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Evaluation of efficacy of a serum containing five types of hyaluronic acid with different molecular weights in increasing production of collagen type I in the dermis

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Introduction and Objective: With aging, the genetic material of the skin changes due to a significant reduction in synthesis enzymes. As a result, epithelial tissue loses elasticity and lift, replication becomes less efficient and wrinkles appear. Hyaluronic acid (HA) is one of the main components of the extracellular matrix, essential for skin hydration, density, firmness and filling. The aim of the present study was to evaluate the efficacy a serum containing five types of HA with different molecular weights in increasing production of collagen type I in the dermis.

Methods: Fragments of human tissue (ex vivo) were incubated for 72 hours with the serum, and after, overnight with collagen type I primary antibody and subsequently with goat anti−mouse secondary antibody for 1 hour. Then the fluorescence intensity was analyzed in a fluorescence microscope. Analysis of variance was used for statistical analysis.

Results: The serum containing five types of hyaluronic acid with different molecular weights was able to increase type I collagen synthesis by up to 126% in skin fragments incubated for 72 hours when compared with the control (untreated) under the same conditions.

Conclusions: The present study demonstrated the efficacy of the serum containing five types of hyaluronic acid with different molecular weights in significantly increasing the type I collagen synthesis up to 126%, in human skin fragments. Thus, the serum is a potent anti-aging by promoting increased skin support and firmness which, consequently, reduces fine lines and wrinkles.

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Uncovering the regulatory effects of exogenous thymic stromal lymphopoietin on the keratinocyte transcriptome

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Thymic stromal lymphopoietin (TSLP) is a cytokine produced by various cell lines; including epidermal keratinocytes, which induces TH2 mediated inflammation. TSLP has been shown to activate immune cells to produce high concentrations of IL-13, IL-5, and TNF-α, while inhibiting expression of the anti-inflammatory cytokine IL-10. While TSLP represents a key keratinocyte-derived cytokine, its direct effect on keratinocytes is unclear. To investigate the effect of TSLP on keratinocyte signaling, we treated primary human keratinocytes with active recombinant TSLP. Primary keratinocytes were grown in serum-free, low-calcium media to subconfluence. Subsequently, they were treated for 24 hours with recombinant TSLP or control media in triplicate. After treatment, RNA was extracted, following quality control, enrichment, and library preparation. Sequencing was performed on an Illumina HiSeq PE150. We used DESeq to analyze differentially expressed genes followed by Gene Ontology (GO) enrichment analysis. Keratinocyte stimulation with recombinant TSLP resulted in 167 differentially expressed genes. GO analysis demonstrated significant impact on gene clusters involving epidermal development and keratinocyte differentiation. Fos proto-oncogene was significantly up-regulated as expected. RT-PCR was used to confirm differentially expressed genes from RNA-seq experiments, with further investigation into specific genes differentially expressed in various keratinocyte processes. Of interest, we noted significant up-regulation of late cornified envelope protein complex (LCE1A, LCE1B, LCE1C, LCE1E, LCE2A, and LCE2D), consistent with epidermal cell differentiation. Our results demonstrate a significant role of TSLP binding in altering the keratinocyte transcriptome, namely related to epidermal cell differentiation. The role of this altered expression in atopic dermatitis pathogenesis remains unknown.

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The burden of combined facial and truncal acne

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Background: The associated burden of facial acne (FA) on quality of life (QoL) is known to be high, but there is little information on the combined burden of FA and truncal acne (TA).

Design: Qualitative research.

Methods: 60-minute in-depth-interview (IDI) in 6 countries, among 30 patients aged 13-40 with active FA combined with TA. Data were analyzed descriptively.

Results: For ~50% of respondents, discussion about TA was at the patient's initiative. Treatment satisfaction was slightly lower for TA vs FA (average score of 3.13 vs 3.40, on a 5-point scale) because of the difficulty of treatment application and subsequent non-adherence. If respondents expressed some relief in covering their TA with clothing, TA continued to weigh on their self-esteem (average score 3.17) and intimate lives. Hygiene habits was ranked as most impacted for both FA and TA; self-esteem ranked second for TA while it ranked third for FA, close after social life (average score: 3.73 and 3.77 respectively). TA is considered an "additional nuisance" (verbatim). A specific impact of TA is physical pain (~30% spontaneous mention).

Conclusions: Patients with combined FA and TA tend to diminish the negative impact of TA as they can often hide it. This propensity to neglect TA is underscored by the HCPs' inconsideration. The impact of FA combined with TA is higher than the impact of FA alone. Raising awareness of TA could improve its clinical management and the QoL of affected patients.

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Efficacy and tolerance assessment of a dermocosmetic balm in Mexican pediatric subjects with mild to moderate atopic dermatitis through reflectance confocal microscopy

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Background: Emollients are the first line of treatment in atopic dermatitis (AD). Reflectance confocal microscopy (RCM) is a noninvasive diagnostic tool with adequate histologic correlation that might be relevant to follow-up dermocosmetic efficacy.

Objective: To assess clinical parameters and morphological tissue findings via RCM between a dermocosmetic balm and a conventional emollient in AD pediatric subjects.

Methods: This randomized, double-blind, controlled and prospective clinical trial enrolled 40 subjects aged 1-16 years, with mild to moderate AD, in a 8 week study. They were randomized into 2 groups who applied a dermocosmetic balm or a conventional emollient. SCORAD and POSCORAD indexes, CDLQI questionnaire, and RCM assessments (parakeratosis, spongiosis, epidermal disarrangement, acanthosis, vascular dilation, dermal papillae and inflammation) on the affected skin were performed during the study.

Results: Clinical parameters, symptoms and quality of life were improved after 56 days of dermocosmetic balm application when compared with the conventional emollient group. Morphological tissue assessment through RCM showed a greater decrease in the measured parameters in the dermocosmetic balm group: parakeratosis 58% ($P = .05$), spongiosis 21% ($P > .05$), epidermal disarray 11% increment, acanthosis 0%, non edged papillae 22% ($P > .05$), vascular dilation 18% ($P > .05$). No adverse events were reported.

Conclusions: RCM showed to be a sensitive technique to evaluate dermocosmetic's efficacy on AD skin care. Dermocosmetic balm was efficient and safe in AD pediatric subjects.

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