	49.8	24.9	11.4	8.5	5.5	< 0.001
I am more conscious of the dangers than in past years	74.6	14.4	6.5	1.5	3	< 0.001
The sun is more dangerous on the beach or in the mountains	30.8	13.9	10.9	38.8	5.5	< 0.001
UVA sessions prepare the skin for the beach	7.5	7	19.4	60.7	5.5	< 0.001
It is normal to burn the first day at the beach	22.4	4	7	61.7	5	< 0.001
Go to the physician for changes in a skin lesion	81.6	5.5	3.5	5.0	4.5	< 0.001

Table 2. Importance of sun protection methods

Variables	Very (%)	Quite (%)	Little (%)	None (%)	D.K./N.A. (%)
Avoid sun exposure between 12-5pm	75.6	14.4	5.5	2	2.5
Apply protective cream with high solar factor	59.2	30.8	3	2	5
Apply protective cream frequently (every 2 hours)	46.8	35.8	8	3.5	6
Stay in the shade	41.3	35.8	10.9	5	7
Wear sunglasses	36.8	33.3	17.4	6	6.5
Cover the head	41.3	31.8	14.4	5.5	7
Wear breathable clothing	34.3	30.8	18.9	6.5	9.5

Table 3. Relationship between frequency and importance of applying sunscreen

With which frequency do you apply sunscreen?	Importance of applying protective cream often				D.K./N.A.
	Very	Quite	Little	None	
Each hour	16	11	1	0	28
2-3 hours	39	18	4	0	61
4-5 hours	6	8	2	0	16
When I remember	19	20	3	0	42
Only once	11	8	4	5	28
Total	91	65	14	5	175

normal), 84 said no (of which 75 thought it was not normal, four thought it was a little normal and five that it was quite normal).

For the results that related to the variables "use tanning beds" and "UVA sessions prepare the skin for the beach", 140 answered that they use tanning beds and 103 believed that the UVA sessions did not prepare the skin for the beach. Finally, on the question as to whether the sun can cause skin cancer and what was the risk of skin cancer, we observed that of the 174 respondents who considered that it could cause skin cancer, 55 thought they had a low risk, 49 medium, 26 high, 26 very low and 16 very high risk.

Discussion

Some limitations were encountered due to the sample size, so that these results should be reproduced in different countries and with larger populations to be more significant.

The results obtained contribute to the knowledge of the actual percentage of melanoma, or lesions that may terminate in melanoma in a concrete population, relating this data with the knowledge regarding preventive measures to avoid it, specifically with sun exposure, which is the biggest risk factor. This study also serves to know the sources of information used by a population. All of this information is useful for nursing professionals to guide prevention campaigns to cover the deficiencies of the inhabitants in the most effective manner, reducing the prevalence of this serious disease.

In this regard, approximately 50% of respondents were found to have a low risk or fear of suffering from skin cancer. However, the pathologies related to skin cancer are undergoing significant increases, triggering alarm signals within the scientific community (WHO, skincancer.org, Asociación Española Contra el Cancer, etc.). The population of Manises is following this same trend, as actinic keratosis has multiplied by nine times in the period of 2006 - 2012; malignant skin neoplasms have increased by a ratio of 8 in 2006, and melanoma increased by 400%. All of these diseases are emerging at increasingly younger ages.

Regarding sun exposure, half of the respondents exposed themselves to the sun during the most central hours of the day, from 12 - 4pm. Even so, the 46% who considered this as an important prevention measure still go to the beach during this time period, in contrast to other studies. Sunscreens were the most popular and well regarded preventive behavior.[8]

Regarding tanning beds, and unlike our sample (in which only 24% used them), other studies affirm the opposite.[9] However, there were individuals who considered that the UVA sessions prepared the skin for the beach, and over half of said they had never suffered sunburn, in spite of the fact that about 25% thought that was normal to be burned on the first day at the beach, and 15.5% considered that being tanned was synonymous with being healthy. It is still interesting that there are people who do not know what to do when a skin lesion change is observed, and 19.9% think that when it is cloudy the sun is not dangerous or it is less dangerous.

On the other hand, 63.7% think that there are not enough campaigns about sun exposure prevention, and the information that they receive comes primarily from the media. There are studies about the impact of photo-education programs for school populations which concluded that the pediatric population is more appropriate to receive education

in photo protection, since this can decrease the risk of developing melanoma in adulthood.[10]

Conclusion

There is a clear and widespread increase of skin lesions related to sun exposure in our study, particularly actinic keratosis and malignant skin lesions. We must add that these all begin to be diagnosed in increasingly younger ages. Despite the inexistence of adherence to all recommendations for sun exposure prevention, most people protect themselves during their daily and prolonged sun exposure. Almost half of them use SPF 25 - 50, with a frequency of application of every two or three hours. Regarding habits, avoiding sun exposure during the central hours of the day, staying in the shade, and frequently applying a high SPF are greatly accepted. The population is now more conscious (than a few years ago) about the risks of inadequate sun exposure protection. However, they do not believe they have sufficient information about skin cancer, especially about early detection. The results confirm the need for sun prevention campaigns, since the information that the population had was not from government or health authorities.

Collaborations

Iranzo CC contributed to the project design and execution of the research, analysis and interpretation of data, writing and critical revision of the important intellectual content and final approval of the version to be published. De La Rubia-Ortí JE contributed to the analysis and interpretation of data, writing and critical revision of the important intellectual content and final approval of the version to be published. Castillo SS and Firmino-Canhoto J contributed to the writing and critical revision of the important intellectual content and final approval of the version to be published.

References

1. Lavanderos J, Pérez JA, Jeria S, Concha D. Actualizaciones en melanoma maligno cutáneo. Cuad Cir. 2010; 24(10):47-56.
2. Enrique Acosta A, Fierro E, Eugenia Velásquez V, Rueda X. Melanoma: patogénesis, clínica e histopatología. Rev Asoc Col Dermatol. 2009; 17(2):87-108.
3. Melanoma [Internet]. Madrid: Sociedad Española de Oncología Médica; Enero; 2013. De Martínez Jáñez M. Epidemiología del melanoma. [acesso 2013 Feb 2]. Disponible en: http://www.seom.org/es/informacion-sobre-el-cancer/info-tipos-cancer/melanoma?start=2.
4. Cáncer de tipo melanoma [Internet]. Estados Unidos: American Cancer Society; Enero; 2013. Factores de riesgo del melanoma. [acesso 2013 Feb 2] . Disponible en: http://www.cancer.org/espanol/cancer/cancerdepieltipomelanoma/guiadetallada/cancer-de-piel-tipo-melanoma-causes-risk-factors.
5. Queratosis actínica [Internet]. Estados Unidos: Skin Cancer Foundation; 2013. Qué es la queratosis actínica? [acesso 2013 Feb 2]. Disponible en:http://www.skincancer.org/skin-cancer-information/actinic-keratosis/how-to-prevent-actinic-keratosis.
6. Wehner MR, ML Shive, MM Chren, J Han, AA Qureshi, Linos E. El bronceado artificial y no-melanoma cáncer de piel: revisión sistemática y meta-análisis. BMJ. 2012; 345:e5909.
7. Foro-ciudad [Internet]. Valencia: Foro-ciudad; abril 2013. Manises - Pirámide de población – Padrón; 2012. [acesso 2013 Feb 2]. Disponible en: http://www.foro-ciudad.com/valencia/manises/mensaje-11208158.html.
8. Gambichler T, Dissel M, Altmeyer P, Rotterdam S. Evaluation of sun awareness with an emphasis on ultraviolet protection by clothing: A survey of adults in WesternGermany. J Eur Acad Dermatol Venerol. 2010; 24(2):155-62.
9. Llamas-Velasco M, García-Díez A. El cambio climático y la piel: diagnóstico y retos terapéuticos. Actas Dermosifiliogr. 2010; 101 (5):401-10.
10. Guzmán MC, Torres V, Reyes L, Rojas R, Mosquera H. Conocimientos de la comunidad de un municipio de Santander sobre riesgo y cáncer de piel. Rev Asoc Colomb Dermatol. 2011; 19:20-5.