

Skin cancer prevention among healthcare professionals: results of a screening campaign in an Italian University Hospital in 2007-2008

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Abstract

Background: Skin cancers, especially melanoma, are steadily increasing in incidence, and primary and secondary prevention measures have been proven to be useful in reducing skin cancer mortality.

Aim: to promote a screening campaign among healthcare professionals of an Italian University/Hospital in order to detect not only an earlier recognition of potentially dangerous skin lesions, but also to verify if secondary prevention is useful, well-accepted and easy to perform among potentially more alerted people working in a healthcare background.

Methods: The screening campaign was advertised through the Intranet of the Hospital. The screening took place once a week and a mean of 5-6 patients/week were examined. Every patient underwent a full-body skin examination integrated by handheld dermoscope at the Outpatient Clinic, Section of Dermatology, University/Hospital of San Martino. In the case of clinically or dermoscopically suspicious lesions, an excision and histopathological examination were prescribed.

Results: 138 patients (100 females and 38 males) were evaluated in the course of 1 year. 11 lesions were referred for excision and, among these, 1 was a melanoma in situ and 1 an atypical fibroxantoma.

Conclusions: The rate of participation in the screening was low. However 2% of the screened patients presented a malignant lesion. We discuss the low adherence to the screening programme and suggest improving some aspects of communication, but we think that this kind of screening is useful because it can involve a good percentage of people who can undergo a check-up very easily in their own workplace.

Key words: skin cancer, screening campaign, secondary prevention, hospital setting

Introduction

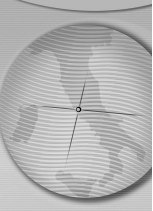
Both melanoma and non-melanoma skin cancers are steadily increasing in incidence and tend to affect patients of a younger age than previously, possibly due to lifestyle changes typical of the last decades, such as increased sun exposure, frequent use of UV beds and vacations in tropical countries without appropriate sun protection [1]. Increased control of skin lesions is thus important and can be achieved through both primary and secondary prevention measures.

Primary prevention consists in education campaigns about the risks of sun exposure and the importance of appropriate sun protection to prevent cancer development. This prevention method, however, does not seem to exert

significant results, for example in reducing the incidence of melanoma [2].

Secondary prevention is based on population screening campaigns aimed at the early recognition of potentially dangerous lesions, such as early stage malignancies or precancerous lesions, either through self examination or through periodical dermatological consultations. The screening of skin cancers is favoured by the fact that skin examinations are readily performed and can be complemented by dermoscopy, a simple, non-invasive diagnostic technique.

Secondary prevention campaigns are potentially capable of reducing both mortality and morbidity and have therefore been promoted by several scientific communities [3-10].



Such is the case, for example, of the "Skin Cancer Day" organized annually by the Italian Dermatological Community in the context of the Euromelanoma Screening Day Campaign. On the day of screening, outpatient dermatology clinics of hospitals, universities and medical centres examine, free of charge, from 50 to 100 patients/centre.

The Dermatology Clinic of the Azienda Ospedaliera-Universitaria San Martino of Genoa has always participated in the screening campaign since its start in the year 2000. However, by reviewing the screening outcomes, it became evident that patients who came to the Clinic on the screening day tended to be either very young or very old, while age ranges that may profit the most from the early detection of precancerous or early neoplastic lesions were less represented.

Melanoma mainly arises in young and mid-aged adults, and even the age of onset of basal cell carcinomas (BCCs) and of squamous cell carcinoma (SCC) is decreasing, as they tend to affect 30 to 40 year-old patients also [11].

For such reasons, in collaboration with the department of Preventive Medicine, the Directorate and the Office for Quality Improvement of our University Hospital - the Azienda Ospedaliera-Universitaria San Martino - we decided to promote a workplace screening campaign for healthcare professionals of this Hospital. The aim wasn't just to detect potentially malignant skin lesions as early as possible, but also to verify if secondary prevention is useful, well-accepted and easy to perform among potentially more alerted people working in a healthcare background. The results of the first year of screening are herein analyzed and discussed.

Materials and methods

The screening campaign was advertised through the Hospital Intranet. The following message was on-line and accessible to all staff members for one month prior to the beginning of the screening: "Starting from November 2007, staff members may request to undergo a free skin cancer prevention screening as a complementary part of their annual preventive health assessment."

The screening took place at the Dermatology Outpatient Clinic once a week and a mean of 5 to 6 patients/week were examined.

Every patient underwent a brief interview and a full-body skin examination, integrated by a handheld dermoscope evaluation of skin lesions when needed. The result of the examination was recorded in a file reporting the patients' age and gender, profession, Fitzpatrick skin type,

approximate number of total melanocytic nevi and information about previous visits for skin cancer screening, personal history of skin cancer/atypical lesions and family history of skin cancer.

Patients were given a copy of their record and were invited to repeat the screening in 12 months, if no abnormality was present, or after six months, in the case of skin lesions deserving a closer follow up. In some cases, computerized digital dermoscopy was requested so as to facilitate the follow up. In the case of clinically or dermoscopically suspicious lesions, excision and histo-pathological examination were prescribed.

At the end of the screening consultation, patients were also invited to fill in an anonymous questionnaire with multiple choice questions regarding their personal evaluation of the campaign and their degree of satisfaction with the examination they had just undergone (Questionnaire 1).

Results

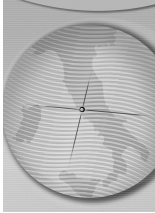
During the first year of screening (November 2007-December 2008) 138 patients, 100 females (F) and 38 males (M), were evaluated. Only two of them were from the medical staff, while others were from different health care professions or from support or administrative services. 55 (34F and 21M) were between 20 and 40 years old, 86 (69F e 17M) were between 41 to 60 years old. With regard to the Fitzpatrick photo-type, 39 subjects (30F, 9 M) were classified as photo-type II, 78 (56F, 22M) as photo-type III and 18 (11F, 7M), as photo-type VI (Table 1).

As for the number of total melanocytic nevi, 111 subjects (82F, 29M) had less than < 30 nevi, while 27 had more than 30 nevi.

The family history was positive for melanoma in 4 patients (3F, 1M) and for basal cell carcinoma in 6 female patients. One female patient reported the excision of a basal cell carcinoma and another reported cryotherapy of a lesion clinically diagnosed as actinic keratosis.

12F and 7M patients were referred for computerized digital dermoscopy of dubious lesions and 1M patient in this group then underwent an excision of his lesion. Lesions considered suspicious on clinical and/or handheld dermoscope evaluation were referred for excision in 9F and 2M.

Histopathological examination revealed that, out of the 11 patients with dubious/suspicious lesions, one had melanoma in situ and another had atypical fibroxantoma. This examination also showed that these dubious lesions were dysplastic nevi in 3 patients and inflamed/traumatized nevi in two other patients (Table 2).



Questionnaire 1. Anonymous questionnaire with patients' opinions.

<i>Importance of the screening.</i>
Very important
Important
Relatively important
<i>Clarity of explanations during consultation</i>
Very clear
Quite clear
Clear enough
Not very clear
Unclear
<i>Clarity of examination written record</i>
Very clear
Quite clear
Clear enough
Not very clear
Unclear
<i>Satisfaction with consultation</i>
Very satisfied
Quite satisfied
Not much satisfied
<i>Should this screening campaign continue?</i>
Yes
No

Table 1. Demographics and skin photo-type of 138 screened hospital staff.

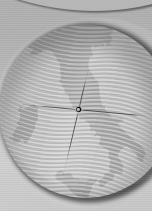
<i>Gender</i>	<i>Total n 138(100%)</i>		
Female	100 (72.5%)		
Male	38 (27.5%)		
<i>Age</i>			
20-40	55	34	21
41-60	86	69	17
<i>Skin phototype</i>	<i>Total n</i>	<i>F</i>	<i>M</i>
I	-	-	-
II	39	30	9
III	78	56	22
IV	18	11	7

Discussion

The University Hospital San Martino of Genoa employs around 3500 staff in clinical and non-clinical roles (F63% and M37%). 138 (4%) of them participated in the workplace screening. The rate of participation was thus rather low. Presumably, advertising of the screening campaign in the hospital intranet for only one month was not

sufficient to raise awareness among staff about it.

Women's participation was higher than men's (100 versus 38= 2.7:1). Women are probably more risk-aware and are more used to screening campaigns, for example for breast carcinoma and for carcinoma of the uterine cervix. This finding concords with the well known finding that women appear to respond more favourably

**Table 2. Histopathological diagnosis of 11 excised lesions.**

Diagnosis	n, gender
Irritated seborrheic keratoses	1, F
Lentigo simplex	1, F
Dysplastic nevus	2, F, M
Compound melanocytic nevus	1, F
Hypermelanotic lentiginous nevus	1, F
Traumatized/inflamed compound melanocytic nevus	2, F
Melanoma in situ	1, F
Atypical fibroxantoma	1, M

to health education messages, with an expected female-male ratio of 1.6:1 [12]. Future campaigns should perhaps have some special emphasis to target men. Recent data showed that the occurrence of thick (> 3.00 mm) melanomas is associated with male sex and old age [13]. This population subset should therefore, be more appropriately targeted by educational messages and screening efforts.

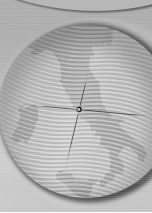
From the point of view of their professional roles, those who participated in the screening were mainly nurses, laboratory technicians, radio- and physiotherapists and administrative employees, while medical staff or low-level staff (stretcher-bearer, porters ...) were few, possibly for two different reasons. When physicians need a check-up, they tend to directly consult colleagues that they are in contact with for professional reasons, rather than taking advantage of prevention campaigns. Low-level workers, on their part, are likely to have little access to intranet messages.

The prevalent photo-type of screened subjects was Fitzpatrick III, the dominant photo-type at our latitudes. The total number of melanocytic nevi present in each patient does not appear to have influenced participation in the screening in any way. Most screened subjects had at least 30 nevi and no one had come to the screening to have a specific lesion examined. Even the majority of subjects with a family history of skin cancer (8 out of 10) had not undergone any longitudinal assessment for skin cancer. Probably, in spite of many sensitising campaigns, the value of prevention has not yet been thoroughly understood, even by a population of healthcare workers. Two out of 11 (19%) excised clinically suspicious lesions were found to be malignant on histopathological examination: 1 was a melanoma in situ, and the other an atypical fibroxantoma. This means that a skin malignancy, including

melanoma and non melanoma skin cancers, was detected in 2 out of 138 screened patients (1.4%) and the prevalence of melanoma in our series was of 0.7%. These ratios are higher than that of 0.8% (9/1042) for non melanoma skin cancers and the 0.2 % (3/1042) for melanoma, recently found in a general Italian population sample [14]. However, our study dealt with a small series of potentially more alerted subjects working in a healthcare background rather than with subjects coming from the general population, and a high number of more homogeneous patients are needed to compare and confirm the results. Moreover, our data show some similarities with the recently reported results of the 2008 'Euromelanoma Day' screening campaign in Sweden [15], though again our numbers are small compared to those of the Swedish study (138 versus 2799 screened patients).

For example, in the Swedish study the majority of screened patients were also females (62.3%) and the prevalent photo-type was Fitzpatrick III, even if, in Sweden, lighter photo-types are much more represented than in Italy. Quite similar too was the prevalence of melanoma in situ detected among screened patients; 0.9% in the Swedish study compared to 0.8% in our study. On the contrary, basal cell carcinoma and squamous cell carcinomas were detected in 6.2% and 0.3% of their screened patients respectively, while they were not found in any of our patients. The patients median age, however, was older (57 years) in the Swedish study than in ours (36 years). Our data also show some analogy with the results of the Euromelanoma screening campaigns performed in Greece and Switzerland [6,10].

Melanoma in situ represents the early stage of invasive melanoma, the most aggressive of all skin cancers. In this case, an early diagnosis makes the prognosis extremely favourable, with a 100% life expectancy at 5-10 years [16]. Atypical fibroxantoma is an uncommon low-grade



malignancy skin tumor. However, rarely, it can metastasise and early excision is considered the best therapy [17]. Out of the remaining 9 clinically doubtful excised lesions (in one case after digital dermoscopy), histo-pathological examination revealed that 3 of them were dysplastic nevi, one was a hypermelanotic lentiginous nevus and 2 were inflamed melanocytic nevi. Dysplastic nevi are commonly regarded as markers or possible precursors of melanoma and may indicate an increased risk of developing melanoma [18]. In the case of inflamed or deeply pigmented lentiginous nevi, their characteristics may give rise to dubious clinical and/or dermoscopic interpretation.

Regarding the questionnaire about the patients' personal evaluation of the screening campaign, 100% of our patients judged the initiative as very important and worthy of being continued.

In conclusion, these are the first results of a skin cancer screening campaign organized for healthcare staff of an Italian University Hospital. The number of subjects screened during the

first year was smaller than had been expected: only 4% instead of 15-20%. However, the initial outcome of the campaign seems encouraging. In fact, considering that melanoma certainly is an aggressive cancer and that fibroxanthoma may, however rarely, metastasise, the "life expectancy" was improved for at least 2 out of 138 screened subjects, whose malignant lesions, not even previously suspected as possibly dangerous, were excised.

The number of screened patients, though apparently small, is similar to the number of patients screened per Clinic during the Euromelanoma day campaign in Sweden [15]. The screening is likely to be more effective if it is performed all year round. In our case, implementing the campaign both through intermittent on-line announcements (for example every first week of each month) and through paper leaflets is probably needed for the number of screened patients to increase. These improvements can help the campaign become an effective and relatively cost-limited skin cancer screening of the University Hospital staff.

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