Report

The prevalence of melasma and its association with quality of life in adult male Latino migrant workers

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Abstract

Background Melasma is a common condition of Latino women that detracts from their quality of life (QOL). The prevalence and impact of melasma in Latino men is not well characterized.

Aim To assess the prevalence of melasma and its association with QOL in Latino men from Mexico and Central America working in the USA.

Methods The prevalence of melasma was assessed in three studies of Latino men: by direct examination in a study of 25 Latino poultry workers; by direct examination in a study of 54 Latino farm workers; and by examination of store-and-forward teledermatology images in a study of 300 Latino farm workers. QOL was assessed with a Spanish version of the Dermatology Life Quality Index (DLQI).

Results The prevalence of melasma was 36.0%, 7.4%, and 14.0% in the three studies. The prevalence of melasma was greatest amongst those aged 31 years and older, who were from Guatemala, and who spoke an indigenous language. The presence of melasma was associated with higher DLQI scores, indicating a poorer QOL, in the poultry worker population.

Conclusions Melasma is a common condition in Latino men and is associated with a poor QOL in some affected individuals. Clinicians should be aware that melasma may be a concern for their male Latino patients. Research on the association of skin conditions with QOL amongst minority men is needed.

Introduction

Melasma is a common skin condition characterized by irregular light-brown to dark-brown patches of hypermelanosis on the face.[1,2] The etiology of melasma has not been clearly identified. Factors associated with melasma include exposure to ultraviolet light, genetic influences, hormones associated with pregnancy, oral contraceptives, hormone replacement therapy, thyroid autoimmunity, cosmetic ingredients, and phototoxic drugs, with ultraviolet light exposure and genetic factors being the strongest predictors.[3,4] Melasma is a cosmetic condition, and women with melasma report that their appearance affects their social life, emotional well-being, and leisure activities.[5-8]

Most studies reporting the prevalence of melasma are based on clinical rather than population samples;[9,10] however, melasma is generally recognized to be more common in women than in men, and more common in Latino, black, and Asian than in white populations.[2,6,11-15] Melasma is more common in individuals with Fitzpatrick skin types IV–VI than in those with fairer skin.[2,6] An estimated 50–70% of pregnant women in the USA develop melasma.[3] Estimates of the prevalence in pregnant Latino women are between 50% and 80%, and one-third continue to have melasma for the rest of their lives.[3,9,13,16-19] The overall prevalence in Latino women varies from 1.5% to 33.3%. A recent study has reported a prevalence of 8.8%.[10]

Melasma in men has not been well documented, and no study focusing on melasma prevalence in Latino men could be found in the literature. In clinic-based samples, approximately 10% of white melasma patients are men,[2,13,20] and 26% of Indian melasma patients are men.[21] The prevalence in such samples is likely to be subject to selection bias with regard to how bothersome is the condition in men vs. women. The purpose of this study is to document the prevalence of melasma and its impact on quality of life (QOL) in Latino men in nonclinical samples.

Methods

Sampling and data collection

The data are from three studies of Latino men. The first study included a sample of 25 male Latino employees of a poultry processing plant in western North Carolina in 2005. Data collection included both a physical dermatologic examination by a board-certified dermatologist and an interviewer-administered questionnaire. Methods for this study have been described by

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Quandt et al.[22] The second study used a cross-sectional design and recruited 55 male Latino farm workers from two camps in eastern North Carolina in 2004. Data collection included a physical dermatologic examination by a board-certified dermatologist and an interviewer-administered questionnaire. Methods for this study have been described by Krejci-Manwaring et al.[23] The third study used a longitudinal surveillance design to collect information on the prevalence of skin ailments and risk factors from 300 male Latino farm workers during the 2005 agricultural season. Data were collected at baseline and at four follow-up assessments, each approximately 3 weeks apart (May to October). Data collection included a frontal and two lateral digital images of each participant's face and an interviewer-administered questionnaire. Standard store-and-forward teledermatology methods were used for the digital images.[24] Digital images were reviewed and dermatologic diagnoses were identified and recorded by a board-certified dermatologist. Methods for this study have been described by Arcury et al.[25]

Questionnaires for all three studies included questions on personal characteristics, as well as items to measure QOL. The protocols for all three studies were approved by the Institutional Review Board of the Wake Forest University School of Medicine.

Measures

The diagnosis of melasma for the poultry worker and cross-sectional farm worker studies was made by direct examination by a board-certified dermatologist. For the longitudinal surveillance farm worker study, a single board-certified dermatologist viewed and rated each photo set for each participant, recording the presence of melasma; a diagnosis of melasma was made from its appearance in the photo set at baseline or in any of the follow-up assessments.

The Dermatology Life Quality Index (DLQI)[26] was used to measure QOL. The DLQI was originally developed in English and has been translated and validated in multiple languages. A Mexican Spanish version of the DLQI, which was translated using methods approved by Dr Finlay, was used. The total DLQI was computed as recommended.[26] The total scale score has a range of 0–30. A score of 0–1 is generally recognized as demonstrating that the patient has experienced no effect on his or her QOL as a result of skin conditions. A score of 2–5 represents a small effect, 6–10 a moderate effect, 11–20 a very large effect, and 21–30 an extremely large effect.[22,27]

The personal characteristics of the participants included age [grouped into categories of 18–24 years, 25–30 years, and 31 years and older (maximum age was 70 years)], nationality (Mexican, Guatemalan, or other), and language spoken (Spanish only or indigenous language). Data on the language spoken were not collected for the cross-sectional farm worker study. Speaking an indigenous language indicates a greater likelihood of a Native American heritage.

Analysis

The personal characteristics and prevalence of melasma in each study were described with counts and frequencies. One-way analysis of variance was used to evaluate the differences in the mean DLQI score between those with and without melasma within each sample. The F ratio with the α value set at 0.05 was used to test whether the differences in the mean DLQI scores were significant with equal variances assumed. The analyses used SAS version 9.1 (SAS Institute Inc., Cary, NC, USA).

Results

About one-half of the participants in all three studies were aged 30 years or younger (Table 1). The majority of participants

Table 1 Personal characteristics for three male Latino immigrant studies

Personal characteristic	Poultry worker study (N = 25)		Cross-sectional farm worker study (N = 54)		Longitudinal farm worker study (N = 300)	
	n	%	n	%	n	%
Age						
18–24 years	6	24.0	23	42.6	77	25.7
25–30 years	9	36.0	14	25.9	69	23.0
31 years and older*	10	40.0	17	31.5	154	51.3
Nationality						
Mexican	1	4.0	52	96.3	296	98.7
Guatemalan	23	92.0	–	–	4	1.3
Other	1	4.0	2	3.7	0	0
Language spoken						
Spanish only	2	8.0	–	–	262	87.3
Indigenous language	23	92.0	–	–	38	12.7

*The oldest participant was 51 years for the poultry worker study, 55 years for the cross-sectional study, and 70 years for the longitudinal study.

Table 2 Melasma prevalence for the three male Latino immigrant studies: total and by age group, nationality, and language

Melasma prevalence	Poultry worker study (N = 25)		Cross-sectional farm worker study (N = 54)		Longitudinal farm worker study (N = 300)	
	n	%	n	%	n	%
Total	9	36.0	4	7.4	42	14.0
Age group						
18–24 years	0	0.0	1	4.3	8	10.4
25–30 years	2	22.0	1	7.1	9	13.0
31 years and older*	7	70.0	2	11.8	25	16.2
Nationality						
Mexican	0	0.0	4	7.4	40	13.5
Guatemalan	9	39.1	0	0	2	50.0
Other	0	0	0	0	0	0
Language spoken						
Spanish	0	0.0	–	–	34	13.0
Indigenous language	9	39.1	–	–	8	21.1

*The oldest case was 51 years for the poultry worker study, 35 years for the cross-sectional study, and 51 years for the longitudinal study.

Table 3 Total Dermatology Life Quality Index (DLQI) for those with and without melasma

Study	Mean total DLQI		F-test statistic	Significance
	Melasma	No melasma		
Poultry worker study (N = 25)	7.5	2.8	6.27	0.02
Cross-sectional farm worker study (N = 54)	3.5	4	0.05	0.82
Longitudinal farm worker study (N = 300)	1.12	1.09	0.011	0.92

in the poultry worker study were Guatemalan (92.0%), and the majority of participants from the cross-sectional and longitudinal farm worker studies, 96.3% and 98.7%, respectively, were Mexican. Two (8.0%) of the participants in the poultry worker study spoke only Spanish and the remainder (92.0%) spoke an indigenous language. The majority of participants in the longitudinal farm worker study spoke only Spanish (87.3%), and 12.7% spoke an indigenous language.

Across all three populations, the prevalence of melasma was 14.5% (55 of 379 participants). The melasma prevalence in the poultry worker study was 36.0% (Table 2). The 31 years and older age group had the highest melasma prevalence (70.0%). Melasma was not present in the youngest age group (18–24 years); it was present in 22.0% of those aged 25–30 years. Melasma was diagnosed only in Guatemalan participants. All of the poultry workers who were diagnosed with melasma spoke an indigenous language.

Melasma was present in 7.4% of the participants of the cross-sectional farm worker study. The prevalence was higher (11.8%) in those aged 31 years and older than in those aged 18–24 years (4.3%) and 25–30 years (7.1%). It was diagnosed only in Mexican participants.

The overall prevalence of melasma was 14.0% in the longitudinal farm worker participants. The prevalence amongst those aged 18–24 years (10.4%) and 25–30 years (13.0%) was lower than in those aged 31 years and older (16.2%). The melasma prevalence was higher in Guatemalans (50.0%) than in Mexicans (13.5%). Those who spoke an indigenous language had a higher prevalence (21.1%) than those who spoke only Spanish (13.0%).

There was a statistically significant difference in the total DLQI between those with and without melasma in the poultry worker study. Those with melasma had a higher DLQI score (7.5 vs. 2.8), indicating a poorer QOL (Table 3). The difference between the DLQI scores for those with and without melasma was not significant in either of the farm worker studies.

Discussion

These studies indicate that melasma is common in Latino men. The overall rate of 14.5% is somewhat higher than a

recently published prevalence of 8.8% in Latino women.[10] We observed a moderate association with QOL in the male population with the highest prevalence of melasma. Latinos associate melasma with ill health and poor nutrition, and melasma is considered to be disfiguring.[3]

Melasma is more common in older than younger men. The oldest age group (31 years and older) in each of the three studies had a higher prevalence of melasma than the two younger age groups (18–24 years and 25–30 years). These results are consistent with previous studies in Latino women[13] and South-East Asian women and men.[28] Nevertheless, it is interesting that melasma was present even in the youngest farm workers, probably indicative of the high level of sunlight to which they are exposed at work.

The majority of participants in the poultry worker study were Guatemalan (92.0%). In contrast, the majority of participants from the farm worker studies, 96.3% and 98.7%, respectively, were Mexican. In the poultry worker study, melasma was diagnosed only in Guatemalan participants. In the cross-sectional farm worker study, melasma was present only in Mexican participants, but the sample for this study did not include Guatemalan participants. In the longitudinal farm worker study, melasma prevalence was higher in Guatemalans (50.0%) than in Mexicans (13.5%). These results suggest that the Guatemalan population may have a higher predisposition for melasma, which may be influenced by their indigenous heritage. In both the poultry worker study and longitudinal farm worker study, the prevalence of melasma was higher in those who spoke an indigenous language (39.1% and 21.1%, respectively) than in those who spoke Spanish only (0.0% and 13.0%, respectively).

One limitation of this study was the use of DLQI to assess the impact of melasma on QOL. It is possible that the DLQI scores of participants in these studies may have been affected by other skin conditions. Furthermore, the version of the DLQI used was developed for Mexican Spanish, and this version may not be completely appropriate for those who speak Guatemalan Spanish or whose primary language is an indigenous language. Despite these limitations, we found a significant impact of melasma in the poultry worker sample.

Several options are available for the treatment of melasma. A simple and effective option for women is cosmetic camouflage using makeup. This effective treatment for melasma improves the QOL in women.[29] For men who are bothered by melasma, this approach is generally not practical. Other options include sun protection and topical treatments. Sun protective hats and sunscreen should be encouraged, but strict protection from the sun may be difficult for the farm worker population and others who work outdoors.[30] Hydroquinone preparations can be used. A combination formula of tretinoin, hydroquinone, and a mild steroid for the skin has a greater effect in treating melasma on the face than do combinations of two of the above treatments or a single

treatment alone.[31,32] Azelaic acid 20% alone, or in combination with tretinoin 0.05% or 15–20% glycolic acid, may produce lightening. Kojic acid may be effective in the treatment of melasma. A combination of 2% kojic acid and 5% glycolic acid works as well as low-concentration hydroquinone. There are many additional therapies, including superficial and medium-deep chemical peels,[33,34] dermabrasion, and laser therapy.[16,17] These treatments are expensive and only improve the condition temporarily. Such treatments may not be within the financial limits of farm workers and poultry workers in the USA, who tend to make little more than the minimum wage.

Melasma is a common condition in Latino men and is associated with QOL. Clinicians should be aware that melasma may be a concern for their male patients. Research on the association of skin conditions with QOL amongst minority men is needed.

Acknowledgments

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