

ENVIRONMENT AND GENDER INFLUENCE THE LOCATION OF BASAL CELL CARCINOMA

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Abstract. Cutaneous biology advances have led to the expansion of knowledge on the pathogenesis of these tumors. Basal cell carcinoma develops mainly on the face, suggesting that there are specific areas of the skin where target cells have an important role. The study is retrospective, observational. It was conducted in the Dermatology Clinic Emergency County Hospital Constanta, between 01.01.2004 - 31.12.2013. The study included a total of 634 patients treated in the clinic with diagnosis of basal cell epithelioma. We evaluated the following indicators: age, sex, source environment (urban/rural), location of the tumor. The main findings of the study were that, the percentage of patients with basal cell carcinoma with lesions in the open parts of the body (head, limbs) is significantly higher for those living in rural areas compared to those living in urban areas. The study shows that the percentage of men who have carcinoma on the forehead and eye area is higher compared to women, for whom the risk of carcinoma on the cheeks and lips is higher.

Key words:

Introduction

Basal cell carcinoma is a tumor originating from the basal cells of the epidermis and annexes (matrix walls and follicular ostia pilosebaceous). Cutaneous neoplasm arising from pluripotential cells of the epidermis (1) Develop precancerous lesions frequently appears on the skin but apparently free. Basal cell carcinoma is the most common tumor malignant of the skin, accounting for 30 % of all skin cancers and 60-80 % of all skin carcinoma, the ratio CBC/CSC is 3/1-4/1. BCC incidence is steadily growth in the past years is higher in countries such as Australia. The vast majority of basal cell carcinomas occur after the age of 50 and sporadically (2). BCC is the most common cutaneous malignant disease accounting for 30-40 % of all cutaneous malignancies and the trend is increasing in incidence. In Europe the incidence is 150/100,000. In Romania, the number of new cases of skin cancer was, in 2005, of 1,765 new cases. The increased incidence of basal cell carcinoma among those over the age of 50 years is expected considering the factors favoring but lately found increasing incidence among people younger female which raises questions about the causes of basal cell carcinoma (3). For skin cancers, in the county of Constanta, the incidence is between 2.7 during 2011 and a peak recorded in 2008 of 7 new cases/100.000

inhabitants. We note the fact that there is a very high variability of the incidence for this disease during the time period of the study (4).

Can be defined as an epithelial tumor that develops in the epidermis addition is still confined to the skin and mucous membranes never (2). Basal cell carcinoma metastasis develops only in exceptional circumstances. While the lifetime risk of basal cell carcinoma is high, it is well known to physicians that metastasis is relatively rare. Using the criteria proposed by Lattes and Kessler in 1951, studies have indexed a metastasis rate of 0.0028-0.5 % (5).

Most injuries are easily kept under control through various surgical techniques. However, serious problems can arise to intervene when basal cell carcinoma head in dangerous places. In these regions the tumor can invade deep, causing massive damage to the muscles and bones. In such cases, the bleeding can lead to death by erosion of large vessels or infections (6). Invasions suspicion of loco-regional deep or justify conducting complementary examinations: radiography, ultrasound and especially computed tomography and magnetic resonance depending on location and subcutaneous tissue invasion. Evolution is mostly slow and the prognosis good. Basal cell carcinoma metastasized exceptionally rare (some even challenge metastasis), but therapeutic negligence can lead to profound mutilations of the bodies involved (7).

There are three types of ultraviolet radiation the short wavelength ultraviolet C (100–280 nm), ultraviolet B (290–320 nm), and long wavelength ultraviolet A (320–400 nm). Ultraviolet B is very important in both sunburn and the development of skin cancer. Ultraviolet A is thought to be of increasing importance in the development of skin cancer, and causes tanning but not sunburn. It is also important in people with photosensitivity. The effects of ultraviolet radiation may be classified as short term (sunburn, photosensitivity) or long term (skin cancer, wrinkling, solar elastosis, solar keratoses, seborrhoeic warts) (8). Solar ultraviolet radiation (UVR), in particular ultraviolet B (UVB, waveband 280-315 nm), is a major and significant factor (8 to 23) in many of the carcinogenic steps leading to basal cell carcinomas (5).

Scope

The purpose of the study is to analyze the incidence of basal cell carcinoma based on gender and environmental background and particularities related to the affected areas.

Material and methods

The study is retrospective, observational. It was conducted in the Dermatology Clinic Emergency County Hospital Constanta, between 01.01.2004 - 31.12.2013. The study included a total of 634 patients treated in the clinic who had basal cell carcinoma.

We followed the following indicators:

- age;
- gender;
- area of origin (urban / rural);
- tumor location

Data were entered electronically in a database made with Microsoft Access application and its processing was performed using Microsoft Excel. We used specific methods of descriptive statistics. To determine the statistical significance of the association between factors studied and location of lesions we used chi-square test. The threshold for statistical significance is $p \leq 0.05$.

Results

Of the 634 cases, 333 (52.52 %) were women and 301 (47.81 %) were men (Figure 1).

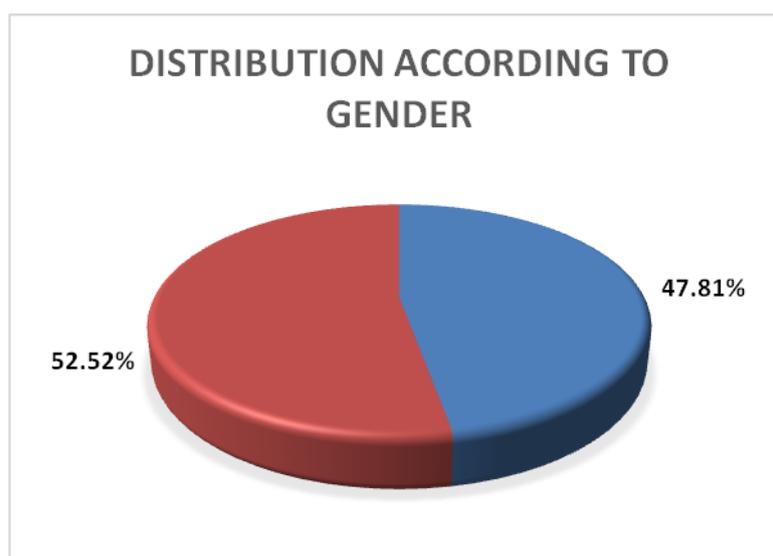


Figure 1 *Distribution according to gender*

Epitheliomas basal frequency increases with age, the incidence is highest in the age groups between 61-80 years. The next group of age, following the frequency is between 41-60 years (Figure 2).

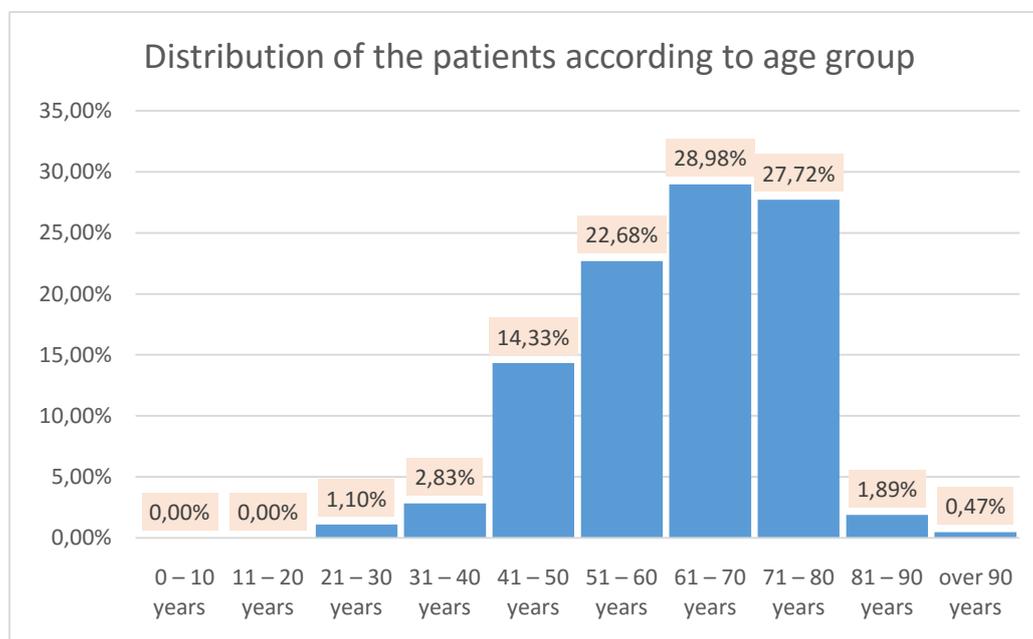


Figure 2 Distribution of the patients according to age group

The percentage of patients who have basal cell carcinomas especially in open areas of the body (head, limbs) is higher for those living in rural areas compared to those living in urban areas, the result is statistically significant ($\chi^2 = 15.145$, $df = 2$, $p = 0.0005$) (Table 1).

Table 1 Distribution of the carcinomas based on patient’s background

Locating	Number of cases urban	Percent (%)	Number of cases rural	Percent (%)	Total
Head	216	83 %	347	92,7 %	563
Torso	36	13,8 %	24	6,41 %	60
Limbs	8	3 %	3	0,80 %	11
Total	260	100 %	374	100 %	634

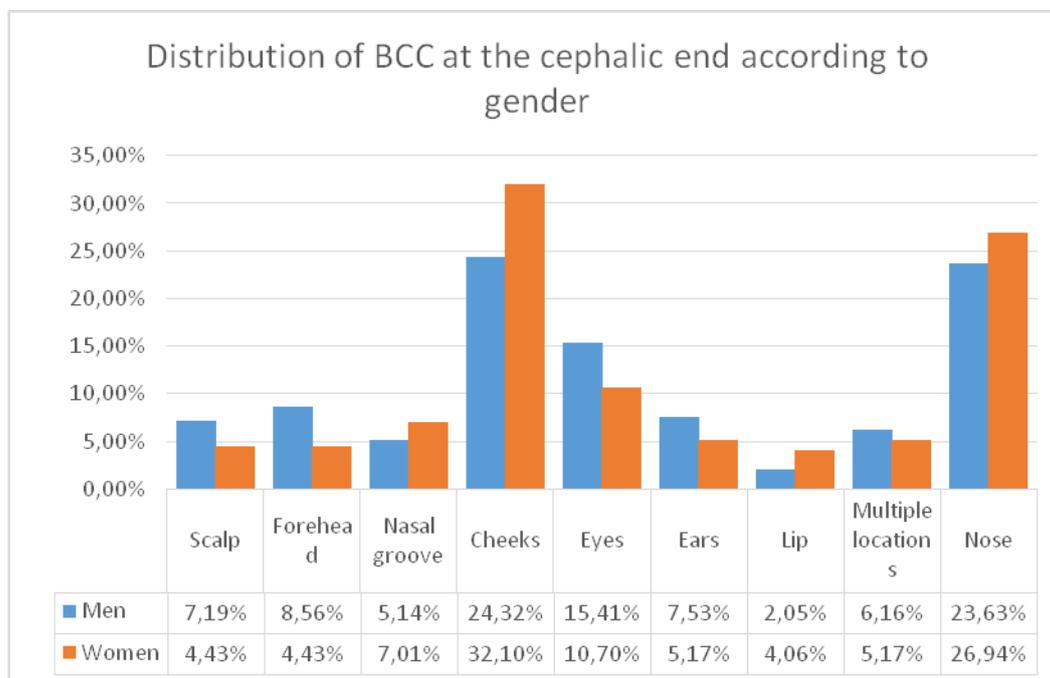
The present study showed no significant differences between men and women in the development of basal cell carcinomas needles on the head, trunk and limbs (Table). ($\chi^2 = 1.056$, $df = 2$, $p = 0.589$).

Table 2 Distribution of the carcinomas based on patient's gender

Location terrain	Men		Women		Total
	Number of cases	Percent (%)	Number of cases	Percent (%)	
Head	292	87,6 %	271	90,0 %	563
Torso	34	10,20 %	26	8,6 %	60
Limbs	7	2,10 %	4	1,3 %	11
Total	333	100 %	301	100 %	634

It has been noted that more than 80 % of all basal cell carcinomas appear on the head and neck; 25 % to 30 % occur on the nose. Rarely are on the backs of the hands, although these areas receive a significant amount of solar radiation. Tumors also occur in areas protected from the sun, such as the genitals and breasts. (9).

Regarding the distribution of the BCC on the cephalic end, the percentage of men who have carcinoma on the scalp, forehead, eyes and ears area is increased compared to women. Instead women increased the potential of carcinomas in the cheeks and lips. The observed differences are statistically significant ($\chi^2=15.672$, $df=8$, $p=0.0473$).



Discutions

Of the 634 cases, 333 (52.52 %) were women and 301 (47.48 %) were male. Therefore, it is observed in the study group a predominance of cases women could be explained by demographic dynamics: it consists of an aging rural population, longevity women top men and the maximum incidence of carcinomas registering older (60-80 years).

Basal cell carcinomas distribution by background shows that locating the head are more common in rural areas, representing approximately 92,7 % of the total carcinomas compared to urban areas 83 % which is probably explained by the intensity of actinic. In fact there are studies that say that ultraviolet radiation can act as initiator, promoter or both of them. (10). It can be assumed that rural predominance is explained by cumulation risk factors: increased sunlight, repeated micro traumatism. Certain categories (farmers, fishermen) carcinomas significance becomes even occupational disease. Instead, the locations of the trunk are more common in urban areas 13,8 % to 6,41 % in rural areas, probable which reflects etiopathogenical intervention of predisposing factors such as: trauma, prolonged skin irritation and opportunity there is a history of iatrogenic factors cumulative (arsenic, X-rays). The predominant role of solar UV radiation in the aetiology of BCC is supported by the consistent observation that clinical signs of chronic sun damage to the skin are the strongest predictors of BCC, despite an overall lack of association between BCC and self-reported chronic sun exposure (11). The strength of these arguments led, in 1992, the International Agency for Research on Cancer, concluded that exposure to sunlight is accompanied by a high carcinogenic risk to humans, having a causative role in the development of NMSC (12).

Differences for distribution to the cephalic end, are statistically insignificant as can be seen from the study of carcinomas by **gender**. Comparing but the incidence in women and men localization on the trunk and limbs is observed that in men, both are higher than women, which is possible due to professions involving activities outdoors, showing intense rays actinic taking into account that these casual attire wearing. It is known that BCC is located on exposure areas, particularly in the upper 2/3 of the face and upper thoracic region (13). Intermittent exposure to sunlight is a significant risk factor. The fact that these basal cell carcinomas frequently develop on the face, particularly the nose, suggesting that there are specific areas of the skin containing a large number of target cells, progenitor cells that play an important role. (14)

Regarding the distribution of basal cell carcinomas by sex at the **cephalic end**, the data obtained confirms the hypothesis inconsistency areas of maximum solar irradiation areas of maxima um frequency of basal cell

epithelioma. For example, in men, the areas of maximum irradiation, therefore most exposed to actinic radiation are: cheeks, eyes, nose, forehead, ears and scalp. The peak incidence observed carcinomas, in descending order, the cheeks (24,32 %), nose (23,63 %) and eyes (15,41 %). This disparity can be explained by the action of other predisposing factors like trauma (men by nature of their having the possibility to make increased accidents and trauma to the face), intervention field seborrhea and association with other chronic lesions of the skin of the face (lupus erythematosus, rinofima, eczema).

The maximum irradiation areas in women are: cheeks, nose, nasal groove and eyes, while the frequency where our stud affected areas are as follows in descending order: cheeks (32,10 %), nose (26,94 %), eyes (10,70 %), nasal groove (7,01 %).

The evolution of basal cell carcinoma differs from one form to another clinic. It generally develops slowly, often years or decades. Once developed basal cell carcinoma, the risk of relapse is high. Occurrence of relapses related to issues such as seniority tumor, incomplete treatment, anatomical peculiarities or age. Metastases are exceptional. (15)

Conclusions

Analysis of the results of the study of 634 patients with various forms of basal cell epithelioma, hospitalized or receiving outpatient Dermatology Clinic Hospital Constanta County Emergency January 2004-31 December 2013 led to the following conclusions:

- It is generally accepted that there are no significant gender differences in the distribution of basal cell epithelioma.
- The material presented in total of 634 patients with squamous, 374 were from rural areas and 260 in urban areas.
- To determine the regions most exposed to the development of basal squamous, I made a regional division of the location of their randomly selected sample consisting of 634 patients. In 88% of cases, the location was in the head, as often in the cheeks, nose, eyes and forehead. Areas with greater health problems are nasal groove, inner corner of the eye and the free edge of the lower eyelid.
- Regarding the share of localization of lesions compared to the two gender, basal cell carcinomas are more common in women unlike men: In 20,21% of cases was the location of the trunk with a male/female ratio of 2.15/1 and with a higher incidence in people from urban areas. The location of the limbs was found in 3,8% of cases.

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20. Color Atlas Of a Skin Diseases. p. 21.

21. Diseases, Color Atlas Of a Skin.

22. s.l.: Basal cell carcinoma is the most common cutaneous malignant disease accounting for 30-40 % of all cutaneous malignancies and the trend is increasing in incidence. The ratio between the incidence of basal cell carcinoma and squamous cell carcinoma is the 4.