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Case Control Study

Awareness, knowledge and attitudes towards sun protection among patients with melanoma and atypical mole syndrome

Sun protection perception in melanocytic lesions

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Abstract

BACKGROUND

Patients with atypical mole syndrome (AMS) have a 3- to 20-fold higher risk of developing malignant melanoma (MM) than individuals without. The most modifiable risk factor for developing malignant melanoma (MM) is the ongoing ultraviolet (UV) exposure.

AIM

To assess awareness, knowledge and attitudes towards sun protection among patients with malignant melanoma (MM), atypical mole syndrome (AMS) and a control group.

METHODS

From January 2020 till December 2021 a written survey was administered to patients with MM, AMS and a control group who attended a specialist mole clinic at the Dermatology Department of the University Hospital of Heraklion in Heraklion, Crete, Greece. Demographic data and photoprotective practices, knowledge and perceived barriers were collected. Relevant statistics using SPSS IBM 25 were performed.

RESULTS

In total 121 consented and participated in the survey. Their mean age was 43.92 (SD±12.55). There were 66 (54.4%) females and 55 (45.4%) males. 47 (38.8%) patients had atypical mole syndrome (AMS), 26 (21.5%) a past medical history (PMH) of malignant melanoma (MM) and 48 (39.7%). Although 104 (86%) participants reported using sunscreen with the majority of them, (59/121=48.8%) wearing SPF >50, only 22 (18.2%) patients did so every day and only 20 (16.5%) all year round. 74.4 % of patients recalled having received advice on how to protect their skin from sunlight. 73% were interested in receiving education about sun protection. The most mentioned barriers in photoprotection were concerns over adequate vitamin D and lack of time.

CONCLUSION

Despite mentioning having received adequate education in photoprotection, adherence to photoprotection practices is suboptimal in patients with MM and AMS.

Key Words: atypical mole syndrome (AMS); dysplastic naevi; malignant melanoma; photoprotection; skin cancer

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Core Tip: There are no previous studies assessing awareness, knowledge and attitudes towards sun protection among patients with malignant melanoma (MM) and atypical mole syndrome (AMS). Our study highlights the importance to raise awareness regarding photoprotection in patients with MM and AMS to prevent skin cancer.

INTRODUCTION

The term atypical mole syndrome (AMS) refers to people who have multiple naevi (> 100), including some naevi larger than 8 mm in diameter with atypical features [1,2]. Patients with AMS have a 3–20 times higher risk of developing malignant melanoma (MM) than individuals without AMS [3–6]. The most modifiable risk factor for developing MM is ongoing ultraviolet (UV) exposure [7]. Eliminating UV exposure *via* photoprotective practices is an important strategy for reducing MM risk in patients with AMS [8–10].

Through the implementation of a written survey, our aim for this study was to assess awareness, knowledge, and attitudes toward sun protection among patients with MM, patients with AMS, and a control group who attended a specialist mole clinic at the dermatology department of a tertiary hospital in Greece.

MATERIALS AND METHODS

From January 2020 through December 2021, we administered a written survey to patients who attended a specialist mole clinic at the dermatology department of the University Hospital of Heraklion in Heraklion, Crete, Greece. Having approached 140 patients, we obtained consent from 121 patients (a response rate of $121/140 = 86.42\%$). Participants completed the surveys in person, and we included all the data in our analysis.

The specialist mole clinic at the dermatology department of Heraklion is a dedicated clinic for patients at high risk of developing skin cancer, such as those who have a past medical history of MM, non-melanoma skin cancer, or AMS or who have received immunosuppression (e.g., transplant patients). All these patients undergo annual or biannual full skin checkups and receive photoprotection counselling.

The study was approved by the Ethics Committee of the University Hospital and all participants gave consent for inclusion in the study.

Survey contents

The written survey that we administered included basic demographic data, Fitzpatrick skin phototypes, medical histories, comorbidities, and collected information regarding awareness and knowledge of photoprotection measures and current sun-protective practices. Participants were asked to report any difficulties that discouraged them from practicing photoprotective measures. We administered the survey to patients after they received counseling on photoprotection from the dermatology outpatient mole clinic.

Statistical analysis

Descriptive statistics, ANOVA, Kruskal-Wallis, t tests and Pearson correlations tests were performed using SPSS version 25.0.

RESULTS

Demographic data

Of the 140 patients we approached who attended the specialist mole clinic at the Dermatology Department of the University Hospital of Heraklion in Heraklion, Crete, Greece, from January 2020 until December 2021, 121 consented to and participated in the study, making our response rate 121/140. Their mean age was 43.92 (SD \pm 12.55). There were 66 (54.4%) females and 55 (45.4%) males. Forty-seven (38.8%) patients had AMS, 26 (21.5%) had a past medical history (PMH) of MM, and 48 (39.7%) attended the clinic for a full skin checkup for their naevi without having AMS or MM. The main demographic and clinical characteristics of these 121 patients are summarized in Table 1. There were no statistical differences found among the three groups of patients or for the following demographics and clinical characteristics: age; gender; employment status; educational level; Fitzpatrick skin phototype; BMI; eye and natural hair color; smoking status; leisure and occupational sun exposure; significant time spent outdoors; and mean weeks of vacation spent before the age of 10, from the ages of 11 to 18, and after the age of 18. There was a significant statistical difference among the three groups regarding history of sunburn before the age of 18, with a p value < 0.001. As expected, patients with a PMH of MM more frequently had a history of sunburn before the age of 18 than the group with AMS and the control group.

DISCUSSION

To the best of our knowledge, we have here presented the first study of its kind describing demographic and clinical characteristics and assessing awareness, knowledge, attitudes, and barriers toward photoprotective practices among patients with MM and AMS and a control group. We conducted our study in the city of Heraklion, in Crete, Greece, which has a very high ultraviolet index and a significantly homogeneous population. Limitations of our study include the small sample of patients and the single-center location.

Our evidence indicates that adapting effective photoprotective practices, such as the daily use of high SPF sunblock, wearing a broad-brimmed hat and a long-sleeved shirt, and avoiding sun exposure between the peak hours of 10:00 a.m. to 4:00 p.m. protect

against the development of skin cancer [8–12]. Therefore, assessing photoprotective education and attitudes and providing sun protection education is both important and effective in preventing skin cancer, especially in areas with high ultraviolet indexes such as Crete, Greece.

Our survey highlighted that although most of the patients use sunscreen (104/121 = 86%), and half of them (57/121 = 47.1%) use an SPF of greater than 50, only a small proportion of them (22/121 = 18.2%) apply it daily, and the majority (84/121 = 69.4%) apply it only during the summer. Many participants reported never having worn a broad-brimmed hat (38/121 = 31.4%), a long-sleeved shirt, or long pants (29/121 = 24%) to protect themselves from sunlight. There was no statistical difference among the three groups regarding sun protection practices.

Most of the patients (90/121 = 74.4%) recalled having received advice on how to protect their skin from sunlight. This shows ³ high recall of receiving photoprotective education (this number has varied from 27.5% to 96% in previous papers). Our survey highlights that, despite recalling having received adequate photoprotection education, the implementation of sun protective practices in all three groups remained suboptimal. Our study showed that adherence to photoprotective practices did not correlate with education level. Previous studies have documented that a lack of post-secondary education was correlated with a reduced adoption of sun protective behaviors [13–18]. Several barriers regarding photoprotection have been reported in the literature. In our cohort, the three most-cited barriers were “concerns over adequate vitamin D” (35/121 = 28.9%), “hassle/Lack of time” (27/121 = 22.3%), and “cost/financial concerns” (19/121 = 15.7%). Only the barrier “lack of time” was consistent with previous studies [19–23].

We also found that 72.7% expressed interest in receiving photoprotection advice from a health-care worker and 61.2% from multimedia sources. This indicates that patients might prefer receiving verbal advice from a health-care professional, and that electronic devices might also play a crucial role in relevant education [24–27]. However, the use of

multimedia methods in educating people on photoprotective practices may be inefficient for older patients.

Our study has both strengths and limitations. A dermatologist assessed all participants, and the questionnaire was not only self-reported but also the patient and the dermatologist completed the questionnaire together at the same time. The dermatologist, who examined the patient, gave more accurate data. Furthermore, the design of our study involves consecutive patients who were recruited during a specific timeline. Limitations include the small sample of patients and the single-center hospital-based nature of the study. We recruited patients and controls consecutively from a tertiary referral mole clinic who were dermatology department patients. These patients might be more motivated toward skin cancer prevention knowledge and photoprotection measures, which may limit the generalizability of our results.

CONCLUSION

Considerable efforts should be made to raise awareness regarding photoprotection practices with the aim to prevent skin cancer in patients with MM and AMS.

ARTICLE HIGHLIGHTS

Research background

Patients with atypical mole syndrome (AMS) have a 3- to 20-fold higher risk of developing malignant melanoma (MM) than individuals without.

Research motivation

The most modifiable risk factor for developing malignant melanoma (MM) is the ongoing ultraviolet (UV) exposure.

Research objectives

To assess awareness, knowledge and attitudes towards sun protection among patients with malignant melanoma (MM), atypical mole syndrome (AMS) and a control group.

Research methods

A written survey was administered to patients with MM, AMS and a control group who attended a specialist mole clinic in Heraklion in Greece.

Research results

In total 121 participated in the study. Their mean age was 43.92 (SD±12.55). There were 66 (54.4%) females and 55 (45.4%) males. 47 (38.8%) patients had atypical mole syndrome (AMS), 26 (21.5%) a past medical history (PMH) of malignant melanoma (MM) and 48 (39.7%). 104 (86%) participants reported using sunscreen. 74.4 % of patients recalled having received advice on how to protect their skin from sunlight. The most mentioned barriers in photoprotection was concerns over adequate vitamin D and lack of time.

Research conclusions

Despite mentioning having received adequate education in photoprotection, adherence to photoprotection practices is suboptimal in patients with MM and AMS.

Research perspectives

Larger prospective studies could be performed comparing awareness, knowledge and attitudes towards photoprotection among patients with malignant melanoma (MM) and atypical mole syndrome (AMS) before and after receiving education in photoprotection.

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