



SKIN CANCER EPIDEMIOLOGY: COMPARISON BETWEEN DATA FROM THE 8TH CANCER PREVENTION CAMPAIGN AND THE NATIONAL DATA

Epidemiologia das neoplasias de pele: comparação entre os dados coletados no 8º mutirão de prevenção ao câncer e dados nacionais

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Abstract: Objective: To compare the national skin cancer epidemiological data with the information obtained from the Skin Tent at the 8th Cancer Prevention Campaign in the city of Montes Claros, Minas Gerais, Brazil. **Methods:** A descriptive study based on the data obtained from the answers to a structured questionnaire containing clinical and sociodemographic variables by visitors of the Skin Tent at the 8th Cancer Prevention Campaign, in Montes Claros, Brazil. **Results:** A total of 580 people were attended by Dermatology professionals. Of all the visits, 45 cases (7%) were referred to biopsy, and among these 28 (62.2%) were performed, with 17 cases (60.7%) being positive for Basal Cell Carcinoma and 11 being negative. Among those people referred to biopsy, 35.7% regularly used sunscreen blockers and 53.5% had a history of excessive exposure to the sun. Most of the patients with positive biopsy were over 40 years, female, and had not graduated from Elementary School. **Conclusion:** The Cancer Prevention Campaign is an effective strategy for early detection of skin cancer, thus establishing a better prognosis for the disease.

Keywords: Cancer; Skin; Epidemiology; Diagnosis; Prevention.

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Resumo: Objetivo: comparar a epidemiologia nacional do câncer de pele com os dados obtidos na tenda de pele, no 8º Mutirão de Prevenção ao Câncer em 2018, realizado na cidade de Montes Claros – MG. **Metodologia:** estudo descritivo realizado com dados obtidos a partir dos registros dos atendimentos na tenda de pele no 8º Mutirão de Prevenção ao Câncer. Utilizou-se um questionário estruturado contendo variáveis clínicas e sociodemográficas. **Resultados:** foram atendidas 580 pessoas por profissionais da Dermatologia. Entre esses atendimentos, 45 casos (7%) foram encaminhados para biópsia. Destas, 28 (62,2%) foram realizadas e 17 casos (60,7%) foram positivos para Carcinoma Basocelular e 11 negativos. Entre os encaminhados a biópsia, verificou-se que 35,7% tinham uso de protetor solar e 53,5% apresentavam histórico de exposição excessiva ao sol. Diante dos pacientes com biópsia positiva observou-se que a maioria foi com idade superior a 40 anos, do sexo feminino e possuíam ensino fundamental incompleto. **Conclusão:** o Mutirão de Prevenção ao Câncer mostra-se como uma estratégia efetiva no rastreamento precoce do câncer de pele determinando melhor prognóstico para a doença.

Palavras-chave: Câncer; Pele; Epidemiologia; Diagnóstico; Prevenção.

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INTRODUCTION

Skin cancer is the most common neoplasm in Brazil, representing 30% of all malignant tumors recorded in the country¹. The disease presents several different classifications, the most common one being that divides skin cancer in non-melanoma skin cancer (NMSC) and melanoma skin cancer (MSC). The NMSC amounts to 95% of the positive diagnostics, being subdivided in Basal Cell Carcinoma (BCC) and Squamous Cell Carcinoma (SCC). It presents slow growth, being locally invasive and has a good prognosis if adequately treated. However, a delayed diagnostic may result in worse outcomes. The melanoma is the least common type, but the most serious one; being detected in 4% of the patients. It presents a good prognostic in the initial stages but, in the absence of treatment it can yield metastases².

According to the Instituto Nacional do Câncer (INCA, *National Cancer Institute*), non-melanoma skin cancer has an estimate of 165,580 new cases for 2018, of which 85,170 occurring in men and 80,410 in women. The estimate for the melanoma skin cancer is of 6,260 new cases: 2,920 for men and 3,340 for women. Comparatively, the 2013 data from INCA report 1,769 deaths caused by non-melanoma skin cancer, 1,000 in men and 769 in women and 1,547 deaths caused by melanoma skin cancer - 903 in men and 644 in women³.

Among the risk factors that promote skin lesions, the exposure to ultraviolet (UV) radiation is well established. The UV rays, besides promoting mutations, exert a suppressing effect in the skin immune system. Although factors such as skin type, phenotype, and family history are also involved in the causal chain of the disease, sun exposure is recognized as the most important risk factor. In

the case of melanoma, particularly, the personal or family history of this tumor represents the highest risk factor⁴.

Skin neoplasm is more common in people with more than 40 years old, being relatively rare in children and black people, except in those with previous cutaneous diseases. The main targets are people with light skin, sensitive to sun rays, or with previous cutaneous diseases⁵.

The most efficient measure in the primary prevention of skin cancer is the protection against sunlight. The use of sunscreens applied to the skin before sun exposure is the most adopted strategy of protection by the population. The early secondary and accurate diagnostic of early and smaller lesions is less likely to result in undesired deformities/scars and, even some functional harm due to the surgical treatment of the non-melanoma skin cancer⁶.

In this study, we aim to compare the national skin cancer epidemiological data with the information obtained at 8th Cancer Prevention Campaign (CPC) in 2018, in the city of Montes Claros, MG, Brazil.

METHODOLOGY

This is a descriptive study, performed in the city of Montes Claros – MG, in the northern region of the state of Minas Gerais, based on the data obtained from 45 patients that were referred to biopsy, selected from the 580 interviews conducted with the population attended in the 8th Cancer Prevention Campaign (CPC) of 2018, in the Dermatology tent.

The data were collected through a questionnaire with sociodemographic (sex, age, and level of schooling) and clinical (use of sunscreen and excessive sun exposure) variables, that was elaborated

taking into account the factors associated to the occurrence of skin neoplasms. The questionnaire was applied by a team of academics from the Medical Course previously trained to collect the data, and next the patients were referred to be evaluated by Dermatologists.

The descriptive analyses of the investigated variables conducted according to their characteristics and frequencies of occurrence, presented in tables and charts. The collected data were typed into electronic spreadsheets (Excel) and later entered in the statistical *software Statistical Package for the Social Science* (SPSS®), version 20.0 for Windows®.

This study was performed according to the principles determined by the Resolution 466/12 from the National Council of Health (*Conselho Nacional de Saúde*) from the Brazilian Health Ministry, in accordance with the approval by the Research in Ethics Committee from UNIMONTES, based on the Consolidated Opinion n° 2.599.222.

RESULTS

A total of 580 people were attended in the 8th Cancer Prevention Campaign (CPC), in 2018, by Dermatology practitioners, in the Skin Tent. Among these attendances, 45 cases (7%) were referred to biopsy. From these, 28 (62.2%) biopsies were accomplished, with the other 17 cases (37.8%) being sent to other procedures. From the 28 biopsies performed, 17 cases (60.7%) presented a positive result for basal cell carcinoma; 11 cases were negative for neoplasms, corresponding to other dermatological pathologies and one case was referred to immunohistochemical analysis (Table 1).

Table 1 – Distribution of attended patients in the Dermatology Tent in the 8th Cancer Prevention Campaign in Montes Claros, Minas Gerais, Brazil, in 2018.

Distribution of patients	N°	%
Attendances		
Not referred to procedures	535	92.3
Referred to biopsy	45	7.7
Total	580	100
Performing biopsy		
Yes	28	62.2
No (referred to other procedures)	17	37.8
Total	45	100
Positive biopsy		
Yes	17	60.7
No	11	39.3
Total	28	100

People from all ages were attended during the 8th CPC. However, the age of the patients referred to biopsy (45 patients) varied from 28 to 82 years. Among them, 89.2% were older than 40 years; 39.2% had incomplete elementary school, and 75% were females. Regarding the biopsy cases confirmed as basal cell carcinoma (17 patients), 99% were older than 40 years; 47% had incomplete elementary school, and 70.5% were females (Table 2).

Table 2 – Sociodemographic characteristics of the patients referred to biopsy by the Dermatology Tent in the 8th Cancer Prevention Campaign in Montes Claros, Minas Gerais, Brazil, in 2018.

Characteristics	N°	%
Schooling level		
Incomplete Elementary School	11	39.2
Complete Elementary School	6	21.5

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Continuation of Table 2

Characteristics	N°	%
Complete High School	4	14.3
Incomplete College Education	2	7.1
Complete College Education	3	10.8
Illiterate	2	7.1
Total	28	100
Sex		
Female	20	71
Male	8	29
Total	28	100
Age		
<19	-	-
20-39	3	10.7
40-59	8	28.6
>60	15	53.6
Unknown	2	7.1
Total	28	100

Among the patients referred to biopsy, 35.7% of them use sunscreen protection and 53.5% present a history of excessive exposure to sunlight. Among patients with positive biopsy, 35.2% report the use of sunblocker and 52% exposed themselves excessively to sunlight (Table 3).

Table 3 – Clinical characteristics of the patients referred to biopsy by the Dermatology Tent in the 8th Cancer Prevention Campaign in Montes Claros, Minas Gerais, Brazil, in 2018.

Characteristics	N°	%
Use of sunscreen		
Yes	10	35.7
No	18	64.3
Total	28	100

Continuation of Table 3

Characteristics	N°	%
Excessive sun exposure		
Yes	15	53.5
No	13	46.5
Total	28	100

After the confirmation of some biopsies as carcinomas, all these patients were located and instructed according to their needs regarding the use of sunscreen to avoid the appearance of new lesions and the importance of their excision.

DISCUSSION

The results of the present study showed that 17 cases out of the 28 biopsies performed were diagnosed as BCC, a subtype of NMSC, an incidence that follows the national epidemiology. According to the INCA data of 2018, BCC is the most frequent cancer in Brazil amounting to 30% of all the malignant tumors recorded in the country³. Despite its high incidence, BCC presents low mortality, a local invasive behavior, and a low metastatic potential, being easily treated by surgical excision, provided that it is early diagnosed⁷.

Among the patients with positive biopsy for BCC, females were prevalent (70% of the cases), being close to the numbers found in skin cancer epidemiological studies made in the cities of Taubaté (59.8%) and Uberlândia (59.3%)^{8,9}. This could be explained due to the fact that the female population is the main target of many educational campaigns against cancer, making the women more conscious and aware of their bodies⁹.

Regarding the age group of the patients with positive biopsies, they were older than 40 years,

accordingly with the national data from INCA, which shows that skin cancer is more common among people with more than 40 years, being rare in children and black people, except for people that already carry previous cutaneous diseases⁶.

The records of the low schooling level of the patients with positive biopsy are in accordance with data from an investigation in the state of Paraná conducted from 2006 to 2010 that aimed to determine the educational profile of the patients with skin cancer, in which most of them presented incomplete schooling¹⁰.

According to the present study, more than 50% of the patients referred to biopsy and 9 out of the 17 positive results for basal cell carcinoma presented excessive exposure to sunlight, the major risk factor associated to the genesis of BCC. Brazil, located between the parallels 5° N and 34° S, presents UVA and UVB radiation levels that vary a lot from one region to the other. The Brazilian phenotypic distribution exhibits great heterogeneity along the latitudes, reaching 89% of light skin people in the urban areas of the states of Santa Catarina and Rio Grande do Sul, due to the strong presence of European immigrants (Germans, Polish, and Italians), and falling to 28% in the urban areas of Amazonas and Pará. This NMSC subtype is mostly found in areas exposed to sunlight, in population distributions related to the latitude, in association with photosensitive genetic diseases, and in patterns of sunlight exposure among the patients. There is also a higher incidence of BCC in albino Africans than in black ones, according to the studies^{7,11,12}.

There are controversies about the isolated protective action of sunscreens. Some authors remark that their use might encourage the adoption of a risk behavior, in which the individual exposes himself/herself more to sunlight, assuming he/she is protected. The failure of reducing the incidence of BCC despite the long-term use of sunscreens

has already been demonstrated, many times due to the non-reapplication of the sunscreen along the day or due to an insufficient amount of it applied. However, other studies suggest that the regular use of sunscreens in the first 18 years of life might reduce the risk of these tumors in up to 78.8% and showed a lower risk of multiple tumors in the groups that have used them for a long time. Given this conflict, the frequent use of sunscreens and the adoption of protective measures against the sun are recommended under the argument of reducing the costs of the public health system with actinic dermatoses, especially actinic keratosis and SCC. This fact is shown in the present study, since 35.7% of the patients referred to biopsies and more than 1/3 of them positive for BCC used solar protection^{7,12,13}.

In a study about sunlight exposure and solar protection in the population of 15 years or more carried out in 15 Brazilian capitals between 2002 and 2003, the capitals of the South Region presented the highest gross rates of incidence of non-melanoma (77.4 per 100,000 inhabitants in the South Region and 73.5 per 100,000 inhabitants in the North Region), assuming as minimal the effect of differential underreporting per region. These higher level of incidence, resulting from the interaction of several individual and environmental factors (sunlight exposure, degree of physical activity, BMI, etc), might result in a higher collective perception about the risk of sunlight exposure and a greater demand for the use of sunblocker, as was observed in the South Region¹⁴.

Due to the high frequency of BCC and the progressive increase of its incidence that place this illness as an environmental and occupational disease that exerts an evident impact in the life quality of patients and generates a significant burden to the health system, the proper information of the patients about the risk factors, the attention to the diagnose of small lesions by the self-examination,

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and the participation in prevention campaigns are required in order to avoid this disease and improve its diagnostic⁷.

Due to the role of RUV in the development of BCC, information measures about the risks of intense sunlight exposure of the unprotected skin should be encouraged, such as the hours of lowest UVB incidence, protection during professional activities and during leisure time, prevention of sunlight burns, wearing of adequate clothes, and the use of broad spectrum sunscreens⁴.

CONCLUSION

After obtaining the data collected in the interviews with the patients that attended the 8th Cancer Prevention Campaign, it was possible to briefly characterize the epidemiological profile of the individuals with suspected lesions referred to biopsy and of the patients diagnosed with skin neoplasms in the city of Montes Claros.

Regarding the sociodemographic data, the present investigation has shown the prevalence of females older than 40 years old with a low level of education in patients with positive biopsy for BCC. Such variables are in accordance with other data found in national investigations used as a comparative basis.

In terms of the clinical variables, exposure to sunlight, and the use of sunscreens, we have also observed similarities with the data from other Brazilian investigations. Most of the patients referred to biopsy as well as the ones positive for BCC, presented an increase sunlight exposure, as also found in other Brazilian investigations that demonstrated the increase of NMSC associated to multifactorial issues such as latitude, photosensitivity, and sun exposure. Regarding sun

exposure, only a minority of the two aforementioned subgroups used sunscreens, a number that suggests a higher association between lack of use of sunblock and the development of skin cancer.

The high incidence and great morbidity do NMSC makes it a disease that has a negative effect upon the quality of life of the patients and generates costs to the health system, representing a serious problem to it that reinforce the importance of the early diagnostic and prevention through the knowledge of its risk factors. The permanent health education, the skin cancer prevention campaigns, partnerships between health services and universities/schools, in order to guide the attention of the patients are especially relevant in order to prevent skin neoplasms. Educational activities should be prioritized for the early detection of the disease, together with the assurance of access to the adequate diagnostic and treatment, in order to obtain a better prognosis.

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