

Epidemiological and Clinical Characteristics of Malignant Melanoma in Area of West Herzegovina from 1997 to 2010

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ABSTRACT

Incidence rate of cutaneous malignant melanoma (MM), one of the most aggressive skin tumours, is increasing nowadays. Etiology of MM has not been fully understood. Various etiological factors are of relevance for the occurrence of the disease. The solar radiation as well as long term exposure to ultraviolet radiation has the greatest impact on development of this skin tumour. Melanoma risk factors have different associations with melanoma on body sites. This study investigates the epidemiological and clinical characteristics of MM such as age, gender, distribution of MM on the body and type of melanoma in the area of West Herzegovina, on the sample of 205 patients. It presents the occurrence of MM in the period from 1997. to 2010. Both, females and males have increased the risk of melanoma on the trunk (45.9%). Different body sites receive various amounts of sun exposure, yet melanomas occur on all parts of the body. This may represent different pathways in the etiology of melanoma based on body location. The most frequent type of MM was superficial spreading melanoma (SSM) 47.8%. According to our investigation incidence rate was 18.6% (per 1000 patients).

Key words: malignant melanoma, epidemiology, clinical characteristics, Herzegovina

Introduction

Incidence of cutaneous malignant melanoma (MM) has been increasing nowadays. Melanoma is a malignant tumour of melanocytes¹. Melanocytes are the cells that produce dark pigment, which is responsible for the color of the skin. They predominantly occur in the skin, but are also found in other parts of the body. Melanoma can occur in any part of the body that contains melanocytes². As a background for understanding the increased incidence of melanoma, relevant information focuses on incidence, environmental factors, host factors, and genetic factors³. Incidence has increased dramatically, however, it is not clear to what extent changes in behavior, in the environment, or in early detection are involved. The major environmental factor, ultraviolet radiation exposure, shows surprisingly risks for developing MM, and so focus is turning to interactions of exposure with host factors, including genetic factors⁴. Melanoma is less common than other skin tumours, but the incidence of melanoma has increased in the recent years, it is growing rapidly in importance⁵. In the past 40 years, the age standardized incidence rate has increased in both genders. Melanoma

mortality has doubled since 1955⁶. Previous studies have found that traditional melanoma risk factors have different associations with melanoma by body sites⁷. However, the etiology of MM has not been fully understood, except that sun exposure is a risk factor. It has been hypothesized that melanoma develops through multiple etiologic pathways. Like other types of skin tumours, MM has been related to ultraviolet light exposure, but the increase in incidence is particularly pronounced for the parts of the body which are normally protected with clothes and only occasionally exposed to sunlight. Most previous reports on body sites of MM have used large body locations (e.g. head, trunk, upper limb, lower limb)⁸. There are four types of MM, each with a characteristic growth pattern⁹. Superficial spreading melanoma (SSM) is the most common type. This type typically arises from a pre-existing nevus and expands in a radial fashion before it enters a vertical growth phase. Nodular melanoma (NM), a more aggressive tumor, arises from normal skin and has no radial growth phase. It is found more commonly in males. melanoma (LMM) is found more com-

monly in females and the elderly population. The lesions are typically large and flat, follow an indolent growth course, and rarely melanoma (ALM) is less common than others and occurs nonwhite patients^{10,11}.

Material and Methods

The material for this study was collected from the Department for Dermatology and Venerology and the Department for Pathology of University Clinical Hospital Mostar. The study includes patients suffering from MM from 1997 to 2010. Only the patients with histologically verified skin MM in the Clinical Hospital Mostar, were included in the study. Out of total 205 patients, there were 95 females, and 110 males. The study was conducted as a retrospective, containing the analysis of all available data for occurrence of MM in the period from 1997 to 2010. We analyzed: age, gender, body site, and type of MM.

For statistic analysis was used programme SPSS for Windows (13.0, SPSS Inc, Chicago, Illionis, SAD) i Microsoft Excell (11. Microsoft Corporation, Redmond, WA, SAD). For analysis of nominal variabls was used the chi-square test and with expected count less than five Fisher exact test. P value<0.05 is considered significant.

Results

In the period from 1997 to 2010, 205 patients have been diagnosed with cutaneous MM. Statistically, the most frequent cases of all patients observed (53.2%) belonged to over 50 age group (χ^2 -test=93.478, df=3, p<0.001). On the contrary, the lowest number of patients belonged to the under 29 years age group (8.8%). The age group from 40 to 49 showed the incidence of MM up to 21.5% and from 30 to 39 years of age it was 16.6% (Figure 1).

Out of the total number of patients 110 (53.7%) were males and 95 (46.3%) were females. Although the majority were male patients, in our study, there were no statistically significant difference between males and females suffering from MM (χ^2 -test=0.956, df=1, p=0.328), (Table 1.).

The highest MM incidence in both genders was on the body trunk (45.9%), (χ^2 -test=151.213; df=5; p<0.001). The next body site was face (17.1%). The upper and lower limbs had the same rate of (11.2%), and the neck site showed even fewer rate (8.3%). The scalp beaks the smallest MM incidence of 2.4% (Table 2).

According to gender and body site distribution, our study showed that trunk was the most frequent MM body site for both, males (63.8%) and females (36.2%).

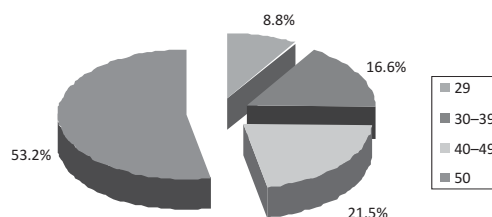


Fig. 1. Distribution of patients suffering from malignant melanoma according to age in West Herzegovina fom 1997 to 2010.

TABLE 1
PATIENTS SUFFERING FOM MALIGNANT MELANOMA ACCORDING GENDER IN WEST HERZEGOVINA FROM 1997 TO 2010

Males	110 (53.7%)
Females	95 (46.3%)
Total	205 (100.0%)

Males had statistically significant diference of scalp (80%) then females, while females had statistically significant diference on the face (65.7%) and upper limbs (65.2%) then males (χ^2 -test=13.895, df=5, p=0.013), (Table 3).

The results of certain types MM demonstrated statistically the highest relevance had SSM type presented in 47.8% of all patients. At the other hand, ALM showed the lowest rate 1.5% (χ^2 -test=89.498, df=3, p<0.001). NM type rate was 28.3% and LMM was 22.4% (Table 4). According to our investigation incidence rate was 18.6% (cases per 1000 patients). Incidence of MM was 22.8% (0.228 per 1000 patients) in males and 15.5% (0.155 per 1000 patients) in females.

Discussion

The worldwide incidence of melanoma is increasing at a faster rate than any other tumour. MM currently accounts for approximately 1% of all cancer deaths¹². Generally, an individual’s risk for developing melanoma depends on two groups of factors: intrinsic and environmental. Intrinsic factors are the family history and inherited, while the most relevant environmental factor is sun exposure. The risk appears to be strongly influenced by socio-economic conditions¹³. MM is rare in children, while in adults the incidence rates rise steadily with age. Although the rates are highest in the over 65, a substantial number of cases are diagnosed at younger adults ages¹¹. More than a quarter of all cases occur in people aged less than 50 years¹³. Our investigation showed that the patients suffering from MM were most frequent in

TABLE 2
BODY SITE OF MALIGNANT MELANOMA IN WEST HERZEGOVINA FROM 1997 TO 2010

Body site	Scalp	Face	Neck	Trunk	Upper limbs	Lower limbs	Total
Malignant melanoma	5 (2.4%)	35 (17.1%)	17 (8.3%)	94 (45.9%)	23 (11.2%)	23 (11.2%)	205 (100.0%)

TABLE 3
GENDER AND BODY SITE OF MELANOMA MALIGNUM IN WEST HERZEGOVINA FROM 1997 TO 2010

Body site	Scalp	Face	Neck	Trunk	Upper limbs	Lower limbs
Males	4 (80.0%)	12 (34.3%)	10 (58.8%)	60 (63.8%)	8 (34.8%)	16 (51.6%)
Females	1 (20.0%)	23 (65.7%)	7 (41.2%)	34 (36.2%)	15 (65.2%)	15 (48.4%)

TABLE 4
TYPE OF MELANOMA MALIGNUM IN WEST HERZEGOVINA FROM 1997 TO 2010

Type of malignant melanoma	SSM ¹	NM ²	LMM ³	ALM ⁴	Total
Patients number (%)	98 (47.8%)	58 (28.3%)	46 (22.4%)	3 (1.5%)	205 (100.0%)

¹ SSM – superficial spreading melanoma, ² NM – nodular melanoma, ³ LMM – lentigo maligna melanoma, ⁴ ALM – melanoma

the age over 50 and less common in the group younger than 29. The age-standardized incidence rates increased from 6.5 to 14.4 among men and from 8.6 to 18.9 among women. During the last 5 years, a sudden marked increase was seen in women of all ages and in men aged 65 years or older. The most marked site-specific change was in the incidence of melanoma on the trunk in both females and males¹⁴. Most studies investigate frequency of MM according to gender, and in most of them this skin tumour is more frequent in females than in males and is particularly common among living in sunny climates, with high rates of incidence in Australia, New Zealand, North America, and northern Europe¹⁵. According to our investigation in the area of West Herzegovina during the thirteen years period (1997 to 2010), we found that MM was more frequent in males than in females. Although the most of our patients were males, there were no statistically significant difference between males and females. Important for sun exposure as ethiological factor is MM site. In literature MM is the most frequent on the trunk in males and on upper limbs in females (areas of intermittent sun exposure)¹⁶. Trends in melanoma incidence by body site were examined in Canada, where ascertainment of tumour has been of a high standard¹⁷. The analysis showed that the estimated annual increase in incidence was bigger for males than for females. The largest relative increases occurred for the upper limbs, followed by the trunk. In some studies we found hypothesis that melanoma from different body sites is related to gender and may have different etiologies. Males had an increased risk of developing melanoma on the head, neck, or trunk. Because it has been hypothesized that melanoma on the head and neck has been more strongly related to chronic sun exposure than that of other sites, it is not clear whether the stronger association found among males truly represents gender difference or just a reflection of greater magnitude of sun exposure among males than females¹⁸. Females had increased risk of melanoma on the lower limb, although it was not statistically significant¹⁹. Our examined melanoma risk to body site and the association of body sites to gender showed that the highest MM incidence in both gender was on the body trunk, than on the face. The upper and lower limbs had the same rate, and the neck site showed even lower rate.

The scalp bears the smallest MM incidence. According to gender and body site distribution, our study showed that trunk was the most frequent MM body site for both, males and females. Males had statistically significant difference of scalp than females, while females had statistically significant difference on the face and upper limbs than males. There are four types of MM. SSM is the most common type, accounting for 70% of all cases. This type typically arises from a pre-existing nevus. NM, as a more aggressive tumor, accounts for approximately 15 to 30% of cases. It is found more commonly in males. LMM accounts for less than 10% of cases. This type of lesion is found more commonly in females and the elderly population. ALM melanoma also accounts for less than 10% of lesions, but occurs in a higher proportion (35 to 60%) of nonwhite patients^{18,19}. The results of certain types MM in our study demonstrated statistically the highest relevance had SSM type presented in 47.8% of all patients. At the other hand, ALM showed the lowest rate 1.5%, NM type rate was 28.3% and LMM was 22.4%. According to our investigation in the area of West Herzegovina during the thirteen years period (1997 to 2010) incidence rate was 18.6% (0.186 per 1 000 patients). Incidence of MM was 22.8% in males and 15.5% in females. (0.228 in males and 0.155 in females per 1000 patients). In Europe the highest incidence rates have been reported in Scandinavia (about 15 cases per 100 000 inhabitants per year) and the lowest in the Mediterranean countries (about five to seven cases per 100.000 inhabitants per year). Analysis of the trend in incidence of MM in the Swedish population showed an upward incidence trend not only for *in situ* melanoma but also for invasive melanoma, although the estimated mean annual increase was about twice as large for *in situ* melanoma as for invasive melanoma^{8,19}. Examination of the incidence of melanoma in Northern Italy gave the age-standardized incidence of MM of 7.57 per 100 000 in males and 11 per 100.000 in females²⁰.

Conclusion

In conclusion, the incidence rate of MM in West Herzegovina from 1997 to 2010 is increasing nowadays

and is higher in males than females. The most frequent MM patients belonged to the over 50 age group. Although the majority were males patients, it didn't figure out, in this study, that there was a relevant difference between males and females suffering from MM. The increases in both site-specific incidence rates and MM with regional spread suggest an association with the risk behaviour, such as intermittent sun exposure, although possible overdiagnosis must be taken into account in evaluating the implications of the increase. According to

gender and body site distribution, our study showed that trunk was the most frequent MM body site for both, males and females but males had statistically significant difference of scalp then females, while females had statistically significant difference on the face and upper limbs then males. Studies examining other melanoma risk factors should take into account the body site of MM in males and females. Most frequent MM type in our investigation were SSM.

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EPIDEMIOLOŠKE I KLINIČKE KARAKTERISTIKE MALIGNOG MELANOMA NA PODRUČJU ZAPADNE HERCEGOVINE OD 1997. DO 2010.

SAŽETAK

Incidencija malignog melanoma (MM,) jednog od najagresivnijih kožnih tumora, danas je u porastu. Etiologija melanoma još uvijek nije u potpunosti razjašnjena. Različiti etiološki čimbenici odgovorni su za nastanak bolesti. Sunčevo zračenje i dugotrajno izlaganje suncu, imaju veliki utjecaj na razvitak tumora kože. Čimbenici rizika melanoma i smještaj melanoma na koži različito su asocirani. Ova studija istražuje epidemiološke i kliničke karakteristike malignog melanoma, a to su dob, spol, smještaj malignog melanoma na tijelu i vrstu malignog melanoma na području Zapadne Hercegovine u 205 oboljelih. Predstavlja obolijevanje od melanoma kože u razdoblju od 1997. do 2010. g. Prema rezultatima oba spola, žene i muškarci imali su veći rizik pojave melanoma na trupu (45,9%). Različit smještaj ukazuje na pojavu melanoma na svim dijelovima tijela, ne samo onim stalno izloženim suncu. To može ukazati na različitost etiologije nastanka melanoma u odnosu na smještaj. Najučestaliji tip MM je bio površno šireći melanom (SSM) 47,8%. U našen istraživanju incidencija je iznosila 18,6% (na 1000 bolesnika). Točna incidencija melanoma kože u Bosni i Hercegovini još uvijek nije poznata.