

# SURVEY OF A 10-YEAR INCIDENCE OF NON-MELANOMA SKIN CANCER IN IRAN, A CLINICOPATHOLOGICAL STUDY

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*Abstract—This study was carried out as a pilot project in Imam-Khomeini, a teaching general hospital mainly dealing with cases of reconstructive surgery. The age of onset, geographical distribution, histologic type and other features of skin cancer in Iran were determined. The most common neoplasm in both sexes was BCC. The age group of 65 and over had higher rate of acquired skin cancers. East Azarbaijan province had the highest number of patients. Acta Medica Iranica 33 (3&4): 34-37; 1995*

*Key words: basal cell carcinoma; squamous cell carcinoma; melanoma; Kaposi's sarcoma; radiation dermatitis; ultraviolet radiation (UVA and UVB)*

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## INTRODUCTION

Skin cancer is particularly common in countries with abundant sunshine. Our Islamic country is one of the arid and subtropical regions of the world and in view of the fact that the majority of its population are from rural areas (with considerable exposure to sunlight) skin cancer is observed quite frequently. Of this rural population, farmers who spend much of their time outdoors, are remarkably prone (more than any other occupational group) to develop skin cancer, as a consequence of UV exposure. In the study carried out in Khorasan province (1), over 90 percent of patients lived in rural areas or had a low socioeconomic status. This study was undertaken to determine the age of onset, geographical distribution, histologic type and other features of skin cancer in Iran. Furthermore, since most of the afflicted individuals present quite late in the course of the disease and the mortality and morbidity rates become astonishingly high, this preliminary study deserves due attention from a preventive and public health viewpoint.

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## MATERIALS AND METHODS

A total number of 1000 biopsy-proven skin cancers patients referred to Imam-Khomeini General Hospital for reconstructive surgery in the last 10 years, were studied. Age, incidence, histological type, and geographic distribution of skin cancer, plus occupations of patients were extracted.

## RESULTS

The age incidence of skin cancer for both sexes is provided in Table 1. The youngest patient was 15 years old and the oldest, over 65. The majority of male patients were farmers whereas the female patients were mainly housewives (Table 2). Geographical distribution is given in Table 3. Most of male patients came from East Azarbaijan, while those from Gorgan region were lowest in number. Female patients had similar distributions. The most common neoplasm in both sexes was basal cell carcinoma, whereas Kaposi's sarcoma and dermatofibro sarcoma were the least prevalent (Table 4).

## DISCUSSION

As shown by other studies (2,3,4) skin cancers are most common in Iran. Results obtained in the present study is in agreement with those reported in Australia (6) and the U.S. (6). A very interesting finding, which is seldom mentioned in western medical literature is the fact that a significant number of patients who had radiotherapy as a treatment modality for favus, developed cutaneous cancer as a complication of late radiation dermatitis (8). After basal cell carcinoma, squamous cell carcinoma is the second most common form of cancer in Iran.

Because skin cancer is the most common type of malignancy in human beings and the fact that it is completely curable in the earliest stages, the importance of prompt diagnosis is obvious. There are various

**Table 1.** Age incidence of skin cancer in both sexes.

Age group	Number of male (%)		Number of female (%)		Total (%)	
15-19	2	(0.96)	1	(0.68)	5	(1.40)
20-24	9	(4.34)	3	(2.05)	12	(3.39)
25-29	8	(3.86)	8	(5.47)	16	(4.53)
30-34	7	(3.38)	4	(2.73)	11	(3.11)
35-39	13	(6.28)	4	(2.73)	17	(4.81)
40-44	15	(7.25)	13	(8.90)	28	(7.93)
45-49	15	(7.25)	11	(7.53)	26	(7.36)
50-54	31	(14.96)	22	(15.06)	53	(15.01)
55-59	1	(0.48)	11	(7.53)	30	(8.49)
60-64	39	(18.84)	30	(20.54)	69	(19.54)
65 or older	48	(23.18)	37	(25.34)	85	(24.04)
undetermined	1	(0.48)	0	(0)	1	(0.28)
Total	207	(100)	146	(100)	353	(100)

**Table 2.** Patients' occupation with respect to sex<sup>a</sup>.

Occupation	Number of male (%)		Number of female (%)		Total (%)	
Farmer	212	(69.97)	23	(5.56)	235	(32.78)
Housewife	0	(0)	377	(91.06)	377	(52.58)
Shopkeeper	37	(12.21)	3	(0.72)	40	(5.58)
Shepherd	8	(2.64)	0	(0)	8	(1.12)
Builder	15	(4.95)	0	(0)	15	(2.09)
Office worker	8	(2.64)	3	(0.72)	11	(1.53)
Tradesman	12	(3.96)	0	(0)	12	(1.67)
Student	3	(0.99)	8	(1.94)	11	(1.53)
Truck driver	8	(2.64)	0	(0)	8	(1.12)
Total (determined)	303	(100)	414	(100)	717	(100)
Undetermined	283	(48.29)	0	(0)	283	(28.30)
Total number of cases	586		414		1000	

<sup>a</sup>In the beginning of the project the outpatient department was receiving only male patients, thus there were no data for the female patients in that period.

etiologies for nonmelanoma skin cancers such as, 1) UV-rays, 2) chemical carcinogens (like arsenic), 3) x-rays, 4) viruses (human papilloma v., human T-cell leukemia/lymphoma v.), 5) immunodeficiency, 6) chronic inflammation, and 7) inherited skin disease (albinism, xeroderma pigmentosum). There are different steps in producing a cancerous cell with metastasizing potential, which can be blocked in some situations. These recognized steps are: 1) Initiation, 2) Promotion, and 3) Progression. Topical application or systemic use of polycyclic hydrocarbons such as tar, anthracene, paraffin and emollient oils can play as "Initiator" by attaching to nucleotide and affecting normal DNA synthesis. The "Initiation" is not reversible and there is a mutation of

code 61 in Hay Ras genes. The "Promotion" step is reversible and skin changes may disappear after discontinuation of contact. UV-rays are complete carcinogens and have "Initiator" and "Promoter" roles in humans. The most important UV-rays are those with 290-320 nm wavelength (UVB) that are absorbed by ozone layer, glass or water vapour. UV-rays by producing a special suppressor T-cell lineage can suppress delayed hypersensitivity reaction and cause tumor spreading. Free radicals derived from UV-rays can probably damage DNA. In lymphoma, leukemia, myeloma, and transplanted patients, skin cancer is more frequent. Basal cell carcinoma is the most frequent skin cancer in the whites and is usually seen in the exposed

**Table 3.** Geographic distribution of skin cancer in Iran.

Region	Number of male (%)		Number of female (%)		Total (%)	
East Azarbaijan province	48	(23.18)	35	(23.97)	83	(23.52)
Tehran Metropolis	29	(14.00)	23	(15.75)	52	(14.74)
Markazi province	28	(13.53)	19	(13.01)	47	(13.33)
Lorestan province	13	(6.78)	10	(6.84)	23	(6.52)
Kerman and Yazd provinces	13	(6.28)	8	(5.27)	21	(5.94)
Isfahan province	11	(5.32)	8	(5.47)	19	(5.38)
Khorasan province	11	(5.32)	7	(4.79)	18	(5.09)
Gilan province	10	(4.84)	6	(4.10)	16	(4.54)
Mazandaran province	11	(5.32)	4	(2.73)	15	(4.24)
Kermanshah and Kordestan provinces	8	(3.87)	6	(4.10)	14	(3.96)
Hamadan province	6	(2.89)	4	(2.73)	10	(2.84)
Khozestan and Hormozgan provinces	2	(0.96)	4	(2.73)	6	(1.69)
West Azarbaijan province	3	(1.44)	3	(2.5)	6	(1.69)
Gorgan	1	(0.49)	0	(0)	1	(0.29)
Visiting Iranians	3	(1.44)	3	(2.05)	6	(1.69)
Undetermined	10	(4.83)	6	(4.10)	16	(4.53)
<b>Total</b>	<b>207</b>	<b>(100)</b>	<b>146</b>	<b>(100)</b>	<b>353</b>	<b>(100)</b>

**Table 4.** Histological type of skin cancers in both sexes.

Histological type	Number of male (%)		Number of female (%)		Total (%)	
Basal-cell cancer	432	(73.72)	368	(88.89)	800	(80.00)
Squamous-cell cancer	142	(24.24)	43	(10.39)	185	(18.50)
Malignant melanoma	6	(1.02)	0	(0)	6	(0.60)
Mycosis fungoides	3	(0.51)	0	(0)	3	(0.30)
Dermatofibro sarcoma	3	(0.51)	0	(0)	3	(0.30)
Kaposi's sarcoma	0	(0)	3	(0.72)	3	(0.30)
<b>Total</b>	<b>586</b>	<b>(100)</b>	<b>414</b>	<b>(100)</b>	<b>1000</b>	<b>(100)</b>

areas to the sunlight and has different clinical types (10) such as: 1) noduloulcerative (45%), 2) superficial (35%), 3) pigmented (1%), 4) morphea like (9%), 5) infiltrative (8%), 6) pinkus fibroepithelial tumor, and 7) linear (very rare). BCC can metastasize via lymphatics and veins (11) to regional lymph nodes, liver, lungs and bones, and should be distinguished from SCC, solar keratosis, keratoacanthoma, melanoma, keloid, seborrheic keratoses, pyogenic granuloma, Bowen's disease, dermatofibroma, and skin appendages tumors. SCC is usually seen in sun-damaged skin and its origin is keratinocytes. Various clinical forms or related conditions of SCC are, 1) in situ type, 2) Bowen's disease, 3) verrucous, 4) actinic keratosis, 5) cutaneous horn, 6) leukoplakia, 7) erythroplakia, and 8) keratoacanthoma. SCC can metastasize to regional lymph nodes, bones, brain, lungs, skin of vulva, glans penis, anus and oral

mucosa. There are four skin cancer biopsy techniques. We use shave biopsy for superficial and noduloulcerative BCC and punch; excisional or incisional biopsy for other types. Therapeutic methods for skin cancer are curettage cauterization, laser vaporization, excision by Moh's method, cryosurgery, chemotherapy, radiotherapy, and immunotherapy.

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