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The use of high frequency ultrasound imaging in skin moisturization measurement.

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Abstract

INTRODUCTION:

The appropriate skin hydration level enables its normal function and healthy appearance.

PURPOSE:

The purpose of present research was to assess the applicability of high frequency ultrasound (HFU) to the monitoring of skin moisturization treatments.

MATERIAL AND METHODS:

The study sample encompassed 27 women, aged 20-67 y.o. (mean age of 45.48 y.o.) with dry skin. All women applied a strong moisturizing cream on their facial skin for 14 days. The course of treatment was monitored using the HFU. The following parameters were subjected to the ultrasound evaluation: epidermal echo thickness, dermis thickness, and separately the thickness of the superior and inferior layer of dermis. The measurements were taken on the participants' chins and cheeks. In addition, skin hydration and transepidermal water loss (TEWL) were determined.

RESULTS:

Statistically significant differences were obtained between the echogenicity of the superior layer of the dermis on the chin and cheek. After treatment, the statistically significant values of TEWL decrease and hydration increase were obtained on the cheek skin. No statistically significant differences between the TEWL or hydration levels were found on the chin. No statistically significant differences between the epidermal echo and dermis thickness values for the two measurement points were observed.

CONCLUSION:

The HFU is a useful method for the monitoring of skin moisturization treatments.

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