

**PREDICTIVE FACTORS IN MALIGNANT MELANOMA**

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**Abstract**

The vertical melanoma thickness according to Breslow, the anatomical level of the tumor skin invasion according to Clark, mitotic activity in the tumor cells, the type and the phase of growth of the tumor, the localization, the local inflammatory response to the tumor cell and the presence of the tumor infiltrating lymphocytes as well as the age and the sex of the patient are considered as factors which could influence the prognosis of the melanoma.

The aim of this study was to define the correlation between the predicting factors of malignant melanoma (vertical melanoma thickness according to Breslow, the presence of the ulceration and the presence of tumor infiltrating lymphocytes), and the presence of metastases in the sentinel nodes, and, to determine the predicting value of these factors in patients with malignant melanoma of the skin.

Thirty patients with malignant melanoma, who had undergone surgery at the University Clinic of Plastic and Reconstructive Surgery in Skopje in the period from 2005 until 2009, were retrospectively evaluated. The following parameters were analyzed: primary tumor thickness according to Breslow, presence of ulcerations, lymphocytic infiltration and their relation with onset of metastases in the sentinel lymph node.

The results showed that there was a statistically significant correlation of the vertical thickness of the tumor according to Breslow and the presence of the lymphocytic infiltration with the sentinel node positivity for metastasis. Higher value of Breslow indicates higher possibility for metastasis in the sentinel nodes. A more intense tumor lymphocytic infiltration is related to the lower possibility for metastasis in the sentinel nodes. The correlation between the ulceration of the melanoma lesion and the positivity for metastasis of the sentinel node was statistically insignificant.

**Key words:** malignant melanoma, lymph node, metastasis

**Introduction**

The prognosis of malignant melanoma greatly depends on its stage at the time of establishing the diagnosis. There are a numerous studies analyzing the clinical and pathological factors that could predict the outcome of the disease in patients with malignant melanoma (1, 2, 3, 4). The vertical melanoma thickness according to Breslow, the anatomical level of the tumor skin invasion according to Clark, mitotic activity in the tumor cells, the type and the phase of growth of the tumor (radial and vertical), the localization, the local inflammatory response to the tumor cell and the presence of the tumor infiltrating lymphocytes as well as the age and the sex of the patient are considered as factors which could influence the prognosis of the melanoma (5, 6, 7, 8, 9, 10).

The most important, independent prognostic factor, which has been statistically proved to predict the prognosis in patients with malignant melanoma, is the vertical melanoma thickness (11). The Breslow classification can be used to determine the tumor thickness. It categorizes the tumor tissue depth from 1 to 2 mm, from 2 to 4 mm and more than 4 mm.

The ulceration is determined according to the macroscopic appearance of the lesion. It is proportional to the enlargement of the tumor thickness, but statistical analyses have shown that it is an independent predicting factor of the patient survival (7, 8).

The presence of tumor infiltrating lymphocytes (TIL) represents the body immune response to the melanoma cells or some other tumor cells. The immune response is most commonly measured by the intensity of the lymphocyte infiltration at the base of the vertical phase of growth, and it is categorized as severe, milde and

negative. TIL population mostly consists of T lymphocytes, and some other subpopulation such as dendritic cells, macrophages, natural killer (NK) cells and B lymphocytes. The results of many studies have shown that the presence of TIL is related to better prognosis (12, 13, 14).

The aim of this study was to define the correlation between the predicting factors of malignant melanoma (vertical melanoma thickness according to Breslow, the presence of the ulceration and the presence of tumor infiltrating lymphocytes), and the presence of metastases in the sentinel nodes, and, to determine the predicting value of these factors in patients with malignant melanoma of the skin.

**Material and methods**

Thirty patients with malignant melanoma, who had undergone surgery at the University Clinic of Plastic and Reconstructive Surgery in Skopje in the period from 2005 until 2009, were retrospectively evaluated.

All patients, according to the established surgical protocol, underwent radical excision of the primary malignant melanoma lesion and biopsy of the sentinel node. The operative material was sent to pathological analysis.

The primary lesions of malignant melanoma were grouped according to the localization.

The following parameters were analyzed: primary tumor thickness according to Breslow, presence of ulcerations, lymphocytic infiltration and their relation with onset of metastases in the sentinel lymph node.

The results were statistically analyzed using multivariate tests, and the correlation between the