

## Basal Cell Carcinoma at the University Dermatoven- erological Clinic of Ljubljana, Slovenia

Non-melanoma skin cancer (NMSC) is the most common of all cancers. BCC represents about 80% of all NMSC thus making it the most common malignancy in the fair skinned population (1). It is more common than all other human malignancies combined (2,3). Incidence of NMSC has been increasing over the past several decades, with an estimated 2.1 million new patients treated in the US in 2006 (2) thus representing an enormous medical and financial burden.

Known risk factors include chronic and intense ultraviolet (UV) light exposure as well as phenotypic characteristics, such as light complexion (4). Common sites are regions that are chronically exposed to sun such as the head, scalp and neck.

BCC is usually not included in cancer registries, which makes estimating the actual prevalence and incidence difficult. In certain regions of Australia an incidence of as high as 2% per year has been reported (5). A cross-sectional study recently found that the worldwide incidence of BCC varies widely with incidence rates as high as >1000/100 000 person-years in Australia and <1/100 000 person-years in parts of Africa (6). The incidence of BCC continues to increase significantly worldwide (7,8,9). The incidence also increases with age. The increased incidence and prevalence can also be attributed to an increased awareness about the disease both among the public and medical practitioners, as well as better access to medical services.

Despite its prevalence, BCC is not often a cause of mortality since it rarely metastasizes. Instead, BCC invades and destroys local tissue, sometimes leading to disfiguring lesions, significant morbidity, and a need for complex surgery (10).

There are different treatment options depending on the location and extent of the disease. The standard treatment is surgical removal with a variable margin of clinically uninvolved surrounding skin (11). Surgery is performed by plastic surgeons or surgeons of appropriate subspecialties according to the location of the lesion. Dermatologists play an

important role in the surgical treatment of BCC. Cryotherapy, photodynamic therapy, radiotherapy, and imiquimod are also used. Recently, molecules targeting the hedgehog signaling pathway have emerged as a possible treatment (10).

So far, there have been no studies on BCC in Slovenia. We thought there was a need to conduct a study to have a look at BCC within our own communities. The data used were from DCL, which is the main dermatological tertiary institution in Slovenia. DCL also has a strong outpatient general dermatology department where patients with BCC are diagnosed and sometimes treated with cryotherapy or imiquimod cream. Patients are sent to the Department of Plastic Surgery or to other surgical specialists for excision. The DCL also has a dermatosurgical department which has been seeing more and more patients in recent years.

The aim of this study was to obtain statistical data about the population treated for BCC in Slovenia, the type and location of BCC, and the types of treatment used.

Data for all patients treated at the DCL are entered in an administrative hospital program, "Hipokrat". The data include a descriptive diagnosis. We wanted to retrospectively examine data for a period of 12 months. The search criterion was the diagnosis of "epithelioma" in the period between January 1 and December 31, 2010.

We then reviewed the files and selected only those patients that had BCC diagnosed during that time period. We included only those patients where the pathohistological report confirmed the presence of BCC or where the dermatologist made a clinical diagnosis and treated the patient with some form of local treatment.

The patient parameters included gender, age, and the speciality of the doctor who referred the patients. We decided to classify the age of patients into the following groups: 30 years old or less, 31-40, 41-50, 51-

**Table 1.** Patient data

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Patients	Total	792
Sex	female	309 / 39.0%
	male	483 / 61.0%
Age (years)	<31	3 / 0.4%
	31-40	5 / 0.6%
	41-50	26 / 3.3%
	51-60	74 / 9.3%
	>61	684 / 86.4%
Tumor site	face	276 / 34.8%
	back	249 / 31.4%
	pectoral region and breast	104 / 13.1%
	scalp	14 / 1.8%
	neck	25 / 3.2%
	arms	26 / 3.3%
	shoulders	36 / 4.6%
	abdomen	19 / 2.4%
	legs	43 / 5.4%
	Histological type	nodular
superficial		159 / 20.1%
nodular + superficial		22 / 2.7%
baseosquamous		4 / 0.5%
locally advanced form		3 / 0.4%
Morbus Bowen		14 / 1.8%
Number of BCC	>5	240 / 30.3%
	4	64 / 8.1%
	3	28 / 3.5%
	2	112 / 14.1%
	1	347 / 43.9%
	Goltz-Gorling syndrome	1 / 0.1%
Treatment	total surgical excision	624 / 78.8%
	locally with imiquimod cream	52 / 6.6%
	cryotherapy	104 / 13.1%

60, 61-70, 71-80, 81 and older. We included data on any previous treatment.

We analyzed the approach in the dermatology office, namely the use of dermoscopy and tangential biopsy.

We analyzed the size of tumors by dividing them into two categories – larger or smaller than 2 cm. We analyzed the location of the tumor by dividing the skin surface in the following regions: face, neck, scalp, back, pectoral region and breasts, abdomen, arms, shoulders, legs. Data about the type of tumor were retrieved from the respective pathohistological report. In cases where the dermatologist opted for local treatment without pathohistological verification, we relied on the dermatologist's tumor description in the patient's file.

We searched the patients files for any previous BCC and divided patients with multiple BCC into categories of 5 or more than 5, 4, 3 or 2 BCC in their lifetime. We included patients with Goltz-Gorling syndrome and included data about locally advanced BCC.

We analyzed the type of treatment. Where the treatment was surgical excision we included data about the speciality of the doctor who performed the excision.

Data were then analyzed using Microsoft Excel.

There were 792 patients with BCC treated at the DCL during the 12 months we selected. Of those, 309 (39.0%) were women and 483 (61.0%) were men (Table 1).

At the time of diagnosis, 504 (63.6%) patients were 71 years or older and 684 (86.4%) were 61 years or older. Almost one third of all patients (244; 30.8%) were in the age group above 80 years old. Only 3 (0.4%) patients were younger than 31 years, there were 5 (0.6%) patients in the age group of 31-40, 26 (3.3%) patients were between 41-50 years old and 74 (9.3%) were 51-60 years old

Almost half of all patients, (356; 44.9%) were referred to DCL by a family physician and 436 (55.1%) were referred by dermatologists.

Before their appointment at DCL, only 21 (2.7%) patients had been previously treated. Of those, 4 (0.5%) had been treated with imiquimod cream and 17 (2.2%) surgically.

All lesions were assessed by dermoscopy. More than a third of tumors (276; 34.8%) were localized on the face, and almost a third on the back (249; 31.4%). The third most common location was the pectoral region and breasts (104; 13.1%). Other locations included: 14 (1.8%) tumors in the scalp, 25 (3.2%) tumors on the neck, 26 (3.3%) tumors on arms, 36 (4.6%) tumors on shoulders, 19 (2.4%) tumors on the abdomen, 43 (5.4%) tumors on legs.

The majority of tumors were smaller than 2 cm (744; 93.9%). Tumor margins were well-defined.

Multiple BCCs were common. Almost a third of patients (240; 30.3%) had 5 or more BCCs in their lives, 64 (8.1%) patients had 4 BCC during their lives, 28 (3.5%) patients had 3, and 112 (14.1%) patients had 2 BCCs. There was also 1 (0.1%) patient with Goltz-Gorling syndrome.

The most common form of treatment was surgical excision (624; 78.8%). Other patients were treated locally with cryotherapy (104; 13.1%) or locally with imiquimod cream (52; 6.6%).

Tangential biopsy and pathohistological verification presurgery were performed in 36 (4.5%) cases. None of the tumors were inoperable. Histologically, in all operated patients we proved that the clinical diagnosis of epithelioma and assessment by dermoscopy were correct. Of the tumors, 589 (74.4%) were nodular, 159 (20.1%) were superficial, 22 (2.7%) were mixed (nodular + superficial), 4 (0.5%) were baseosquamous. Only 14 (1.8%) patients of those with surgical excision had Morbus Bowen.

There were 3 (0.4%) patients with a locally advanced form of BCC with enlarged local lymph nodes because of BCC. They were referred for treatment to the Ljubljana Oncology Institute. We do not have data about their treatment.

This is the first annual retrospective study on BCC at DCL. There were 792 cases of newly discovered BCC at DCL in 2010. We have not analyzed the incidence and prevalence of BCC in Slovenia. It is hard to estimate the incidence in the population as there are many dermatologists in the private sector that diagnose and treat BCC as well. However, this would offer valuable information which we could compare to other countries as well as add to global statistics about BCC. There are not that many existing prevalence studies nor is NMSC usually included in cancer registries around the world. However, the Cancer Registry of Slovenia includes NMSC and reported an incidence rate of 89.5/100 000 for NMSC in men and 94.1/100 000 for women in 2005-2009 (12).

We have shown that men and people of older age had a significantly higher risk of having BCC. There is a significant increase in BCC by each decade of life, and 86.4% of BCC was found in the population 61 years old and older, with 95.4% of patients being 51 years old or older. Also, we have shown that BCC has a tendency towards multiplicity. Almost a third of patients had 5 or more BCC in their lifetimes. This could potentially mean that there are people with a distinct tendency to having multiple BCC, and when they have BCCs they have them higher numbers.

Patients were referred to the DCL exclusively by doctors of two specialties, i.e. family physicians and

other dermatologists. Classified in this study as "sent by dermatologist" were also patients that were already patients of the DCL and came for a follow up for a previous BCC or other condition when a new BCC was discovered. Skin cancers are easily observed as they often occur on exposed areas, but less easily recognized. It would appear that doctors of specialties other than family medicine and dermatology are not sufficiently familiar with NMSC. They either do not recognize the lesion as being cancerous, or they do not realize the importance of (early) treatment and they do not refer patients. This speaks of the need of further educating not only the public but also the doctors.

The most common locations were the face, back, and pectoral region. Those are sun-exposed areas. It would be interesting to see if there is a difference in distribution of BCC between the two genders. The size of the tumors was relatively small – 93.9% were smaller than 2 cm. However, considering that a third of lesions were on the face, there can be a significant skin defect after surgery that requires a flap. We were pleased to see that dermoscopy was used thoroughly – all lesions were verified by dermoscopy. It is a method that has gained popularity in recent years and has proven an invaluable tool in the hands of an expert dermatooncologist.

The majority of tumors were nodular (74.4%), a fifth were superficial (20.1%), 2.7% were mixed (nodular+superficial). Studies have reported different incidence rates for different subtypes (13,14).

In recent years, there has been a considerable amount of effort in educating the public about skin cancer, but it is mostly oriented towards melanoma and pigmented lesions. On its own, BCC has a low risk of mortality. However, because it is often situated in sun-exposed areas such as the nose and ears and because it has a tendency to erode local tissue, it can lead to patients having extensive surgery. Therefore, early diagnosis is important for BCC as well. Raising public awareness in a way similar to that for melanoma seems reasonable.

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