Retrospective data analysis of the history of patients treated for malignant melanoma at the Department of Dermatology, Jagiellonian University between 1991 and 2008

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Abstract

Introduction: Melanoma is the most worrisome melanocytic skin lesion. It is also one of the most malignant tumours, and rapidly forms metastases. Melanoma incidence and mortality rates are increasing in most countries throughout the world.

Aim: To analyse retrospectively the history of patients who were diagnosed with malignant melanoma at the Department of Dermatology Jagiellonian University, Krakow.

Material and methods: Using retrospective data we analysed history cases of 194 patients, 83 men (42.8%) and 111 women (57.2%) with melanoma. The patients' age, sex, location and number of the lesions and melanoma type were analysed. Statistical analysis was performed using STATISTICA.

Results: According to the observations there was a significant increase of morbidity rate between 1991 (1 case) and 2001 (23 cases). In all investigated populations melanoma was more commonly observed on the trunk (37.5%) than on the head and neck (2.1%). Melanomas were predominant on the trunk in males (51.2%), and equally on the lower limb and trunk for females (27.3%, $p = 0.003$). In most cases melanoma developed from a pre-existing naevus (64.4%). Lentigo maligna was found on sun-exposed areas in 72.2% of cases, mostly among patients over 60 years old. Nodular melanoma was the predominant type (30.7%), while acral lentiginous melanoma was the rarest one (1%). Most of the melanoma cases were at Clark level IV when diagnosed (32.8%), whereas cases at Clark level V were found in 5.2%. The majority of melanoma lesions were at Breslow stage III and IV when excised ($p = 0.006$).

Conclusions: Our results confirmed that patients with melanoma had decided to visit the dermatologist too late, when the tumour was at an advanced stage. There is still insufficient knowledge of the self-examination of the naevi as well as of the need for regular dermatological examination of suspicious lesions and early surgical excision if necessary.

Key words: melanoma, lentigo maligna, Breslow scale.

Introduction

Melanoma is the most worrisome melanocytic skin lesion. It is also one of the most malignant tumours, and rapidly forms metastases. Melanoma incidence and mortality rates are increasing not only in Poland [1] but also in most countries throughout the world [2-5]. The most common melanoma location is skin, but it could develop as well in the mucosa, eyes and other internal organs [6]. In 70% of cases melanoma develops de novo (on previously unchanged skin), but also it could arise from pre-existing melanocytic lesions, such as congenital melanocytic naevi, dysplastic naevi (both single and dysplastic naevi syndrome), common naevi (marginal type with dermo-epidermal component) and blue naevi [7].

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Melanoma has many clinical presentations: from small, flat macules up to notably nodular lesions. Clinical and histological features determining the disease prognosis include the Breslow index, tumour size, presence of ulceration and mitotic rate [8]. The Breslow index is based on histological measurement of the tumour tissue thickness and it is still one of the most important prognostic factors [9]. Surgical excision of the lesion with Breslow thickness < 0.75 mm gives 95% 5-year survival and 92% 10-year survival, whereas the prognosis is reduced to 46% 5-year-survival and 38% 10-year survival when it is > 4 mm [10]. Early melanoma diagnosis and surgical excision of a suspicious lesion have a significant role in disease treatment [7, 11, 12].

Aim

The aim of the study was to analyse retrospectively the history of patients treated for malignant melanoma in the Department of Dermatology, Jagiellonian University, Krakow.

Material and methods

The statistical analysis included case histories of 194 patients, 83 men (42.3%) and 111 women (57.2%). The patients' age, sex, location and number of the lesions and type of melanoma were analysed. The median age was similar among male and female patients, and was 60 years for men and 59 years for women. Morbidity rate was examined separately in each year, as well as melanoma incidence in a particular location, its histological type, and advancement stage (according to the Clark and Breslow scale). The incidence of melanoma arising from unchanged skin (de novo) and from pre-existing melanocytic lesions were also compared. The data analyses were performed with descriptive statistical analysis (χ^2 test, Student's *t*-test) and cross tables with $p < 0.05$ as the condition for statistical significance. Statistical analysis was performed using STATISTICA.

Results

There was a significant increase in melanoma incidence between 1991 and 2001 (Fig. 1). In the whole investigated group (male and female) in 72 cases (37.5%) melanoma developed on the trunk, in 39 cases on lower limbs (20.3%), in 37 cases on upper limbs (19.3%) and in 4 cases (2.1%) on the head and neck (Tab. 1). There were no data regarding lesions' location in 2 melanoma cases. Analysis of our data showed statistical significance ($p = 0.002$).

A statistically significant correlation was noted between sex and melanoma location ($p = 0.003$, Tab. 2). Among male patients melanoma was more frequent on the trunk (42 cases – 51.2%), while among female patients the lower limbs and trunk were equally often affected (each location 30 cases – 27.3%). Melanoma in upper limb location was more common in women (26 case) than men (11 cases), but the difference was not statistically significant.

64.4% of melanoma developed in pre-existing naevi (125 patients). In 27.3% of cases melanoma arose de novo (53 patients, Fig. 2).

Lentigo maligna was mostly found among patients over 60 years old (66.7%) on sun-exposed areas – forearms, face, head, shoulders (72.2%, Tab. 3-4). But the results were not statistically significant ($p = 0.120$).

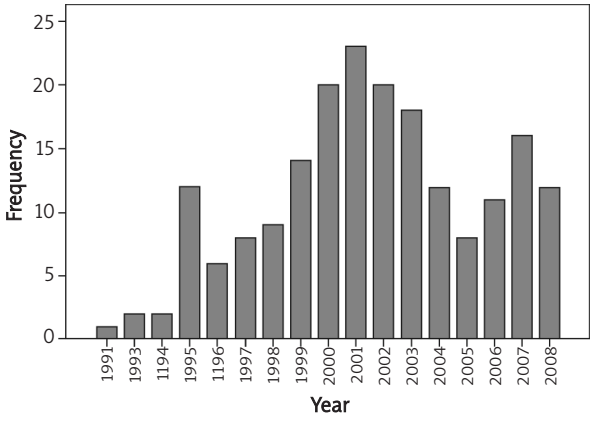

Fig. 1. Melanoma incidence rate in the population of the region of Małopolska and Podkarpacie

Tab. 1. Melanoma location

Location	Number of cases	Percent
Trunk	72	37.5
Lower limbs	39	20.3
Upper limbs	37	19.3
Face	33	17.2
Palms and feet	7	3.6
Head and neck	4	2.1

Tab. 2. The relationship between sex and melanoma location

Location	Men		Women	
	n	%	*n*	%
Face	15	18.3	18	16.4
Head and neck	3	3.7	1	0.9
Trunk	42	51.2	30	27.3
Lower limbs	9	11.0	30	27.3
Upper limbs	11	13.4	26	23.6
Palms and feet	2	2.4	5	4.5

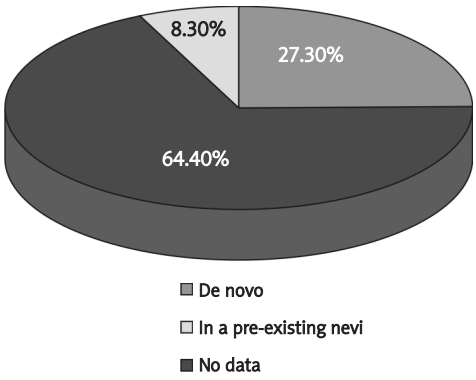

Fig. 2. Melanoma – the background of the lesions

Tab. 3. The relationship between the prevalence of lentigo maligna and exposure to UV

	Frequency	Percent
Non-exposed	5	27.8
Exposed	13	72.2
Total	18	100

Tab. 4. The relationship between the prevalence of lentigo maligna and age

Age [years]	Frequency	Percent
41-60	6	33.3
> 60	12	66.7
Total	18	100

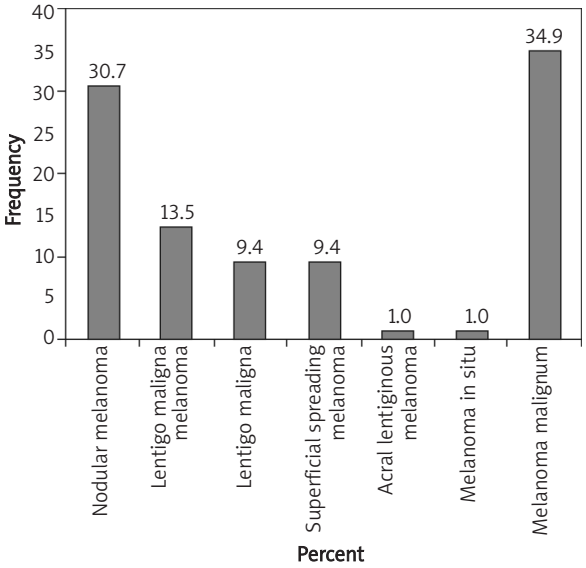

Fig. 3. Melanoma type

Nodular melanomas were found in 30.7% of cases (the most common type), acral lentiginous melanoma (AML) in 1% of cases. However, in most cases (34.9%) histological type was unspecified (Fig. 3).

Among histological parameters there were 9.9% of lesions at Clark level I, 18.8% at level II, 27.6% at level III, 32.8% at level IV and 5.2% at level V. In 11 cases Clark level was unspecified (Fig. 4). Analysis of our data did not show statistical significance ($p = 0.120$).

We also analysed the relationship between melanoma location and Clark level (Fig. 5). In all locations comparable numbers of lesions at Clark level III and IV were found. Acral lesions were the only exception, with 71.4% of cases at Clark level IV.

According to Breslow thickness significantly greater numbers of nodular melanoma were at stage III and IV ($p = 0.006$; Tab. 5).

Discussion

We noticed that there was a great increase in melanoma cases between 1991 and 2001. This

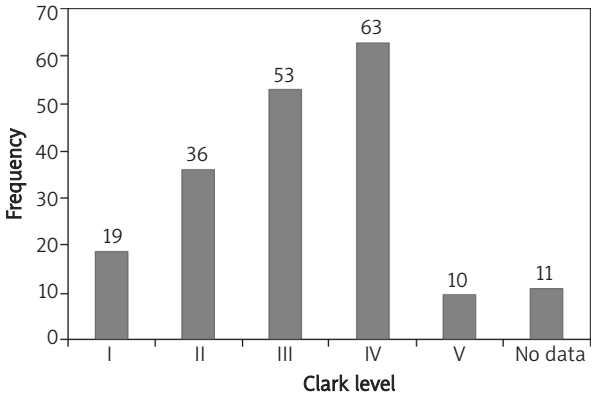

Fig. 4. Melanoma – Clark level (scale)

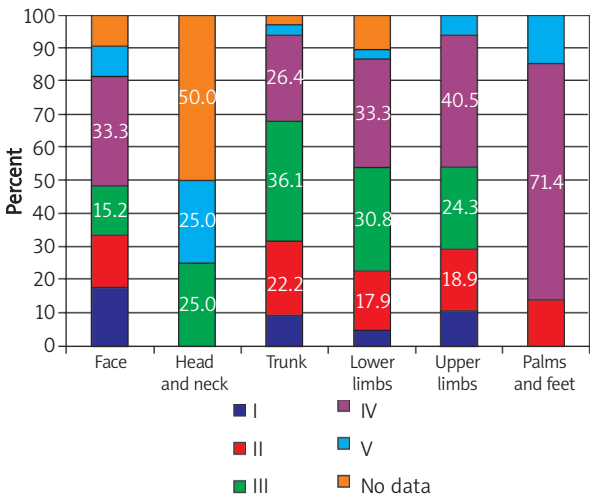

Fig. 5. Melanoma – location and Clark level

observation is in agreement with the worldwide tendency which was observed by other authors [1-5]. This phenomenon may be due to increased sun exposure. Furthermore, frequent exposure to short-term UV radiation (e.g. during holidays) is a proven melanoma risk factor [13-15]. On the other hand, improved patient knowledge about melanoma and proper skin examination of suspicious lesions may cause better diagnosis of melanoma. The most common melanoma location among male patients was the trunk (51.2%); the same observation was presented in recent literature [16, 17]. Among female patients melanoma was located on the trunk as often as on lower limbs (by 27.3%). Data reported by other authors with respect to melanoma location among female patients is discrepant: some authors indicated its greater incidence on the lower limbs than in other areas of the body. Newnham and Moller [16] noticed that, regardless of the vast number of melanoma cases located on the lower limbs, the frequency of melanoma on the trunk significantly increased. Our results suggest that the high number of melanomas in the analysed period was caused mostly by melanoma located on the trunk. Clark *et al*. [18] found that in 2004 melanomas among women were more often located on the trunk compared with years 1972-1977. Also, Garbe *et al*. [19] confirmed that among women from Central European countries melanoma occurred more frequently on the trunk. The most probable reason for this phenomenon is specific cultural behaviour such as "dress code" and sun exposure habits in that population. In all the investigated group melanoma developed more often from pre-existing melanocytic naevi (64.4%) than de novo. Other authors, however, did not confirm such a correlation. Most of them postulated that melanoma develops from pre-existing melanocytic naevi in 12% up to 36% of cases [20-25]. The results of Skender-Kalnenas *et al.* [26] are the most similar to ours: melanoma developed from melanocytic naevi in 51% of cases. Most of the patients whose data we analysed were directed to our surgery department from the dermoscopy department of the same clinic. It is tempting to suggest that 64.4% of our melanoma cases developed from pre-existing melanocytic naevi because of the correlation between melanoma type, UV exposure and patients' age. In our data lentigo maligna mostly affected elderly patients in sun-exposed areas (forearms, face, head and shoulders), which is in agreement with other authors [27-29]. Therefore there is a great necessity in UV protection, especially for elderly people. Delays in dermoscopy examination are mainly caused by insufficient knowledge about the early melanoma symptoms, as well as misconceptions about the inevitability of death. The risk of developing melanoma increases with age, especially in men. The worst prognostic factors are tumour thickness > 3 mm according to Breslow and nodular clinical type, which are common in elderly people [30]. Nagore *et al*. showed that there is a great need for special attention to the group of male patients over 60 years of age, because in these patients MM is detected in the advanced stage [31]. In our study the most frequent was nodular melanoma – 30.7% of lesions with a defined histological type; 13.5% were lentigo maligna melanoma (LMM); and 9.4% were lentigo maligna (LM) and superficial spreading melanoma (SSM). The rarest was acral lentiginous melanoma (ALM) at 1%. According to other data NM ranges from a dozen [17, 32] to about 30% of cases of melanoma [29, 33]. At this point our results are similar to other studies. It is interesting that there were only a few SSM in our data. This histological type is considered to be the most common one, reaching 70% of melanomas [9, 34]. Acral lentiginous melanoma in our study occurred as frequently as in other authors' observations [6, 7, 35, 36]. Clark IV (32.8%) and Clark III (27.6%) were the most frequent levels. The results presented by other authors are similar, with a slight predominance of Clark level III [19, 37].

Tab. 5. Melanoma – histological type and Breslow thickness

Histopatotogical type	Thickness [mm]			
	≤ 0.75	0.76-1.5	1.51-3.99	≥ 4
ALM	0	0	1	1
LMM	2	1	1	0
MM	6	6	5	4
NM	0	3	14	14
SSM	5	0	2	0

There were 64.6% of cases with tumour thickness > 1.5 mm and among them 29.2% had lesions thicker than 4 mm. Other authors, however, reported quite the opposite data: most melanoma lesions were < 1.5 mm according to the Breslow scale [17, 19, 38].

Our results confirm that patients are often diagnosed at the advanced stage. Furthermore, our study proved a correlation with a significant number of nodular melanomas, especially with respect to the Breslow scale. NM is the most invasive type of melanoma. Almost from the beginning it has a vertical growth. NM is usually diagnosed very late. It often does not meet the criteria of the commonly used clinical classification ABCD [38, 39], which makes fast and correct diagnosis difficult.

Conclusions

- The most common melanoma location for both sexes was the trunk.
- Lentigo maligna was more often diagnosed among old patients on sun-exposed areas (forearms, face, head, shoulders); therefore patients over 60 years old have to protect their skin from sun burning and pay more attention to self-examination for the early detection of dangerous lesions.
- Among our patients nodular melanoma was the most common one, which is why the prognosis was worse from the beginning.

- Most of the lesions were diagnosed at Clark IV and Clark III, Breslow IV level. Melanoma is highly treatable in its earlier stages; hence there is a great necessity of public education of the early signs of melanoma, which could improve the accuracy of skin self-examination, and would allow the targeted interventions of dermatologists to be successful.

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