

MELASMA AND THE POSSIBLE INTERACTION WITH SLEEP QUALITY

Dear Editor:

We are writing to highlight the interesting but little explored interaction between sleep and melasma, a common dermatological disease that causes a major impact on several areas of the lives of individuals with the condition.

Melasma causes skin hyperpigmentation and is characterized by symmetric hypermelanosis of sun-exposed skin represented by brown macules and patches. It is more prevalent in women and usually affects the face. Its etiology remains unclear, but hereditary as well as several environmental factors, including ultraviolet (UV) light exposure, hormonal influence, and some medications may play a role in the development of this skin disorder.¹

Effective treatment of melasma is not easy, and it is a constant challenge to professionals and patients to bring about stable and prolonged inactivation of the melasma lesions. Studies have shown that melasma can affect quality of life (QoL) and have psychological effects and should not be considered simply as a “cosmetic” problem.¹ One factor that may play an important role in melasma is sleep. We suggest that this skin condition itself and the stress it causes may impact sleep, and this could worsen the pathology of the condition. In addition, poor sleep could be contributing directly to the condition.

Despite the wealth of information available on melasma, including its pathology, psychological impact, and therapeutic options, the possible relationship between the disorder and sleep has been little explored. However, sleep has been shown to have an impact on inflammatory processes, hormone levels, and blood flow in skin disorders in general.² It is described that psychosocial stress and stress related to sleep deprivation may lead to skin barrier disruption and consequent imbalance of the skin homeostasis. This skin injury secondary to stressful effects may impair cytokine's release and decrease cutaneous' immune defense.²

When considering the question of how sleep might affect melasma, a study has

shown that the epithelial release of alpha melanocortin (α -MSH) plays a role in the hypermelanogenesis of melasma.³ Moreover, it seems that whole epidermal melanin unit could play a role in melasma pathways and progression, beyond the isolated melanocytes' activity. Several factors could be involved in this pathophysiology, such as greater epithelial expression of the melanocortin type 1 receptor (MC1-R), α -MSH, estrogen and progesterone skin receptors, higher expression of inflammatory substrates and growth factors, as well as associated dermal injury.⁴ Considering the inflammation of the dermis as a result of UV exposure and the role that it plays in the activity and worsening of melasma by a number of melanogenic and inflammatory cytokines and growth factors secretion, Brianezi et al⁵ aimed to evaluate the inflammatory pathway in melasma. They found that CD4 T cells, mast cells, macrophages, interleukin (IL)-17, and pro-inflammatory mediator cyclooxygenase (COX)-2 levels were all significantly increased in melasma lesions when compared to healthy skin. These results provide evidence that melasma can be modulated by a longstanding action of inflammatory substrates.⁵ As there is already evidence that the stress caused by sleep deprivation influences hormone serum levels and inflammatory processes,² all of these factors could be affected by poor sleep. We suggest, therefore, that future studies investigate how these mechanisms could be influenced by sleep disturbance and affect melasma.

A few studies have considered the relationship between melasma and psychiatric disturbances, low self-esteem, and QoL,¹ but, as far as we are aware, no studies have specifically studied melasma and sleep disturbance. Given the evidence for a possible association, we suggest that sleep questionnaires, a simple and effective way to evaluate sleep, be applied in this population. This might help to increase knowledge about the role of sleep in this disease and encourage more research in this area. If evidence is found for this interaction, strategies aimed at improving sleep quality might make melasma treatment more effective and lead to a better quality of life for these patients.

With regard,

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