

VISIA System: A Possible Tool in the Cosmetic Practice

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Background: Dyspigmentation is a common complaint in the dermatology office.

Objective: We also sought to evaluate whether the VISIA Complexion Analysis System (Canfield Imaging Systems, Fairfield, NJ) could be a tool to help patients better understand their skin complaints.

Methods: Twenty-one consecutive women were recruited for VISIA analysis. Each subject underwent VISIA analysis and completed a follow up survey.

Results: 86% of respondents reported that the VISIA analysis helped them understand their initial concern. 86% noted that the VISIA brought other skin problems to their attention. 100% of the subjects responded that they would recommend VISIA analysis to others. 62% of subjects responded that they would prefer to go to a practice with a VISIA system in comparison to a practice without VISIA.

Conclusion: The VISIA Complexion Analysis System is a beneficial tool for dermatology and aesthetic practices with the potential to aid in patient education.

Many patients present to dermatologists with the complaint of dyspigmentation. This is a broad term, which includes disorders of melanin deposition, disorders of superficial vasculature, and disorders of both. Examples of melanin deposition include lentigines and post-inflammatory pigmentation. Examples of disorders of the superficial vasculature include telangiectasias, spider angiomas and rosacea. A combination of melanin deposition and prominent vasculature is found in dermatoheliosis. In order to evaluate these diseases, dermatologists have developed qualitative or semi-quantitative tests such as the melasma area and severity index (MASI).¹ These tools have been used most commonly to evaluate efficacy of treatment for dyspigmentation and the effects of skin conditions on quality of life. However, many of these analyses are cumbersome in a busy clinical practice and too abstract for patients. These scales have shown to be more relevant for research than for clinical applications.

The VISIA Complexion Analysis System (Canfield Imaging Systems, Fairfield, NJ, Figure 1) is a new device used to measure a patient's dyschromia, and it is clinically applicable. The VISIA system generates a series of photographs using standard, ultraviolet and cross polarized lighting. The photographs pro-

FIGURE 1. VISIA Complexion Analysis System (Canfield Imaging Systems, Fairfield, NJ)



vide a visual to patients that may help them understand their skin complaints. The system also analyzes the photographs to quantify the skin complaint and count the number of lesions, such as brown spots or dilated pores. The system further demonstrates how each subject's findings compare to the skin type of aged matched controls and generates a percentile where the subject falls on the distribution.²⁻⁴ A similar system, the VISIA CR, has been used for research purposes.

VISIA uses standard flash lighting to identify spots, rhytides, texture and pore size (Figure 2, Table 1).^{3,4} Spots are identified by their color and contrast from the surrounding skin, including freckles, acne scars, and vascular lesions. Rhytides are recognized by their long narrow shape. Of note, there can be variation in the measurement of rhytides based on facial expression. The standard lighting images can also assess the texture of the skin, reporting elevations and depressions on

TABLE 1.

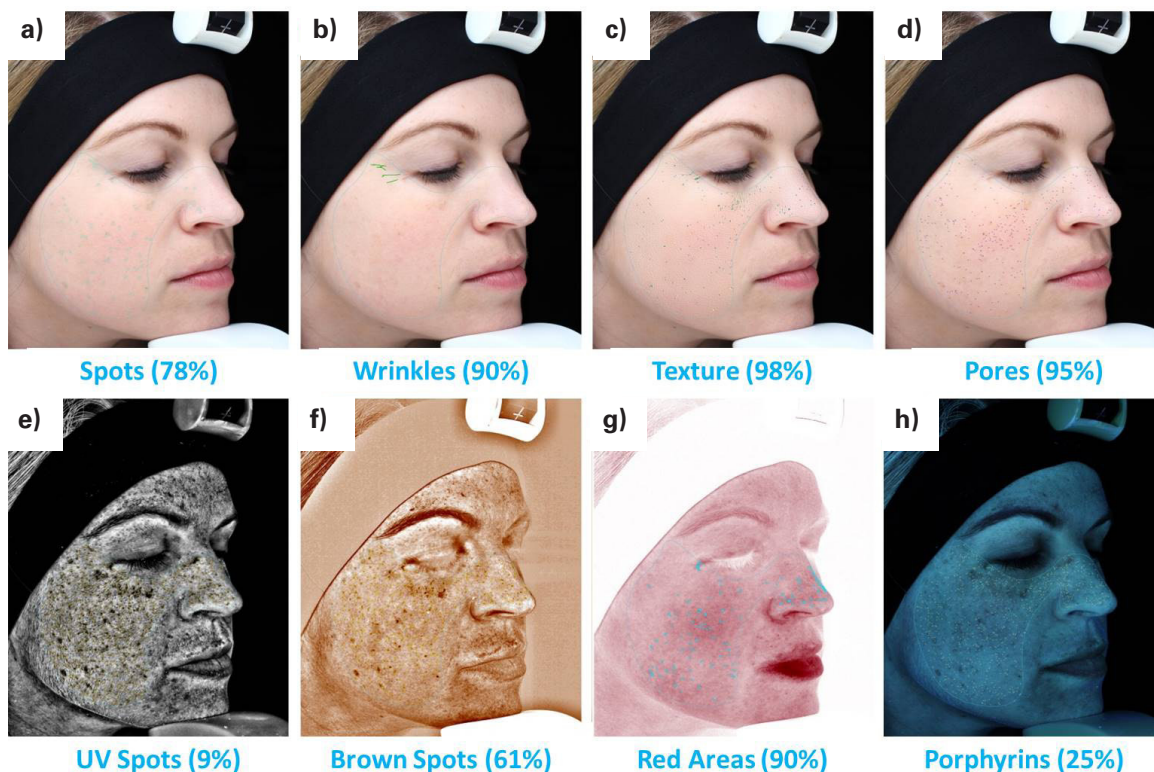
Lighting Types and Skin Characteristics (The VISIA uses different flash lighting to assess various skin characteristics.)

Type of Flash Lighting	Skin Characteristic Analyzed
Standard	Spots Rhytides Texture Pore Size
Ultraviolet	Ultraviolet Spots Porphyrin
Cross Polarized	Brown Spots Red Areas

the skin surface. Finally, pore size is identified by focusing on the spots that are very small.⁴

Ultraviolet lighting is used to generate an ultraviolet spot image and a porphyrin image (Figure 2, Table 1). The ultraviolet lighting takes advantage of the selective absorption of ultraviolet light by epidermal melanin in comparison to deeper melanin,

FIGURE 2. VISIA Complexion Analysis of a 30 year-old Caucasian female. **a)** Spots. **b)** Wrinkles. **c)** Texture. **d)** Pores. **e)** Ultraviolet spots. **f)** Brown spots. **g)** Redness. **h)** Porphyrins. Percentage scores for each image represent the patient's percentile relative to age, gender, and skin type matched controls. Higher percentiles (eg, greater than 50%) indicated the patient's skin is better than the average of her peers. Lower percentiles (eg, less than 50%) indicate the patient's skin is worse than the average of her peers.



thereby highlighting solar lentigines. Porphyrin fluoresces when exposed to ultraviolet light. Porphyrins are generated by bacteria, specifically *Propionibacterium acnes*, in the skin. Porphyrin bioburden in follicles and sebaceous glands may correlate with acne or suggest a propensity for breakouts.

Orthogonal, cross-polarized lighting is used to produce the final two images: the brown spot image and the redness image (Figure 2, Table 1). Canfield's patented RBX™ (Red/Brown/X) technology provides a semi-quantitative assessment of specific chromophores in the skin.^{3,4} Specifically, it measures the amount of melanin and hemoglobin content. The melanin serves as a proxy for brown discoloration. By using the cross polarized lighting, the VISIA is able to detect deeper deposition of melanin than is detected using the ultraviolet images. From the brown component image, a secondary hyperpigmented spot detection image can be generated. The hemoglobin serves as a measure of the amount of redness in the skin, including background erythema, telangiectasias, and vascular lesions. Similarly, from the red component image a secondary, vascular feature can be used which delineates prominent blood vessels.⁴

Finally, the VISIA is also able to measure eyelash length. It has potential to measure changes in eyelash length, for example with the use of bimatoprost (Latisse, Allergan, Irvine, CA).

This study assesses the usefulness of VISIA as a tool to help patients better understand their skin complaints.

Methods

Subjects were solicited from a general dermatology practice for VISIA skin analysis. Twenty-one consecutive patients underwent an analysis from the VISIA system at no charge and were asked to complete a follow up survey. Twenty-one women agreed to participate. The survey consisted of six yes/no questions and two open ended questions whereby the patients could provide a written response (Table 2).

Results

Only one of the 21 subjects had heard of or seen a VISIA system previously. Subjects reported that their biggest skin issues were pore size, sun damage, oiliness, brown spots and redness. 86 percent of subjects noted that the analysis helped them understand their skin concerns. Furthermore, 86 percent of subjects noted that the VISIA brought other skin problems to their attention. The new problems included pore size, sun damage/brown spots, wrinkles, prominent oil glands, and comparison to their respective age groups.

One hundred percent of the subjects responded that they would recommend the VISIA to others. Sixty-two percent of subjects

TABLE 2.**Survey Form Provided to Each Patient After Completion of VISIA Analysis****Please answer the following six questions. Yes or no.**

1	Have you seen or heard of VISIA before in the media?	Yes	No	Not Sure
2	Will you recommend the VISIA scan to others?	Yes	No	Not Sure
3	Would you choose to go to another practice that has a VISIA over on that does not have a VISIA?	Yes	No	Not Sure
4	Would you pay to have photos taken with the VISIA system?	Yes	No	Not Sure
5	Did the VISIA help your understanding of your skin problem?	Yes	No	Not Sure
6	Did VISIA help you make decisions regarding products purchased or recommended treatments?	Yes	No	Not Sure

Please write in your response to the following two questions.

- 7 What is your biggest skin issue?
- 8 Did VISIA make you aware of any other skin problems?

responded that they would prefer to go to a practice with a VISIA system compared to a practice without VISIA. Sixty-two percent of respondents noted that they would pay for the analysis with the VISIA system. Thirty-eight percent of subjects responded that the analysis guided their product purchases or treatment decisions.

Conclusion

The VISIA Complexion Analysis System is a beneficial tool for dermatology and aesthetic practices. It has the potential to help patients understand their skin concerns and guide treatment decisions. While not addressed in this study, we have used the VISIA in our clinical practice to perform baseline evaluations and track treatment outcomes. This study is limited by the small number of subjects. Further studies on how to integrate the VISIA system into a clinical practice are warranted.

Disclosures

The authors have no relevant commercial interests to disclose.

References

1. Pandya AG, Hynan LS, Bhore R, Riley FC, Guevara IL, Grimes P, et al. Reliability assessment and validation of the Melasma Area and Severity Index (MASI) and a new modified MASI scoring method. *JAAD*. 2011;64(1):78-83. e1-2.
2. VISIA Complexion Analysis System: Frequently Asked Questions. Canfield Imaging Systems, Fairfield, NJ.
3. Demirli R, Otto P, Viswanathan R, Patwardhan S, Larkey J. RBX Technology Overview. Canfield Imaging Systems, Fairfield, NJ.
4. Cygler, Kathleen. VISIA Complexion Analysis Med Spa [Webinar]. Recorded Nov 5, 2013. Accessed May 16, 2014. <https://www1.gotomeeting.com/register/783169248>.

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