(18)

One's location of residence as an important factor related to the occurrence of multiple primary cancer among patients with uveal melanoma

Wpływ miejsca zamieszkania na występowanie mnogich nowotworów pierwotnych u chorych z czerniakiem błony naczyniowej gałki ocznej

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Streszczenie: Cel: w pracy podjęto próbę analizy wpływu miejsca zamieszkania na występowanie mnogich nowotworów pierwotnych u chorych z czerniakiem błony naczyniowej gałki ocznej.
Materiał i metody: badaniem objęto 240 pacjentów Kliniki Okulistyki i Onkologii Okulistycznej UJCM w Krakowie, wyłonionych spośród chorych leczonych od stycznia 1998 r. do grudnia 2007 r. z powodu zdiagnozowanego w tym czasie czerniaka błony naczyniowej gałki ocznej.
Grupę badaną stanowiło 97 pacjentów z rozpoznanym innym pierwotnym nowotworem złośliwym, grupę kontrolną – pozostałych 143 chorych.
Wyniki: w grupie badanej przeważali mieszkańcy dużych miast, zwłaszcza liczących powyżej 500 tysięcy mieszkańców. Grupę kontrolną zaś najliczniej reprezentowali mieszkańcy małych miejscowości, liczących do 10000 ludności.
Omówienie: wyniki wskazują, że stopień wykrywalności mnogich nowotworów pierwotnych u chorych z czerniakiem błony naczyniowej gałki ocznej zależy od dostępności nowoczesnych metod diagnostycznych.

Słowa kluczowe: czerniak błony naczyniowej, mnogie nowotwory pierwotne.

Summary: Purpose: This study has attempted to analyze the impact of where one lives related to the incidence of multiple primary cancer among patients with uveal melanoma.
Material and methods: The group that was studied consisted of 240 patients. They were separated from other patients who had been diagnosed and treated with uveal melanoma at the Department of Ophthalmology and Ocular Oncology at Jagiellonian University Medical College in the period between January 1998 to December 2007. Ninety seven patients, diagnosed with another primary cancer, was defined as a test group. The remaining 143 patients constituted the control group.
Results: In the test group individuals were mostly residents of large cities, most often with population of more than 500 thousand inhabitants. The control group represented residents of small towns, each having less than 10000 persons population.
Conclusions: The findings of this study are pointing to the dependence of the detectability of multiple primary cancer among patients with uveal melanoma on the availability of modern diagnostic methods.

Key words: uveal melanoma, multiple primary cancer.

Introduction

Uveal melanoma is the most common primary intraocular neoplasm in adults (1). An incidence of uveal melanoma is about 4.3–7 persons per million per year (2-5). According to the literature, uveal melanoma comprises 2.9% of all melanomas [4].

The most common site of tumor growth is the choroid (85%); rarer is the ciliary body (10%) and the least recognized is a melanoma of the iris (5%) (6). Uveal melanoma is observed more frequently among whites than blacks (4,7) (tab. I).

Purpose

This study has attempted to analyze the impact of where one lives related to the incidence of multiple primary cancer among patients with uveal melanoma.

Material and methods

The group that was studied consisted of 240 patients. They were separated from other patients who had been diagnosed and treated with uveal melanoma at the Department of Ophthalmology and Ocular Oncology at Jagiellonian University

Race/ ethnicity Rasa/ grupa etniczna	The incidence of appropriate for the age (year/ million population) Częstość występowania odpowiednia do wieku (rok/ milion populacji)
American Indian/ Indianie amerykańscy	-
Black/ Czarni	0.31
Asian (including Pacific Islands residents)/ Azjaci (łącznie z mieszkańcami wysp Pacyfiku)	0.38
Hispanic/ Hiszpanie	1.67
White (except Spanish)/ Biali (oprócz Hiszpanów)	6.02

Tab. I. The incidence of uveal melanoma in different ethnic groups (7).
Tab. I. Częstość występowania czerniaka błony naczyniowej w poszczególnych grupach etnicznych (7).

Medical College in the period between January 1998 to December 2007.

Ninety seven patients, diagnosed with another primary cancer, were defined as a test group. The remaining 143 patients constituted the control group. These two groups were compared depending on where one lives.

Statistical analysis was performed using Chi-square test. Statistical significance was defined as $p<0.05$.

Region/ Województwo	Number of patients (n)/ Liczba pacjentów (n)	The percentage of patients (%)/ Procent pacjentów (%)
Małopolskie	17	17.53
Mazowieckie	17	17.53
Śląskie	12	12.37
Dolnośląskie	11	11.34
Łódzkie	8	8.25
Zachodniopomorskie	6	6.19
Lubelskie	5	5.15
Warmińsko-mazurskie	4	4.12
Opolskie	3	3.09
Podlaskie	3	3.09
Pomorskie	3	3.09
Świętokrzyskie	3	3.09
Kujawsko-pomorskie	2	2.06
Wielkopolskie	2	2.06
Lubuskie	1	1.03
Overall/ Ogółem	97	100.00

Tab. II. The number of patients in the test group according to region of residence.
Tab. II. Liczebność grupy badanej w zależności od regionu zamieszkania.

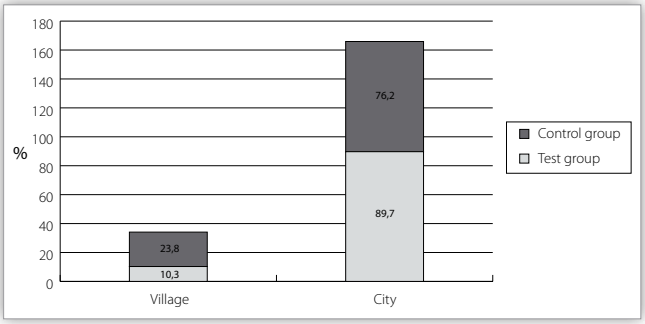
Results

In the test group, the largest number of patients came from the following provinces: Małopolskie (17.53%), Mazowieckie (17.53%), Śląskie (12.37%) and Dolnośląskie (11.34%). In the control group, the majority of patients came from Małopolskie (16.78%), Śląskie (12.59%), Mazowieckie (10.49%) and Dolnośląskie (9.09%) provinces (tab. II, III).

Among the rural population there were 10 (10.3%) patients in the test group and 34 (23.8%) patients in the control group.

Region/ Województwo	Number of patients (n)/ Liczbapacjentów (n)	The percentage of patients (%)/ Procent pacjentów (%)
Małopolskie	24	16.78
Śląskie	18	12.59
Mazowieckie	15	10.49
Dolnośląskie	13	9.09
Łódzkie	10	6.99
Podkarpackie	10	6.99
Zachodniopomorskie	8	5.59
Kujawsko-pomorskie	6	4.20
Opolskie	6	4.20
Podlaskie	6	4.20
Pomorskie	6	4.20
Świętokrzyskie	6	4.20
Lubelskie	5	3.50
Wielkopolskie	5	3.50
Warmińsko-mazurskie	4	2.80
Lubuskie	1	0.70
Overall/ Ogółem	143	100.00

Tab. III. The number of patients in the control group according to region of residence.
Tab. III. Liczebność grupy kontrolnej w zależności od regionu zamieszkania.



p = 0.0060

Fig. 1. The appearance of multiple primary cancer, depending on where patients live.
Ryc. 1. Występowanie mnogich nowotworów pierwotnych w zależności od miejsca zamieszkania chorych.

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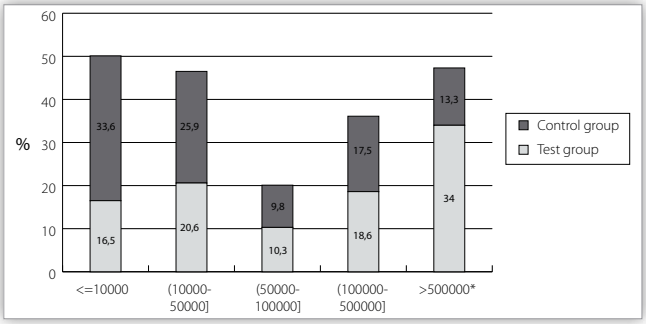

p = 0.0001

Fig. 2. The appearance of multiple primary cancer, depending on the place of residence, with the number of residents.

Ryc. 2. Występowanie mnogich nowotworów pierwotnych w zależności od miejsca zamieszkania z uwzględnieniem liczby mieszkańców.

Cities were inhabited respectively by 87 (89.7%) and 109 (76.2%) patients (fig. 1).

In the test group (n = 97 patients), individuals were mostly residents of large cities, most often with population of more than 500 thousand inhabitants, among whom were 33 (34.0%) persons in the test group and 19 patients (13.3%) in the control group. The control group represented residents of small towns, each having less than 10.000 persons population. Among them were 48 (33.6%) patients in the control group and 16 (16.5%) patients in the test group (fig. 2).

Conclusions

The preceding analysis highlights the importance of geographical factors in the development of malignancies. Virgilli et al., examining the incidence of uveal melanoma in Europe from 1983 to 1994, showed that Northern Europe has a greater percentage of occurring uveal melanoma than does Southern Europe. The highest incidence of uveal melanoma was found in Norway and Denmark (more than 8 cases per million), and the lowest incidences in Spain and southern Italy (less than 2 cases per million). The authors suggest that this relationship is probably related to the protective role of stronger pigmentation of the eye structures that belong to the population of the southern countries (8). Seddon and colleagues also observed that the region from which patients originated is closely related to the risk of the development of uveal melanoma. People from northern Europe suffered more frequently than patients from central European and Mediterranean regions (9).

Other authors state (10) that the incidence of uveal melanoma increases with increasing latitude, but the occurrence of external ocular melanoma (eyelid, conjunctiva), occupies an inverse position. The authors speculate that the observed result may indicate a dual role of sunlight – a protective effect in the case of intraocular malignant melanoma, also described in relation to other cancers, not exposed to the direct influence of solar radiation (11-13) and to be mutagenic with regard to the external structures of the eye, that had been directly exposed to the sun.

The subjects of this study all lived in Poland. The largest number of patients in the group who suffered form multiple primary cancer were inhabitants of the following provinces: Małopolskie (17.53%), Mazowieckie (17.53%), Śląskie (12.37%), Dolnośląskie (11.34%), Łódzkie (8.25%) and Zachodniopomorskie (6.19%). Patients who had not had second primary cancer diagnosed were mostly inhabitants of Małopolskie (16.78%), Śląskie (12.59%), Mazowieckie (10.49%), Dolnośląskie (9.09%), Łódzkie (6.99%) and Podkarpackie (6.99%) provinces. Perhaps Małopolskie province and its neighboring regions have the most patients because our hospital is located in this part of the country. Studies on the effects of the patients' residences related to the occurrence of multiple primary cancer have demonstrated that patients diagnosed with a second primary cancers are for the most part, from urban rather than rural areas. Persons who live in large cities (greater than 500 thousand inhabitants), have a higher incidence of tumor diagnosis. The result is likely associated with the influence of several factors. According to Tobiasz-Adamczyk, the behavior of patients is largely stimulated by the operation of medical institutions and the extent of organizational barriers (14). Thus, easier access to medical institutions and certain medical services, a greater potential to benefit from the expertise of modern medical equipment, and increased ease of access to a specialist in urban rather than rural areas, may explain the better detection of cancers among urban dwellers. In patients with uveal melanoma, availability of medical services is extremely important due to the need to monitor patients who are at risk for metastasis. According to Eskelin et al., detection of metastatic uveal melanoma (in patients previously not reporting any symptoms), can differ in the performance of abdominal ultrasound and assessment of the level indicators of liver function, with 59% of the control of a once a year to over 95% of the performance tests, at 6 months (15). Persons who live in large cities who experience second primary cancers may develop these malignancies, additionally, due to a higher level of pollution, a more stressful lifestyle, and more life challenges than those who live in rural areas. There has been an increased recognition that multiple primary cancer in urban rather than in rural areas has come to pass; modern diagnostic are more readily available where there are greater populations. As a result, improved detection of neoplastic lesions in patients living in rural areas has come about. It is highly suggestible that pollution and caustic contamination of the external environment are contributing factors to the development of various cancers. Knowing the risk factors provides a tool that empowers urbanities to change their circumstances, their environment, and their lives.

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