

Evaluation of melasma classification methods based on response to treatment

Avaliação dos métodos de classificação do melasma de acordo com a resposta ao tratamento

ABSTRACT

Introduction: Melasma can be classified as epidermal, dermal, or mixed using clinical measures such as Wood's lamp and dermoscopy. The Melasma Area Severity Index and the Melasma Quality of Life Scale are additional subjective classification methods.

Objectives: To compare noninvasive melasma classification methods according to response to treatment.

Methods: Ten women with melasma were treated with 4% hydroquinone + 0.05% tretinoin + 0.01% fluocinolone acetate for 90 days. They were evaluated before and after treatment using dermoscopy, Wood's lamp, and both subjective measures.

Results: No significant correlations were found between the Melasma Area Severity Index and dermoscopic classification, Wood's lamp examination and the Melasma Quality of Life Scale. The average percentage improvement after treatment was 60.6% in the severity index and 41.1% in the quality of life scale. Dermoscopy revealed telangiectasia in most patients (60%), including those without prior treatment.

Conclusions: The subjective assessment tools best reflected the patients' response to treatment. The classification using Wood's lamp did correlate with improvement measured by the severity index. The use of dermoscopy for classifying melasma requires further research, since the findings were not correlated with the expected response to treatment.

Keywords: hyperpigmentation; classification; therapeutics.

RESUMO

Introdução: O melasma pode ser classificado, através da lâmpada de Wood e da dermatoscopia, em epidérmico, dérmico e misto. Outros métodos de avaliação são o MASI e o MELASQol.

Objetivos: O objetivo do estudo foi comparar os métodos não invasivos de classificação do melasma de acordo com a resposta ao tratamento.

Métodos: Seleccionadas 10 mulheres com melasma, foram submetidas a tratamento com hidroquinona 4% + tretinoína 0,05% + acetato de fluocinolona 0,01% durante 90 dias, e avaliadas antes e após o tratamento por: dermatoscopia, lâmpada de Wood, MASI e MELASQol.

Resultados: Não foram encontradas associações significativas entre MASI e classificação dermatoscópica, exame com lâmpada de Wood e MELASQol. O percentual médio de melhora após tratamento por MASI foi de 60,6% e por MELASQol, de 41,1%. À dermatoscopia observaram-se telangiectasias na maioria das pacientes (60%), incluídas aquelas sem tratamento prévio.

Conclusões: O MASI e o MELASQol são os instrumentos de avaliação que mais refletem a resposta ao tratamento. A classificação pela lâmpada de Wood não demonstrou correlação com a melhora do MASI. A utilização da dermatoscopia para classificação do melasma necessita de mais estudos, visto que os achados encontrados não se correlacionaram com a resposta esperada ao tratamento.

Palavras-chave: hiperpigmentação; classificação; terapêutica.

Original Article

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INTRODUCTION

Melasma is a common acquired hyperpigmentation that occurs exclusively in photoexposed areas, particularly on the face and, less often, on the neck and forearm. It affects mostly women and has considerable influence on the quality of life of affected patients.^{1,2} Based on Wood's Lamp and dermoscopic examinations, melasma can be classified into epidermal, dermal, and mixed.³⁻⁵ That classification has prognostic importance and assists in the search for an adequate therapeutic approach, since the best therapeutic results are normally achieved in epidermal melasma, the least severe subtype.^{6,7} Other evaluation methods available are the Melasma Area and Severity Index (MASI) and Melasma Quality of Life (MELASQoL) scale.^{8,9} The most widely used treatment is topical hydroquinone, which, combined with tretinoin and corticosteroid, is considered the gold standard treatment for melasma.⁶ This study compared non-invasi-

ve methods of classifying melasma, according to response to treatment.

METHODS

Ten female patients who were being followed up at the dermatology outpatient clinic of the Hospital de Clínicas da Universidade Federal do Paraná were retrospectively selected for the study. They suffered from melasma with varying degrees of hyperpigmentation (five patients had never been treated, and five patients had not responded to previous treatments). The patients were treated with 4% hydroquinone + 0.05% tretinoin + 0.01% fluocinolone acetate at night and SPF30 sunscreen during the day (applied four times a day), for 90 days. They were evaluated at 0, 30, 60, and 90 days. In addition, the patients were classified by melasma type (epidermal, dermal, or mixed), based



Figure 1: Patient classified with mixed melasma using Wood's lamp and epidermal using dermoscopy



Figure 2: Patient classified with dermal melasma using Wood's lamp and mixed using dermoscopy



Figure 3: Patient classified with epidermal melasma using Wood's lamp and dermal using dermoscopy



Figure 4: Patient classified with epidermal melasma using dermoscopy (left: before treatment; right: after treatment)



Figure 5: Patient classified with mixed melasma using dermoscopy (left: before treatment; right: after treatment)



Figure 6: Patient classified with dermal melasma using dermoscopy (left: before treatment; right: after treatment)

on dermatoscopy and Wood's lamp examinations (Figures 1–3). The MASI and MELASQol were administered before and after treatment (Figures 4–6). The study was approved by the hospital's ethics committee, and the patients signed a term of informed consent.

RESULTS

The patients' mean age was 38 (range: 27–57). Phototype IV was the most frequent (50%), and the lesions had first appear-

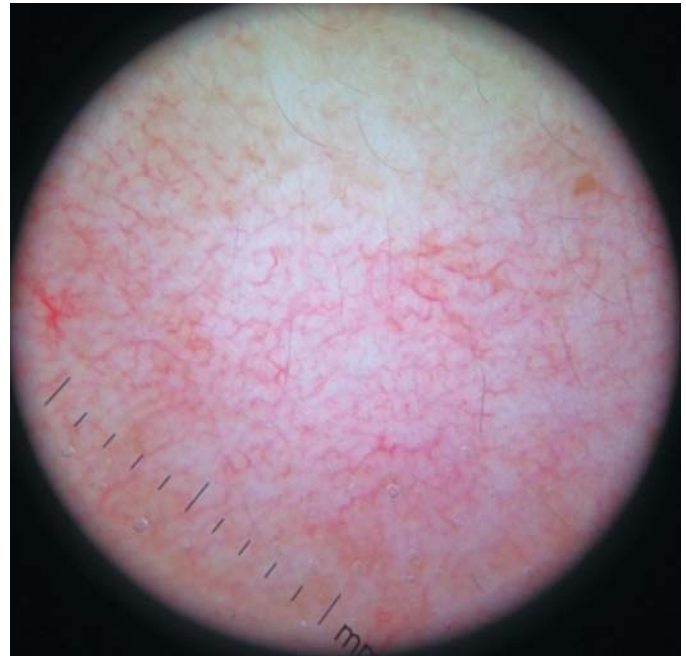


Figure 7: Vascular proliferation observed using dermoscopy

red from 5–10 years previously. The centropacial location was the most common (90%). Twenty percent of patients reported melasma emerging during pregnancy, 80% from exposure to the sun, and 30% from the use of hormonal contraceptives. The majority of patients tolerated the daily use of the study treatment, and no patients left the study due to side effects.

The correct classification rate based on dermoscopic and Wood's lamp examination (when the two methods yielded coinciding results) was 50%. With dermoscopy, telangiectasias were observed in most patients (60%) – even in those who had never undergone previous treatments (Figure 7). No significant association between vascular proliferation and percentage of improvement or previous treatment was observed.

No significant associations were found between MASI and dermoscopic classification, Wood's lamp, and MELASQol. Mean improvement after treatment as measured by the MASI and MELASQol was 60.6% and 41.1%, respectively. No significant associations were found between the percentage of improvement in MASI and MELASQol ($p = 0.3576$), or between dermoscopy and response to treatment.

DISCUSSION

The MASI is a useful measure in the clinical classification of melasma. The literature describes it as the most used method to evaluate the condition's response to treatment.⁸ In the present study, there was improvement in 60% of cases, however no cases of complete improvement.

MELASQol is a questionnaire (with scores ranging from 10–70) that objectively evaluates the quality of life of patients affected by melasma.⁹ The weak correlation between the MASI rate of improvement and MELASQol reflects the great impact

that melasma has on patients; even patients who responded well to the topical treatments remained annoyed with the persistent stains.

Wood's lamp is a widely used method in the classification of melasma, however it presents a low rate of correct diagnoses, which has been reported in this and other studies.³

Using dermoscopy, melasma can be classified into: epidermal (brownish hue and regular pigmentary network), dermal (bluish-gray hue, with irregular pigmentary network), and mixed (which features areas compatible with both previous descriptions) categories.^{3,4} In a comparative study with Wood's lamp, dermatoscopy was considered more appropriate for classifying melasma because it evaluated pigmentary components objectively.⁵ In the present study, however, the bluish-gray hue was not observed in any of the patients, including those who supposedly had the dermal melasma subtype. Thus, dermoscopy was not considered a good classification method, perhaps

due to the low representativeness of the sample. Nonetheless, it allowed the observation of an important vascular component, both in the patients who had received previous treatment and those who had not. A previous study suggested the existence of a possible interaction between the altered vasculature and melanocytes, with a possible influence of the vessels in the development of the hyperpigmentation.¹⁰

CONCLUSION

The study results found that the MASI and MELASQol are the most effective instruments to evaluate response to treatment. The initial classification using Wood's lamp did not correlate with improvement in MASI scores. The use of dermoscopy to classify melasma requires further study, since this study's findings did not correlate with the response to treatment as expected. A larger sample population would be useful to confirm these results. ●

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