A Clinico-Dermoscopic Approach for Skin Cancer Screening

Recommendations Involving a Survey of the International Dermoscopy Society

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KEYWORDS

• Melanoma • Skin cancer • Clinical diagnosis • Dermoscopy • Dermatoscopy • Triage

KEY POINTS

- A survey consisting of 29 questions was given to members of the International Dermoscopy Society to investigate clinician perceptions and behavior in approaching patients with skin tumors and to propose an updated system of triage.
- Although 81.7% of the respondents reported using dermoscopy for patients presenting with skin tumors, only 37.4% screened all patients regardless of the presenting condition.

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- The average waiting time for a regular patient consultation exceeded 1 month for 38.1% of the respondents (48.9% of those in public positions).
- More than half of the respondents (57%) performed monitoring in at least 30% of their patients.
- An up-to-date system of triage should be implemented to promote an improved diagnostic accuracy and more timely management of skin malignancy.

BACKGROUND

Skin malignancy is a major global health concern in white populations because of the significant incidence of melanoma and nonmelanoma skin cancer (NMSC) in fair-skinned individuals, coupled with its potential morbidity and mortality. Screening for melanoma in particular is considered challenging for 2 main reasons: the first is related to the potential mortality of melanoma if early recognition and removal is not carried out and the second concerns the high incidence of its benign counterpart, the melanocytic nevus. In some instances, nevi can mimic melanoma in clinical appearance and are present as multiple lesions in many individuals in the population. Consequently, even targeted screening for melanoma involves many patients.

Recently, with heightened emphasis on skin cancer prevention, there has been an increasing congestion of specialist dermatology clinics with patients referred from primary care, requiring assessment of possible skin malignancy. Waiting times for dermatology clinics have consequently usually increased, and dermatologists are faced with the task of assessing numerous referred benign lesions (including seborrheic keratoses, hemangiomas, and benign nevi) in lower-risk patients to detect but a few malignancies.[1,2] This circumstance places a strain on limited specialist resources and can create a paradoxic and counterproductive situation whereby an early diagnosis becomes increasingly difficult for those patients who actually do harbor a skin cancer.

Dermoscopy has become an important tool in the diagnostic armamentarium of clinicians dealing with skin cancer detection. In the current guidelines for the management of melanoma and NMSC, dermoscopy is mentioned as a useful technique for clinicians screening skin lesions because it can increase diagnostic accuracy and prompt earlier excision. Dermoscopy is also helpful for monitoring multiple pigmented lesions whereby recording digital dermoscopic images over time can provide evidence of significant (suspicious) morphologic change (level IA, grade A).[3,4] Despite these general recommendations, details of a rational, stepwise approach integrating dermoscopy into a daily clinical work flow are largely absent. In this context, specific guidelines are needed to optimize the overall process of skin cancer screening.

The main objectives of the present study were twofold: (1) to investigate by questionnaire the attitudes and behaviors of International Dermoscopy Society (IDS) members in approaching patients with skin tumors and (2) to propose an updated, rational system of triage for skin cancer screening, based on current published evidence. The ultimate aim of the latter system of triage is to improve the accuracy of diagnosis of skin malignancy and promote a more timely and effective management of skin cancers by both general/family physicians (GFP) and dermatologists. Where the surveyed behavior of clinicians was found to depart from these evidence-based guidelines, the authors propose addressing these areas of concern through focused physician education campaigns.

METHODS

An e-mail of invitation for the questionnaire-type survey was sent on July 29, 2011 to all 5361 members of the IDS (http://www.dermoscopy-ids.org). The objective of the survey was to determine the attitudes and clinical behaviors of the survey participants in approaching patients with skin tumors, including the implementation of dermoscopy in their clinical work. The survey consisted of 29 questions (**Fig. 1**) that had previously been developed and ratified by the executive board members of the IDS. Questions included those inherent to (1) the participant's professional profile; (2) his or her attitudes on patient and lesion selection; (3) the method, waiting time, and outcome of triage; and (4) the methods used during the follow-up examination.

The survey was posted on the IDS Web site and took approximately 10 minutes to be completed. Participants were permitted to respond to the survey anonymously (without logging in) and were prevented from responding to the survey more

used dermoscopy to examine almost all lesions of a given patient (both clinically concerning and random, benign-looking lesions), and 42.6% examine dermoscopically only clinically suspicious lesions selected during the unaided visual examination of the skin. The latter method of applying dermoscopy may be effective in reducing the excision of benign (false positive) lesions, thus improving specificity for melanoma detection, but may result in missing early, clinically inconspicuous melanoma (ie, potentially reducing sensitivity for melanoma diagnosis).

In contrast to hand-held dermatoscopes, video dermatoscopes are digital tools that do not generally provide the high image quality required for precision in dermoscopic diagnosis but are very useful for performing digital monitoring of patients with multiple nevi.[16,17] In effect, they aid in the detection of melanocytic lesions that develop dermoscopic change over time. Of note, video dermatoscopes are usually incorporated into more expensive computerized instrumentation, and nevus monitoring increases the time required for patient assessment.[18] This general concept seems to be reflected in the authors' survey responses. Although only 14.8% of participants in public positions used digital systems, almost double (25.1%) that number of respondents in private practice used digital dermoscopy. When analyzing the time needed to perform a baseline patient examination using any instrument, participants from private practice required a significantly greater amount of time compared with clinicians in public positions.

Improving Patient Selection

In line with previous reports,[19] in the authors' survey, only 37.4% of the respondents performed a general skin cancer examination on all patients presenting to their office for any medical condition. Of the remaining respondents, 44.5% examined patients who were referred for (or who requested) a skin cancer check plus those with risk factors for melanoma, and 17.4% examined only those patients who were referred for (or who requested) a skin cancer check.

As discussed previously, a significant problem of screening for melanoma in the general population is the extremely high prevalence of individuals with melanocytic nevi. Unselected screening of vast numbers of patients in the population is possible but rather difficult with respect to the available resources and cost.[20] Targeted screening of higher-risk individuals has, therefore, become advocated.[21] Opportunistic full skin examinations of higher-risk patients by GFP and dermatologists may assist in the detection of skin cancer, including melanoma. For example, a US study estimated that more than 60% of patients with melanoma had visited their GFP in the year before diagnosis for problems not related to the skin. Therefore, opportunistic screening of high-risk GFP patients could potentially lead to an earlier diagnosis of such melanoma, with improved prognosis.[22] A second point concerns dermatologists: a recent clinical study has calculated that the risk of missing a skin cancer in patients who are seen by a dermatologist for a localized problem (which does not involve examination of the whole cutaneous surface) is in the order of 1 in 50 patients, whereas the risk of missing a melanoma is about 1 in 400 patients.[23]

These sobering figures lead us to consider, at least for the specialist, the possibility of offering a total body skin examination to all patients; but if that is not feasible, then it should be offered to patients in the following higher-risk groups:

1. Patients with a personal history of any skin malignancy or a family history of melanoma (in first-degree relatives)
2. Patients younger than 50 years who present with more than 50 nevi in total or more than 20 nevi on the arms
3. Patients older than 50 years who present with evidence of chronic solar damage

This scheme, a modification of a recent French study, may allow a quick and effective selection of patient groups who are at increased risk of melanoma and NMSC.[24]

Improving Triage Outcome

Once examined clinically and by hand-held (manual) dermoscopy, patients will follow 2 distinct management paths, depending on their risk profile: (1) patients who have a single lesion or few lesions and (2) patients with multiple nevi.

Patients with a single lesion or few lesions

Simply put, if a lesion seems benign it may be left; but if it is suspicious, it should be removed. This approach, although apparently straightforward and obvious, is not so easily applied in daily practice because of the high prevalence of lesions appearing slightly irregular by clinical or dermoscopic examination. Clinicians may choose to monitor such mildly atypical melanocytic lesions in low-risk patients over time; but in the authors' view, monitoring is a specific procedure that helps reduce the number of unnecessary excisions in higher-risk patients, particularly those with multiple nevi (see later discussion). In contrast, for

body examination with dermoscopy. As previously reported, up to 30% of melanomas in high-risk patients may develop in unmonitored lesions.[35]

Before embarking on long-term monitoring, the specialist should first ensure that patients are able to adhere to a strict follow-up regimen. If agreement between the physician and the patient is reached, the long-term monitoring protocol requires an initial (baseline) inspection of all nevi. In addition to this, video dermoscopic recording of a collection of lesions is carried out, usually consisting of those lesions having the most atypical appearance, but small and dermoscopically unremarkable lesions can also be monitored. No data are available concerning the optimal number of lesions to be monitored per patient; but in the authors' survey, 40.2% of the respondents declared performing digital dermoscopic monitoring of 1 to 10 lesions per patient, and 52.5% monitored more than 10 lesions.

This procedure is repeated after a 3-month interval. This first follow-up review facilitates the detection of any changes in the selected existing lesions on short-term video dermoscopic examination. Such changing lesions should be excised for histopathologic examination to exclude melanoma. Of note, patient compliance is typically significantly higher for short-term (2–4 month) as compared with longer-term (6–12 month) reviews.[35]

Following the 3-month review, if no suspicious lesions are identified, patients should be followed on a 6- to 12-month basis. This approach is reflected in the authors' survey results, in which 82.1% of the respondents recommended long-term follow-up or a combination of short-term and long-term follow-up for patients with multiple nevi. It should be noted that only clinically flat (nonpalpable) melanocytic lesions with a predominantly reticular pattern on dermoscopy are suitable for monitoring. Clinically elevated (palpable) equivocal lesions or those with significant regression (>50% of the area of the lesion), and a predominant globular, starburst, or multicomponent pattern on dermoscopy should not be monitored, as a general rule. The latter is advocated as a safeguard against the possibility of delaying the diagnosis of potentially invasive melanoma, particularly an elevated nodular melanoma with aggressive biologic behavior, or an invasive melanoma undergoing regression. In other words, elevated indeterminate lesions and those demonstrating significant regression should be excised at the outset rather than monitored. Elevated lesions that are clearly benign (eg long-standing, soft dermal nevi or clear-cut seborrheic keratoses) do not require monitoring.

The overall schema detailed earlier (**Fig. 2**) should be strongly emphasized because in the authors' survey, a relatively high percentage of clinicians (41.9%) declared that they would not necessarily excise a doubtful palpable lesion at the outset but that their decision would depend on patient risk factors for skin malignancy and the total nevus count. This practice is a point of concern because it may potentially result in the nonexcision of an aggressive invasive malignancy, such as a rapidly growing nodular melanoma.[38]

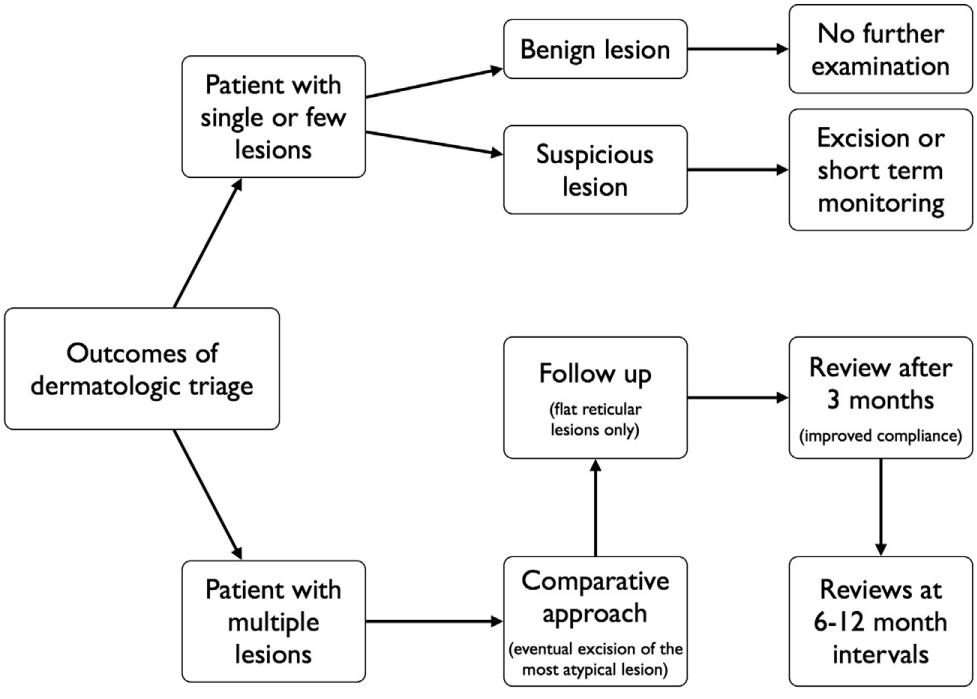

Fig. 2. Work flow summarizing the 2 outcomes of the clinician triage using dermoscopy.