

Are General Physicians Prepared for Struggling Skin Cancer?—Cross-Sectional Study

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Abstract The aim of this study is to evaluate the role of general practitioners (GP) in selecting higher risk population for skin cancer screening. GP's training was organized to examine a specific high risk population consisting mainly of fisherman and farmers in a city of North of Portugal. Health care professionals of local health units training was performed by two dermatologists 2 months before the screening. During 8 weeks GPs selected patients with skin cancer suspicious lesions and/or risk factors consecutively from their regular consultation. These selected patients were referred to a dermatologist evaluation. Six dermatologists using manual dermoscopy examined the previously selected patients. One hundred eight patients have been screened, 35 % of which were males and 65 % females, with a mean age of 54 years. Full skin evaluation by dermatologists revealed 31 % of actinic keratosis, 5 % of leucoplasia, 7 % of basal cell carcinoma, 8 % of squamous cell carcinoma, and 1 % of melanoma. Cohen's kappa coefficient between dermatologist and GPs was 0.18. Selective screening with collaboration of GPs

allowed the detection of more cases of skin cancer than the nonselective screenings in the literature. Although the diagnostic agreement between GPs and dermatologists was not good, our results indicate that active collaboration of dermatologists with primary health care units for selective skin cancer screening, including post graduated courses on their own health units, can be a way of optimizing early detection of cutaneous pre malignant and malignant lesions.

Keywords Skin cancer · Screening · General physicians

Introduction

Despite being among the most preventable types of cancer (avoiding ultra violet radiation exposure), skin cancer is more common than all other cancers combined and its incidence is increasing worldwide [1] Portuguese oncology register reports 6 to 8 cases of melanoma per 100,000 per year and ten times more cases for NMSC could be expected [1, 2]. Advanced melanoma is often lethal and nonmelanoma skin cancer (NMSC), although seldom lethal, if advanced can cause severe disfigurement and morbidity and might be a costly burden to society [3].

Public health campaigns have been conducted to disseminate information about sun potential damage and encourage practices and policies aiming to reduce skin cancer incidence and mortality [4, 5]. GPs are the first line of public health, seeing more frequently people at risk. They have a crucial role in the promotion of the population healthy behavior towards sun exposure, teaching the self-examination and referring to specialized units of dermatology.

The objective of this study was to access the effectiveness of selective screening (SS) of risk population by GPs.

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Material and Methods

Type of Study

This type of study is an observational cross-sectional study.

Selection of Participants

In the setting of primary health care unit of high risk population for skin cancer, mainly fisherman and farmers, a location next to the sea in the North of Portugal, a three-step study was performed.

The first step was a 3-h training course on skin cancer and risk factors, given by two dermatologists to GPs and nurses. The training focused on epidemiology, etiology, clinical pictures of photo type, benign lesions, premalignant lesions, skin cancer, and skin cancer risk factors. Euromelanoma flyers and posters were distributed.

A validated questionnaire, the same as the Euromelanoma day [6] performed in Portugal since 2000, used to register the data during the screening, was presented and discussed.

Patients belonging to the area of the primary health care unit with at least one risk factor for skin cancer were eligible. Patients receiving skin cancer aftercare or active treatment were excluded. Risk factors for skin cancer considered were family history (first-degree) of skin cancer, multiple melanocytic nevi (>50 nevi, diameter > 5 mm), clinically atypical nevi (according to the ABCDEs rule—*asymmetry, irregular border, heterogeneity of color, diameter > 5 mm, evolution—growing lesion*), medium/large congenital moles, low photo type (I,II), light eyes, fair hair, tendency to freckle, sun bed use, intermittent intense sun exposure, sunburn history, ultraviolet damaged skin, immunosuppression, x-ray damage skin, and outdoor profession/occupation.

In the second step, individuals were recruited by their GP from their regular consultation for 2 months.

The third step consisted in a screening of the patients selected by GP by a team of six dermatologists, performing whole-body observation using manual dermoscopy. The precancerous lesions (actinic keratosis (AK) and leucoplasia) were treated with cryotherapy.

Patients with a clinical diagnosis of skin cancer were referred to an oncology center; atypical nevus was referred to a local hospital to the dermatology department for dermoscopic follow-up or to the surgical department for excision.

Diagnostic accuracy between GP and dermatologist was accessed.

Sample Size

Consecutive convenience sample of 108 patients was selected by 11 GPs.

Data Collection Methods

Whole-body examination performed by GPs was documented on a paper form that was reviewed and completed by the dermatologist during the screening. All data was introduced into a password-protected database. Informed consent was obtained from each patient.

Variables

Demographic data, risk factor for skin cancer and clinical diagnoses of skin cancer, precancerous lesions, and risk lesions data were registered.

Statistical Analysis

Descriptive analysis is presented as absolute and relative frequencies. Cohen's kappa coefficient between dermatologist and GPs was calculated.

Results

One hundred eight patients were referenced by GPs to the dermatologist screening, 35 % were males and 65 % were females, with a mean age of 54 years. Five percent were illiterate, 47 % had basic school education, and only 12 % had university education.

Population risk factors for skin cancer are described in Table 1 and clinical diagnosis of the screened population in Table 2.

Significant clinical diagnostics from dermatologists' examination were atypical nevi in 31 %, AK in 31 %, leucoplasia in 5 %, basal cell carcinoma in 7 %, squamous cell carcinoma in 8 %, and melanoma in 1 % of the patients.

Although the GP was able to identify risk factors and suspicious lesions, considering the main diagnostic for each patient, only 42 of the 108 main diagnostics matched with the dermatologist. Diagnostic agreement between GPs and dermatologist occurred in 38.9 % of patients. Twenty-five percent of agreement was in atypical nevi, 12 % in AK, 0.9 % in BCC, and 0.9 % in SCC. Cohen's kappa coefficient between dermatologist and GPs concerning the main diagnostic was 0.18.

Patients with leucoplasia and AK were successfully treated, in the same day of the screening, with cryotherapy and observed by the dermatologist, 2 weeks after treatment. All of them healed properly. Prevention counseling and surveillance were advised for all those patients.

Patients were tracked after treatment. All NMSC and melanoma pathology matched the clinical diagnosis of the dermatologist.

Table 1 Population risk factors for skin cancer

	(<i>n</i> —108; %)
Outdoor occupation, <i>n</i> (%)	
Yes (>1 year)	40 (37)
Recent new or modified skin lesion, mean (sd)	
Yes	72 (66)
Phototype, <i>n</i> (%)	
I	8 (7)
II	42 (39)
III	51 (47)
IV–VI	7 (6)
Sunburn before the age of 10 years	
No	80 (74)
Yes	14 (13)
Do not remember	14 (13)
Sunburn between 10 to 18 years	
No	64 (59)
Yes	29 (27)
Do not remember	15 (14)
Use of sunscreen when exposed	
Never	39 (36)
Some times	24 (22)
Always	45 (42)
SPF	
<15	16 (15)
15–29	8 (7)
30–49	68 (63)
>50	16 (15)
Number of weeks per year spent in sun holidays	
0	48 (44)
1–2	41 (38)
3–4	14 (13)
>4	5 (5)
Use of sunbed	
No	108 (100)
Family history of skin cancer	
No	98 (90)
Yes, one relative	5 (5)
Yes, two relatives	1 (1)
Do not know	4 (4)
Personal history of skin cancer	
No	101 (94)
Yes, melanoma	1 (1)
Yes, NMSC	4 (4)
Do not know	2 (1)
Recurred to screening only because it is advisable to do a skin cancer screening	
No	104 (96)

Table 2 Clinical diagnosis of the screened population

	(<i>n</i> —108; %)
Number of nevi, <i>n</i> (%)	
<25	87 (80)
25–50	16 (15)
51–100	4 (4)
>100	1 (1)
Solar lentigo, <i>n</i> (%)	
Yes	47 (44)
Atypical nevi, <i>n</i> (%)	
Yes	33 (31)
Actinic keratosis	
Yes	33 (31)
Leucoplasia	
Yes	5 (5)
Melanoma	
Yes	1 (1)
Basal cell carcinoma	
Yes	8 (7)
Squamous cell carcinoma	
Yes	9 (8)

Discussion

Despite the study limitations (i.e., the small sample and the fact that knowledge before and after the training course was not assessed), data revealed relevant issues.

When comparing pre-malignant lesions and NMSC with published data of Euromelanoma campaigns, a nonselective screening, both AK and NMSC detection, was much higher in our SS with GP’s collaboration. During Euromelanoma campaigns, between 2009 and 2010, only 3.1 % of BCC and 0.4 % SCC were diagnosed. In Portugal, the rate was even lower (2.6 % of CBC and 0.2 % of CEC) [6].

Despite these results, the diagnostic agreement between GPs and dermatologists in this study was very low, similarly to other studies [7–9]. Investment on GP’s training might optimize skin cancer primary and secondary prevention.

Skin cancer, namely melanoma and basal cell carcinoma, is more common among highly educated people and high socio-economic status. However, the mortality and morbidity is higher in elderly man and in people with a lower socio-economic level, potentially due to a lower skin cancer awareness and delayed diagnosis [10]. In this setting, GPs detected recent new or modified skin lesion from patients that probably would not search for attention on this subject. They promoted the screening of low educated (almost half only had basic school education) and mainly middle aged people with more than 50 years. In the same year, in Portugal, in Euromelanoma, only 14 % of patients had just basic school and the mean age was less than 45 years [6].

This pilot study, in accordance with other studies in the literature, indicates that cooperation between GP and dermatologists may allow the detection of more suspected skin lesions and ameliorate the screening procedure [11].

In conclusion, skin cancer is a frequent, burdensome, and economically relevant issue.

GPs are on the first line and might have a decisive role in skin cancer prevention and screening mainly by the proximity to population.

Regarding the aging of population, the high risk behavior related either to work, holidays, sports, fashion, or sunbeds use, the low ratio of dermatologists for the population and the increasing incidence of skin cancer, investment in GPs training, should be viewed by dermatologist and authorities as an opportunity to continue the struggle against skin cancer.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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