Melanoma Associated with the Use of Melanotan-II

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Clinicians are advised to be aware of the problem, and counsel their at-risk patients regarding the potential hazards related to the use of MT-II.

Key Words
Melanoma · Melanotan-II · Skin pigmentation

Abstract

Background: Unlicensed use of melanotan-II (MT-II) to promote skin pigmentation has become prevalent amongst young people attending fitness centres. We present a case where the melanocyte stimulation of MT-II in combination with the use of sun tanning beds coincided with cutaneous melanoma.

Observation: A 20-year-old woman with Fitzpatrick skin type II was referred to a dermatology clinic. Clinical examination revealed a suspicious black melanocytic lesion in her left gluteal region. Furthermore, her skin was universally intensely pigmented. The melanocytic lesion was excised, and histology confirmed the diagnosis of melanoma. Three months prior to the excision the patient had conducted a 3- to 4-week course of self-injections with MT-II, intending an augmentation of sunbed tanning.

Conclusions and Relevance: This observation brings attention to the potential risks related to the use of the cyclic α-melanocyte-stimulating hormone analogue MT-II. There are several hazardous aspects of the possible widespread use of MT-II. As the drug is unlicensed and incompletely tested, the extent and types of adverse effects are unknown.
Fig. 1. Haematoxylin and eosin stain showing pagetoid invasion.

Fig. 2. Haematoxylin and eosin stain showing pagetoid invasion. Atypical melanocytic cells marked with arrows.

Fig. 3. Immunohistochemical staining for melan-A. Atypical melanocytic cells seen as blue cells in epidermis.
Clinical review 3 months later revealed multiple atypical naevi located especially on the trunk but no lesions suspicious for further melanoma.

Discussion

This observation brings attention to the potential risk of melanoma related to the use of the cyclic α-MSH analogue MT-II. The drug is unlicensed and incompletely tested, and the extent and types of adverse effects are unknown. Moreover MT-II is often used for merely cosmetic purposes by young people attending fitness studios.

The use of MT-II is often combined with the intense use of tanning beds, well established as a substantial risk factor for cutaneous melanoma [12].

In our case the close temporal relationship between MT-II injections and clinical growth and darkening of a melanoma points to a possible association.

The plausibility of a real causal association between MT-II and melanoma is however debatable. In vivo studies and studies in murine models have not shown any carcinogenic effect of the linear α-MSH analogue MT-I [4]. Investigations on the naturally occurring α-MSH have shown multiple functions of the hormone. On the one hand, studies have proven α-MSH to be anticarcinogenic with tumour suppressor effects, but on the other hand, research on melanoma cells in addition indicates a pro-invasive effect of α-MSH, thus enabling the melanoma cells to evade immune surveillance [13]. When it comes to MT-II, however, the true biological potential of the substance remains unknown.

Physicians should be aware that MT-II has become a part of the tanning culture in certain subpopulations. Our observation indicates a possible association between MT-II and melanoma, but larger studies are needed to substantiate this linkage.

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Disclosure Statement

The authors declare no conflicts of interest.

References


