International Journal of Medical Science and Clinical Invention 5(09): 4052-4055, 2018
DOI:10.18535/ijmsci/v5i9.04 **ICV 2016: 77.2**
e-ISSN:2348-991X, p-ISSN: 2454-9576

Research Article

The Effects of Sun Protectıon Behavıours on Actınıc Keratosıs in Older People

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Abstract:

Background: Sun protection is essential to prevent skin cancers. The aim of this study was to determine sun protection behaviour and its role as a risk factor with other risk factors in the development of actinic keratosis in older population.

Methods: In total, 50 patients with actinic keratosis and 50 similar controls in terms of age, sex and education were enrolled in the study. Each participant was examined carefully by two dermatologists for the presence of actinic keratosis and determining risk factors. Standardized mini mental test, sociodemographic characteristics questionaire, sun protection questionaire were used in the study.

Results: The risk of actinic keratosis development was higher in the cases having more than three frecles on face and fair skin color (OR: 4, p=0.045 and OR:3, p=0.041 respectively). The ratio of using wide-brimmed hat to protect from the sun in controls (58%) was higher than cases with actinic keratosis (32%) (p=0.015). The presence of actinic keratosis affects the variation of sun protection behavior by 15% (p=0.01).

Conclusions: Fair skin types and the presence of freckles on the face are risk factors on the development of actinic keratosis. Independently of the presence of actinic keratosis, elderly peoples does not have enough sun protection awareness and/or behaviour.

Keywords: Actinic keratosis; sun protection; behaviour; older people; awareness

Introduction

Ultraviolet (UV) radiation plays an important role in the pathogenesis of various forms of skin cancer (1). Nonmelanoma skin cancer (NMSC) is one of the most frequent cancer types (2, 3). The main risk factor for NMSC is excessive and long term exposure to solar ultraviolet radiation (4). As with other types of cancer, skin cancer incidence increases with age. Actinic keratosis is one of the most common skin lesions leading to an increased risk of developing squamous cell carcinoma. Actinic keratosis occurs in skin chronically exposed to ultraviolet radiation. Even though today the risk of an AK's progression to invasive SCC is unclear, the rate varies from the lowest 0,1% to the highest as 20%. For a patient affected by multiple AK lesions, the risk to develop an invasive cutaneous SCC is between 0.15% and 80%. It is very prevalent in fair skin persons, and the prevalance increase with an aging population (5, 6).

The easiest way to prevent skin cancer is to promote sun protection behavior in risky populations. Although there are some studies regarding sun protection behaviour in different populations, including travellers and patients with basal cell carcinoma, limited information is available regarding sun protection behaviour in elderyl people (7, 8).

Sun protection education may be different culturally and geographically. Therefore, it is important that sun protection habits and behaviours are known by different age groups in different populations. The elderly population is the group with the least number of studies and information on this subject and there is no data in our country.

Actinic keratosis may be regarded as the result of sun protection behaviour. Our aim was to determine sun protection behaviour and its role as a risk factor with other risk factors in the development of actinic keratosis in older population.

Patients and Methods

The study was planned as a case-control study and was approved by the Human Ethics Committee of Cumhuriyet University School of Medicine and was carried out in Dermatology outpatient clinic. Informed and written approval form was taken from the individuals who constituted the patient and control group.

The study data was collected between September 2014-December 2014 in dermatology outpatient clinic. Patients older than 65 years who applied to the dermatology polyclinic were randomly assigned to dermatological examinations. 50 patients with actinic keratosis and 50 similar controls in terms of age, sex and education were enrolled in the study. Patients who previously had diagnosed actinic keratosis were not included in the study.

Three questionary forms were used in the study; standardized mini mental test (SMMT) (9), sun protection questionnaire (SPQ) and sociodemographic questionnaire form.

SMMT is an easy-to-use test to evaluate the cognitive functions of the patients. SMMT can evaluate orientation, attention, memory, motor skills and language use. The evaluation is based on a total of 30 points. SMMT was administered to the participants and orientation, attention, memory, motor skills and language use were assessed. The participants having >25 points were included in the study.

For the present study, sun protection questionary which has three items of attitude, three items of knowledge and 14 items of behaviour were used.

In sun protection questionaire, given one point for each positive answer, awareness, aknowledge and behaviour was obtained total score. Later, a median value for SPQ was calculated and a dichotomy for SPQ was applied according to this median value.

Each participant was examined carefully by two dermatologists for the presence of actinic keratoses and determining risk factors. Actinic keratoses were diagnosed with clinically rough red scaly patches on chronically sun-exposed skin.

The data were evaluated using the SPSS 15.0 package program. Data were analyzed by Pearson chi-square test (Fisher exact test, while n < 5), logistic regression and lineer regression tests. p-value of <0.05 was considered statistically significant.

Results

Sociodemographic characteristics of the cases participating in the study are given in table 1. There were no significant differences between the groups in terms of sociodemographic characteristics (p>0.05).

Table1. Sociodemographic characteristics of patients with actinic keratosis and controls.

Characteristics	Control		Patients		Total		*p
	n	%	n	%	n	%	
Gender							
Male	33	66.0	23	46.0	56	56.0	0.069
Female	17	34.0	27	54.0	44	44.0	
Age							
65-74	40	80.0	32	64.0	72	72.0	0.118
≥75	10	20.0	18	36.0	28	28.0	
Education							
Secondary education and high education	5	10.0	4	8.0	9	9.0	1.000
Primary education and illiterate	45	90.0	46	92.0	91	91.0	
Toplam	50	100.0	50	100.0	100	100.0	

*Chi square

Table 2 shows the results of logistic regression analyzes for risk factor in actinic keratosis, including hair color, eye color, skin type, the presence of common nevus, outdoor work, outdoor hobby, childhood sun burn, baldness, freckles on face, freckles on dorsal hand, familial cancer history, personal cancer history and unfavorable sun protection behavior. According to these results, actinic keratoses are more common in those with fair skin color and in those with more than three freckles on face.

Table2. Multiple analysis results for actinic keratosis risk factors, logistic regression analysis

Reference	Reference	B	S.E.	OR	%95 CI		p
					min.	max.	
Skin type	IV-V type	1.425	0.711	4	1.03	16.74	0.045
Freckles on face	0-3 lesion	1.092	0.536	3	1.04	8.51	0.041

Variables of the model: Hair color (ref: Dark (black, brown), fair (blonde, red); e**ye color (ref:** Dark (black, brown), Fair (blue, green); s**kin type (ref:**Type IV), Type II-III; p**resence of common nevus (ref: No), p**resent; o**utdoor occupation (ref: No),** yes; **outdoor hobby (ref: no),** yes**;** b**urn in childhood (ref: no), y**es; b**aldness (ref: yes), n**o; f**reckles on face (ref:** 0-3 lesions), 4 and more lesions; f**reckles on scalp (ref: 0**-3 lesions), 4 and more lesions; **freckles on the dorsal hands (ref: 0**-3 lesions), 4 and more lesions; **family history of skin cancer (ref: No),** yes; **personal history of skin cancer (ref:**

no), yes; **sun protection behaviour point (ref.:** 4 and more puan), **0**-3 point.

Table 3 shows that the rates of the attitude, knowledge and behaviour of sun protection in both groups.

Table 3. Sun protection in patients and controls

Characteristics	Controls (%)		Patients (%)		Total		*p
	Yes	No	Yes	No	Yes	No	
Sun protection attitude							
Sun has harmful effect.	18.0	82.0	34.0	66.0	26.0	74.0	0.110
We need sun protection.	22.0	78.0	34.0	66.0	28.0	72.0	0.265
It is difficult to avoid from the sun.	14.0	86.0	10.0	90.0	12.0	88.0	0.760
Knowledge about sun protection							
I received information about sun protection before	18.0	82.0	20.0	80.0	19.0	81.0	1.000
I know the harmful effects of the sun.	32.7	67.3	30.6	69.4	31.6	68.4	1.000
I know the protection factor of sunscreen.	0.0	100.0	4.0	96.0	2.0	98.0	0.495
Sun protection behaviour							
I protect myself from the sun.	8.0	92.0	22.0	78.0	15.0	85.0	0.091
I stay outside on sunny day in summer.	98.0	2.0	88.0	12.0	93.0	7.0	0.112
I protect myself in intense sun light.	20.0	80.0	40.0	60.0	30.0	70.0	***0.049***
When I go out, I use high filter sunglasses.	6.0	94.0	18.0	82.0	12.0	88.0	0.121
When I go out, I use wide-brimmed hat for protection.	58.0	42.0	32.0	68.0	45.0	55.0	***0.015***
When I go out, I use an umbrella to protect.	6.0	94.0	10.0	90.0	8.0	92.0	0.715
I do not go out during hours when the sunlight is intense.	42.0	58.0	56.0	44.0	49.0	51.0	0.230
I use protective clothing in sunny days.	2.0	98.0	28.0	72.0	15.2	84.8	***0.000***
When I go out in sunny days, I would prefer to stay in the shade.	49.0	51.0	62.0	38.0	55.6	44.4	0.228
When I go out in sunny days, I use sunscreens.	4.1	95.9	6.0	94.0	5.1	94.9	1.000
I use sunscreens 15 minutes before going out.	0.0	100.0	4.0	96.0	2.0	98.0	0.495
I re-apply the sunscreen every three hours a day.	0.0	100.0	4.0	96.0	2.0	98.0	0.495
If I sweat a lot, I re-apply the sunscreen.	0.0	100.0	4.0	96.0	2.0	98.0	0.495
If I wash my face, I re-apply the sunscreen.	0.0	100.0	4.0	96.0	2.0	98.0	0.495

*Chi Square

Table 4 shows that a lineer regression analyses for the factors affecting sun protection behaviour. According to these results, the presence of actinic keratosis affects the variation of sun protection behavior by 15%.

Table 4. Factors affecting sun protection behavior, linear regression analysis

	B	S.E.	β	%95 CI		p
				min	max	
Actinic keratosis	1.335	0.501	0.301	0.336	2.335	**0.01**

R Square = 0,392 (Adjusted R Square = 0,153)

Variables of the model: Age, gender (ref:male**),** woman**; actinic keratosis (ref:** no**),** yes; s**kin type** (**ref**: type IV), type II, III; **education (ref**:primary education and upper), under primary education.

Discussion

Amongst the general population, the most important problem in sun protection is the compliance difficulty. Different populations, including children, adults, men or women, may show a different sun protection pattern of behaviour. Older people is also special population in

terms of sun protection awareness and behaviour, and the information in this issue is limited. In the present study, we demonstrated that older people with/without actinic keratosis dido not have enough information about sun protection behaviour.

The use of wide-brimmed hats, protective clothing and seeking shade as measure of sun protection increase with adults age (10). The controls in our study use wide-brimmed hats to protect from the sun. This habit may be the reason why

actinic keratoses are less common in the control group. Although the cases with actinic keratosis wear protective clothing from the sun compared to the controls, what they mean by protective clothing may be clothes that do not cover hands and scalps. This may be the reason why actinic keratosis is still occured on the scalp and dorsal hands in the group with actinic keratosis.

The cases in both groups also expressed that they preferred to stay in the shade in sunny days, but all the cases reported that they did not use sunscreen. In the cases with actinic keratosis, the positive response to the proposal of " I protect myself in intense sunlight" suggests that older people have awareness of sun protection, but they could not reflected their awareness into behaviour. Even a little awareness, partially reflected in behavior in both groups, may prevent the development of actinic keratosis to some extent.

Chronic exposure to ultraviolet radiation is the most important risk factor for the development of actinic keratosis. It is also possible to reduce actinic keratosis lesions with an effective sun protection (11). In the absence of sun protection awareness and/or behaviour in older population, skin type have obvious impacts on the development of the harmful effects of the sun. In both study groups, there is no difference in the behavior of sun protection, except for the use of wide-brimmed hats. Therefore, skin type have facilitated the development of actinic keratosis. Indeed, increased freckles on the face should be accepted as another result of intense sun exposure in older population.

The results of our study also suggest that other risk factors may also be important in terms of malignancy development in the actinic keratosis group, because there is no obvious difference between sun protection behavior in our study groups.

Independently of the presence of actinic keratoses, all elderly peoples in our study does not have any sun protection awareness and/or behaviour, except for some information about sun protection, which is not enough. The use of sun protection behaviours among this sample group is rather low. In the elderly people, the awareness of sun protection needs to be transformed into sun protection behavior. In elderly people, the awareness of sun protection needs to be increased and transformed it into behavior. Therefore, the development of training programs to raise sun protection awareness and behaviour in elderly people is an important requirement in our population. These findings may help to provide the development of sun protection communication strategies targeting elderly people. Because actinic keratosis may heal with effective sun protection, even though the elderly people had been exposed to the sun for as long as they are, it is important to the development of elderly education programs in the sun protection. By establishing an accurate and adequate sun protection behaviour in elderly people, the development of squamous cell carcinoma may also be prevented.

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