

# An Epidemiologic Study on Basal Cell Carcinoma and its Related Risk Factors in Patients Referred to Razi Hospital Tumor Clinic in Autumn 2005-2006

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## Abstract

**Background:** Basal cell carcinoma (BCC) is the most common cutaneous malignancy. UV light is an important risk factor for BCC, as well as X-ray and other ionizing radiations. The aim of this study was evaluation and risk factor assessment of BCC cases referred to Razi hospital tumor clinic.

**Methods:** Patients referred from general clinics with skin biopsies consistent with Basal Cell Carcinoma were enrolled. A questionnaire including epidemiologic data, risk factor exposure and specification of skin lesions was completed for each patient.

**Results:** From October 2005 to October 2006, a total of 476 patients with cutaneous malignancy referred to Tumor clinic of Razi hospital. Of them, 367 patients had BCC. 215 were male (58%) and 152 were female (42%). Mean age of patients was 62 ( $\pm 12.7$ ) and 62 ( $\pm 13.4$ ) years for men and women, respectively. The most common risk factors for BCC were radiotherapy and chronic sun exposure. The most common tumor sites were scalp, nose and ears. Of different clinico-pathologic types, nodulo-ulcerative type was the most common.

**Conclusion:** It seems that radiotherapy is an important risk factor in Iranian BCC patients and it is useful to have a screening program for case finding and treating patients in early stages. (*Iran J Dermatol* 2008;11:73-75)

**Keywords:** basal cell carcinoma, risk factor, radiotherapy

## Introduction

Basal cell carcinoma (BCC) is the most common skin malignancy in humans. This tumor is more common in males and is often seen between 40 and 60 years of age<sup>1-3</sup>. Sun light is the primary etiologic factor but also other agents such as genetic background, occupation, and especially exposure to ionizing irradiations (childhood radiotherapy) and chemical pollutions such as Arsenic salts have been confirmed as etiologic factors<sup>3-5</sup>. Since different therapeutic methods are available with non equal results and the fact that selection of treatment modality depends on tumor site as well as other parameters such as age and pathologic differentiation, it is useful to know the prevalence of BCC lesions in different anatomical body sites and age groups. Tumor clinic of Razi

Hospital has many visitors from all parts of the country; hence, results of this survey can be extended to the whole population with a good approximation.

## Patients and Methods

This descriptive study was carried out in 1 year from autumn 2005 to autumn 2006. Included patients were visitors from general dermatology clinics whose BCC was confirmed after clinical examination and skin biopsy and were then referred to the tumor clinic for complementary investigations and treatment.

A total of 476 patients referred to the Tumor clinic in the period of the study. Of them, 367 (78%) had BCC. All epidemiological data such as age, gender, occupation, history of radiotherapy especially in childhood, exposure to chemical

agents and history of PUVA therapy were documented in appropriate questionnaires. Also, accurate anatomical site of the lesions, number of lesions per patient, and clinico-pathology of lesions (pigmented, nodular, morphoecic and superficial BCC) were documented.

In the end of the study period, all recorded data was analyzed using SPSS version 13 and descriptive statistical results were presented as mean, standard deviation, and frequency table.

## Results

From 476 referred patients to the Tumor clinic, 367 (78%) had BCC. Of these patients, 215 (58%) were male and 152 (42%) were female with an aspect ratio of 1.4/1. Mean age of the patients was 62 ( $\pm 12.7$ ) and 62 ( $\pm 13.4$ ) years for men and women respectively. The highest prevalence rate of acquisition was in the 8th decade of life (30 %). More than 97% of all lesions were situated on head and neck, and the most common sites in a descending order were scalp, nose, ears and cheeks. Total number of tumors was 466 (1.2 lesions per patient) and of them only 18 were out of head and neck territory (table 1).

Among BCC lesions, 147 were nodulo-ulcerative, 124 were superficial, 95 were nodular, 67 were pigmented, 20 were morphoecic and 13 were baso-squamous.

Of these 466 lesions, 405 were primary tumors (86%) and 61 (14%) were recurrence of previously treated lesions. three cases had established Xeroderma pigmentosum and one was confirmed to have Gorline syndrome.

Potential risk factors were guessed as agricultural and gardening occupation in 105 cases, radiotherapy in 120 cases, contact with oil and other chemical materials in 22 cases, Arsenic salts in five cases and exposure to radio-active substances

and immunosuppressive drugs (each one in three cases), mining in two cases, exposure to poly-cyclic hydrocarbons in two cases and PUVA therapy in one case. Non specific risk factors probably were responsible in other 24 cases.

## Discussion

BCC is the most common skin tumor<sup>6</sup>. It has different clinical forms such as superficial, nodular, pigmented, morphoecic and ulcerative. Many different etiologic factors have been related to this disorder including excessive sun exposure especially in childhood and in subjects with red hair or fair skin with minimal tanning ability<sup>7,8</sup>, immunosuppression<sup>9</sup>, Arsenic salts<sup>5</sup>, and ionizing radiation especially childhood radiotherapy (such as treatment of tinea capitis with X-ray in the past decades)<sup>10-12</sup> and 20 . BCC is the most common skin malignancy in subjects with chronic radiodermis<sup>13</sup>.

Different studies have shown that BCC is more common in males than females<sup>14,15</sup>. Our study confirms such preponderance of males (58% vs. 42%) and this is probably related to the type of clothes used by Iranian females and their sun shaded work place. Mean age of patients in the present study was 62 years that is slightly lower than European studies with a mean age of about 72 years<sup>16</sup>. This is probably due to long lasting unprotected sun exposure, more intensity of sun rays in our country and perhaps the most important, and childhood X-ray scalp irradiation in order to treat tinea capitis in the past decades in Iran. In our study, radio-therapy was the most common risk factor for the acquisition of BCC. The most common sites of tumors were scalp with 123 cases, nose with 116 cases, ears with 43 cases and cheeks with 42 cases in a descending order which is in agreement with other published data<sup>17</sup>. Upper lip involvement in our data was three times more common than lower lip and inner eye cantus was involved four times more than lateral cantus and these interesting differences are confirmed in other studies<sup>17,18</sup>. In the present study, radio-therapy was the most common risk factor for BCC. Concerning this fact that radio-therapy induced tumors are more aggressive and need to be treated more radical<sup>19-20</sup>, screening programs to find subjects with a history of childhood radiotherapy and observing them in order to treat their tumors as soon as possible seem necessary. Also other studies are required to confirm our results.

**Table 1:** Diffraction of BCC lesions based on their anatomical site in patients referred to the Tumor clinic of Razi Hospital

Site	Num.	Site	Num.
Scalp	123	Nasolabial	7
Eyelid	17	Neck	9
Ear	43	Upper Limb	7
Forehead	27	Lower Limb	3
Upper lip	8	Ant Trunk	5
Lower lip	3	Post Trunk	3
Chin	8	Genital	0
Nose	116	Nail	0
Inner Cantus	15	Oral	0
Outer Cantus	4	Temple	20
Jaw	6	Cheek	42

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