Open Access Maced J Med Sci **electronic publication ahead of print,**
published on August 25, 2019 as https://doi.org/10.3889/oamjms.2019.407

ID Design Press, Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences.
https://doi.org/10.3889/oamjms.2019.407
eISSN: 1857-9655
Neuroscience, Neurology and Psychiatry

Is There a Correlation between Severity of Melasma and Quality of Life?

Nelva Karmila Jusuf*, Imam Budi Putra, Mahdalena Mahdalena

Department of Dermatology and Venerology, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

Citation: Jusuf NK, Putra IB, Mahdalena M. Is There a Correlation between Severity of Melasma and Quality of Life? Open Access Maced Med Sci. https://doi.org/10.3889/oamjms.2019.407

Keywords: Melasma; MASI score; MelasQoL; Quality of life

***Correspondence:** Nelva Karmila Jusuf. Department of Dermatology and Venerology, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia. E-mail: nelva_jusuf@yahoo.com

Received: 11-Jun-2019; **Revised:** 13-Jul-2019; **Accepted:** 14-Jul-2019; **Online first:** 25-Aug-2019

Funding: This research did not receive any financial support

Competing Interests: The authors have declared that no competing interests exist

Abstract

BACKGROUND: Melasma is a common chronic acquired hyper melanosis. It has significant impacts on appearance, psychosocial and emotional distress, hence reducing the quality of life of the affected patients. Melasma quality of life scale (MelasQoL) is a new quality of life (QoL) questionnaire consists of 10 questions, scored from 1 to 7, with higher index scores indicating poor QoL. The severity of melasma can be assessed by the Melasma Area and Severity Index (MASI) score.

AIM: We aimed to determine the correlation between the severity of melasma (MASI score) and quality of life.

MATERIAL AND METHODS: This was a cross-sectional analytic study involving 30 subjects with melasma. The diagnosis was made based on history, clinical features and by Wood's lamp examination. MASI score was determined to assess the severity of melasma. Subjects answered 10 items of MelasQol questionnaire. All collected data were processed and statistically analysed by Spearman correlation test to determine the association of MASI score with MelasQoL. Association of quality of life with clinical pattern and depth of lesion were analysed by Mann Whitney test.

RESULTS: There was no significant correlation between MASI score and MelasQoL ($p = 0.797$; $r = 0.049$). Likewise, there was no association of quality of life with clinical pattern type ($p = 0.12$) and depth of lesion ($p = 0.92$).

CONCLUSION: There was no significant correlation between the MASI score and quality of life.

Introduction

Melasma is acquired dermatological disease characterised by light to dark brown hyperpigmentation with predilection on ultraviolet (UV) exposed area, especially the face. Although its pathogenesis is not yet clearly defined, some aetiology factors have been identified, including UV exposure, hormones, drugs, genetics, races and cosmetics ingredients [1].

Treatment of melasma until now is still a problem so that often causing desperation for those who have it. Melasma is a skin problem that affects the appearance of facial skin aesthetically and can reduce the confidence of a person so that it can cause low quality of life of the patient.

Quality of life is a very important issue in psychological health. Measurement quality of life can use the questionnaire contains factors that are affecting the quality of life. The melasma quality of life scale (MelasQoL) is a new QoL questionnaire developed and validated by Balkrishnan in 2003. It consists of 10 questions, scored from 1 to 7, with higher index scores indicating worse QoL [2].

Material and Methods

This is an observational analytic study with cross-sectional approach. This research has been conducted from February to August 2017, located in General Hospital Universitas Sumatera Utara, Medan, Indonesia involving 30 subjects with melasma. The

diagnosis was made based on history, clinical features and by Wood's lamp examination. MASI score was determined to assess the severity of melasma with a score range between 0-48. The MASI score is calculated by a subjective assessment of 3 factors. Area (A) of involvement, darkness (D), and homogeneity (H), with the forehead (f), right malar region (rm), left malar region (lm), and chin (c), corresponding to 30%, 30%, 30%. And 10% of the total face, respectively

The area of involvement in each of these 4 areas is given a numeric value of 0 to 6 (0 = no involvement; 1 = < 10%, 2 = 10%; 29%; 3 = 30%-49%; 4 = 50-69%; 5 = 70%-89%, and 6 = 90%-100%).

Darknessn and homogeneity, are rated on a scale from 0 to 4 (0 = absent, 1 = slight; 2 = mild; 3 = marked; and 4 = maximum). The MASI score is calculated by adding the sum of the severity ratings for darkness and homogeneity, multiplied by the value of the area of involvement, for each of the 4 facial areas:

MASI total score = 0.3A (f) [D(f) + H(f)]
+0.3A (lm) [D(lm) + H (lm)]
+0.3A (rm) [D(rm) + H (rm)]
+0.1A (c) [D(c) + H(c)]

Subjects answered 10 items MelasQol with total scale range between 1-70 which higher index scores indicating worse QOL.

Statistical Analysis

All collected data were processed and statistically analysed by Spearman correlation test to determine the association of MASI score with quality of life. Association of quality of life with clinical pattern and depth of lesion were analysed by Mann Whitney test.

Results

The mean age group found in this study was 39.3 ± 4.7. Distribution of melasma based on clinical pattern type and depth of lesion assessed by Wood's lamp was presented in Table 1. The mean of MASI score was 13,07 ± 4,99, and the mean of MelasQol was 39,97 ± 12,07.

Table 1: Distribution of melasma based on clinical pattern and depth of the lesion

Characteristics	n	Percentage (%)
Clinical pattern		
Centrofacial	19	63.3
Malar	11	36.7
Mandibular	0	0
Depth of lesion		
Epidermal	27	90
Dermal	3	10
Mixed	0	0
Unclear	0	0

Table 2 shows that there was no significant relationship between MASI score with quality of life (p > 0.05).

Table 2: The association between MASI score and quality of life in subject with melasma

	p	r
MASI score with Quality of life	0.797	0.04

Table 3 shows that quality of life was slightly higher in dentofacial subject type (42.6 ± 13.7). Epidermal type of melasma was higher QOL than dermal (40.0 ± 12.1).

Table 3: The association between quality of life with the type of clinical pattern and depth of lesion in subject with melasma

	n	Mean	SD	p
Clinical Pattern type				
Centrofacial	19	42.6	± 13.7	
Malar	11	35.5	± 7.1	0.12
Mandibular	0	0	0	
Depth of Lesion type				
Epidermal	27	40.0	± 12.1	
Dermal	3	39.3	± 13.5	0.92
Mixed	0	0	0	
Unclear	0	0	0	

There was statistically no significant with p > 0.05 (p-value 0.12 and 0.92) for all of those association.

Discussion

In this study, the mean age group was 39.3 ± 4.7. It is consistent with a study by Jusuf in General Hospital of Haji Adam Malik Medan Cosmetic Dermatology Clinic which showed that pigmentation disorders including melasma from the year 2012-2014 were mostly affecting people between 38-48 years old. Most melasma occurs in women of reproductive age.3 In general, dentofacial type is the most common type, which is 63% covering the forehead area, nose, medial cheeks, under the nose and chin.1 This study is similar with Krupashankar et al., which found 45% proportion of dentofacial type4 and also Guinot et al., which showed 76% of centrofacial type [5]. Mahdalena et al., also found that centrofacial type is the most common type in 52,9%.6 Different results were concluded by Jagannathan et el that found a malar type of 65%.7 On Wood's lamp examination, the epidermal type was found in 27 persons (90%). This study is consistent with Jagannathan et al., and Mahdalena et al., that obtained the epidermal type in 94.1% and 48.75%, respectively [6], [7]. Wood's lamp with wavelength 320-450 nm can be used to determine melanin in the skin. On examination with Wood's lamp, the epidermal type of melasma will appear more clearly than using ordinary room lightings [8].

In this research, the mean of MASI score was

13.07 ± 4.99 with majority showed middle range in the severity of melasma. While the mean of MelasQol was 39.97 ± 12.07 which is showed the middle range of total MelasQol scale. Melasma is distressing to patients due to its location, appearance and accompanying disfiguring lesions. The clinical evaluation alone is not sufficient to describe the feelings experienced by the patient. Questionnaires are useful to understand better the feelings of the patient, and the impacts of the disease on different aspects of life. The MelasQoL scale has more focus on the emotional and psychosocial impact of the condition [2].

In Table 1, it appears that there is no statistical relationship between MASI score with quality of life in subjects with melasma. Similarly, Harumi et al., in Singapore, found there was no correlation between MASI scores with MelasQol or DLQI scores [9]. Freitag at al., research in southern Brazil show there was no correlation between MelasQol and MASI scores [10]. It shows and corroborating that clinical severity is not the sole criterion used by patients to assess the impairment caused by their skin condition. Different results were concluded by Cestari et al., the analysis of the MelasQoL baseline answers demonstrated an important impact of the disease on skin appearance (65% of patients were bothered all the time or most of the time), frustration (55%), embarrassment (57%) and influence of the disease on interpersonal relationships (42%). Forty-three per cent of patients felt not attractive or even dirty due to their skin condition. MelasQoL results showed significant internal consistency and good correlation with MASI scores [11]. Balkrishnan et al. show the correlations among different scales used in the study. The MelasQol scores are highly correlated with the other dermatology QoL scores and are moderately correlated with the MASI [2]. Misery et al. found that the Melas Qol score was found to be higher in women over 45 years of age and in women who had had melasma for longer, suggesting that the condition is not better accepted by women with time [12].

Histologically, melasma lesion showed an increased number of melanocytes with additional melanin deposition, usually on the cheeks, forehead, and upper lip [13]. In our study, the mean MelasQol scores were higher in subject with dentofacial type and were slightly higher in the epidermal type, but statistically were not significant. Based on the clinical pattern and depth of the lesion, the type of melasma still affected the quality of life of the subject, although not significant.

The fact that melasma is a chronic recurrent disorder that burst during their entire life leads to an increased possibility of unwanted outcomes. This research no significant correlation between the severity of melasma and quality of life. The physician may erroneously consider a patient as having a mild form of the disease, whereas she might be upset, anxious and considers that her lesions cause a significant impact or her life. It means that therapeutic decisions cannot be based only on clinical aspects but should also include their psychological characteristics [14]. Thus, the quality of life in melasma has emerged as an important outcome of clinical investigation and should be assessed as far as possible [15].

In conclusion, there was no significant correlation between the severity of melasma and quality of life. It needs to encourage multi audience study to develop more studies about quality of life in larger populations.

References

1. Handel AC, Lima PB, Tonolli VM, Miot LDB, Miot HA. Risk factors for facial melasma in women: a case-control study. British Journal of Dermatology. 2014; 171:588-94. https://doi.org/10.1111/bjd.13059 PMid:24749693

2. Balkrishnan R, McMichael AJ, Camacho FT, Saltzberg F, Housman TS, Grummer S, et al. Development and validation of a health-related quality of life instrument for women with melasma. British Journal of Dermatology. 2003; 149:572-7. https://doi.org/10.1046/j.1365-2133.2003.05419.x PMid:14510991

3. Jusuf NK. Pattern of pigmentation disorder in Cosmetic Dermatology Clinic H. Adam Malik General Hospital, Medan, 2012 - 2015 J Gen Proced Dermatol Venereol Indones. 2017; 2(1):1-6. https://doi.org/10.19100/jdvi.v2i1.46

4. Guinot C, Cheffai S, Latreille J, Dhaoui MA, Youssef S, Jaber K, et al. Aggravating factors for melasma: a prospective study in 197 Tunisian patients. Journal European Academy of Dermatology and Venereology. 2010; 24:1060-69. https://doi.org/10.1111/j.1468-3083.2010.03592.x PMid:20202051

5. KrupaShankar DSR, Somani VK, Kohli M, Sharad J, Ganjoo A, Kandhari S, Mysore VR, et al. A Cross-Sectional, Multicentric Clinico-Epidemiological Study of Melasma in India. Dermatol Ther (Heidelb). 2014; 4:71-81. https://doi.org/10.1007/s13555-014-0046-1 PMid:24643868 PMCid:PMC4065278

6. Mahdalena, Jusuf NK, Putra IB. Description of melasma in hormonal contraceptive acceptors. Bali Medical Journal. 2018; 7(2). https://doi.org/10.15562/bmj.v7i3.1000

7. Jagannathan M, Sadagopan K, Ekkarakudy J, Anandan H. Clinico-epidemiological Study of Patients with Melasma in a Tertiary Care Hospital - A Prospective Study. International Journal of Scientifi c Study. 2017; 4:117-20.

8. Manjunath KG, Kiran C, Sonakshi S, Ashwini N, Agrawal R. Comparative Study of Wood's Lamp and Dermoscopic Features of Melasma. J Evid Based Med healthc. 2015; 2(60):9012-15. https://doi.org/10.18410/jebmh/2015/1279

9. Harumi O, Goh CL. The Effect of Melasma on the Quality of Life in a Sample of Women Living in Singapore. Clinical Aesthetic Dermatology. 2016; 9(1):21.

10. Freitag FM, Cestari TF, Leopoldo LR, Paludo P, Boza JC. Effect of melasma on quality of life in a sample of women living in southern Brazil. Journal compilation European Academy of Dermatology and Venereology. 2008; 22:655-62. https://doi.org/10.1111/j.1468-3083.2007.02472.x PMid:18410339

11. Cestari TF, Hexsel D, Viegas ML, Azulay L, Hassun K, Almeida AR, et al. Validation of a melasma quality of life questionnaire for Brazilian Portuguese language: the MelasQoL-BP study and improvement of QoL of melasma patients after triple combination therapy. British Journal of Dermatol. 2006; 156:13-20. https://doi.org/10.1111/j.1365-2133.2006.07591.x PMid:17176300

12. Misery L, Schmitt AM, Boussetta S, Rahhali N, Taieb C. Melasma: measure of the impact on quality of life using the French version of MELASQOL after cross-cultural adaptation. Acta Derm Venereol. 2010; 90:331-2. https://doi.org/10.2340/00015555-0837 PMid:20526570

13. Hewitt SC, Korach KS. Estrogen receptors: structure mechanisms and function. National Institute of Environmental Health. 2002; 3:193-200. https://doi.org/10.1023/A:1020068224909 PMid:12215714

14. Renzi C, Abeni D, Picardi A, et al. Factors associated with patient satisfaction with care among dermatological outpatients. Br J Dermatol. 2001; 145:617-23. https://doi.org/10.1046/j.1365-2133.2001.04445.x PMid:11703289

15. Halioua B, Beumont MG, Lunel F. Quality of life in dermatology. Int J Dermatol. 2000; 39:801-6. https://doi.org/10.1046/j.1365-4362.2000.00793.x PMid:11123437