25th World Congress of Dermatology
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ABSTRACT BOOK

L'OREAL'S DERMATOLOGY BREAKTHROUGHS: A SYNOPSIS OF ABSTRACTS

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Foreword

Dear Colleague and partner Doctors,

It is my great pleasure to share this curated collection of 117 abstracts submitted by L'Oréal Dermatological Beauty medical teams and R&I, and accepted by the World Congress of Dermatology 2023 in Singapore.

Please find 18 content categories, shedding light on epidemiological studies, advancements in treatment outcomes, innovative diagnostic techniques, and digital developments in dermatology. Each abstract reflects our shared mission to pioneer health and beauty and provide life-changing and sustainable dermatological solutions to all in order to improve the lives of the over two billion people affected by skin issues worldwide.

Whether you were able to attend the congress in Singapore or not, I hope you find this abstract book useful in your daily practice.

My best wishes

Bertrand Chuberre, MD
Vice President
Medical Affairs
L'Oréal Dermatological Beauty

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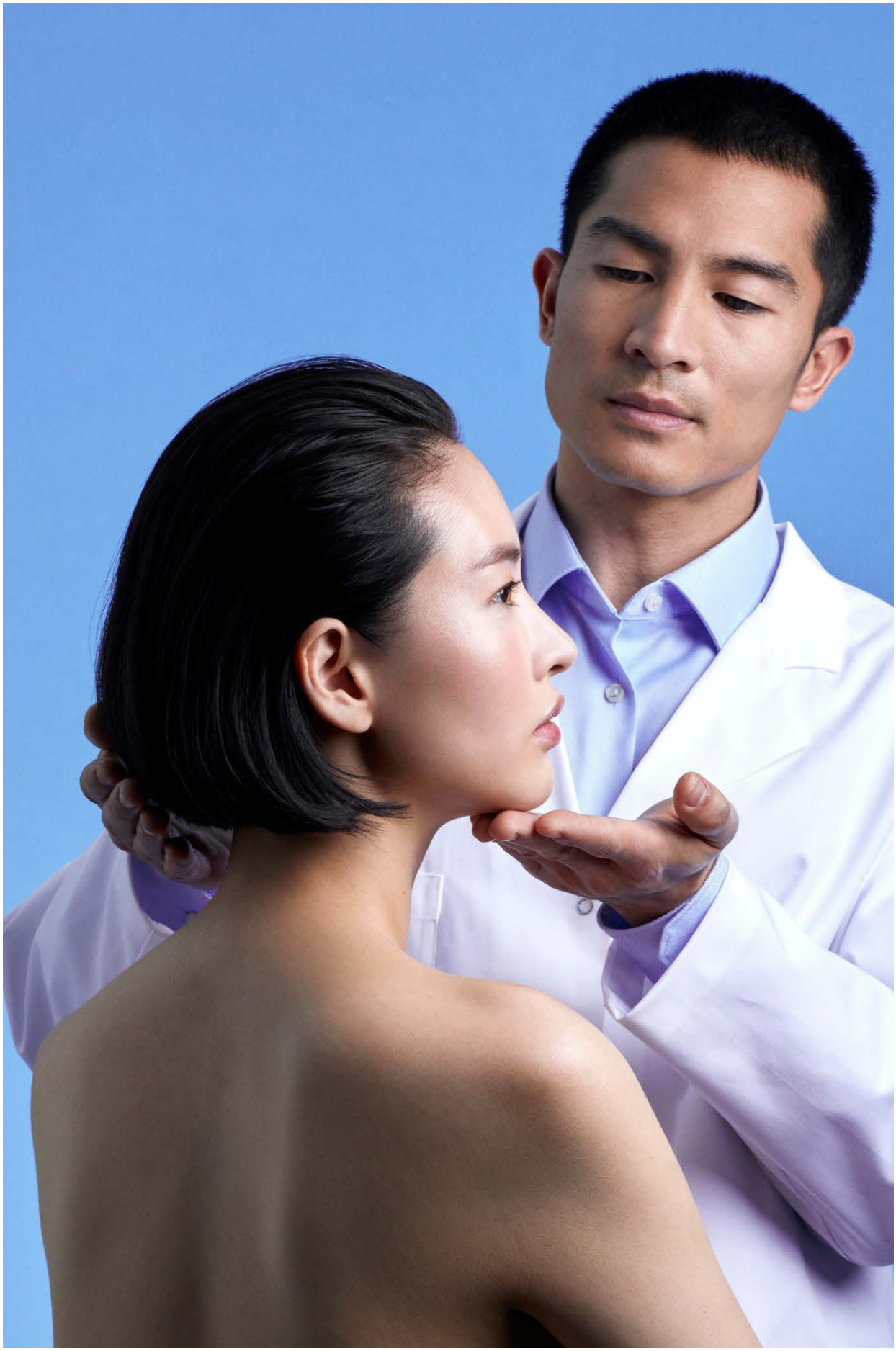

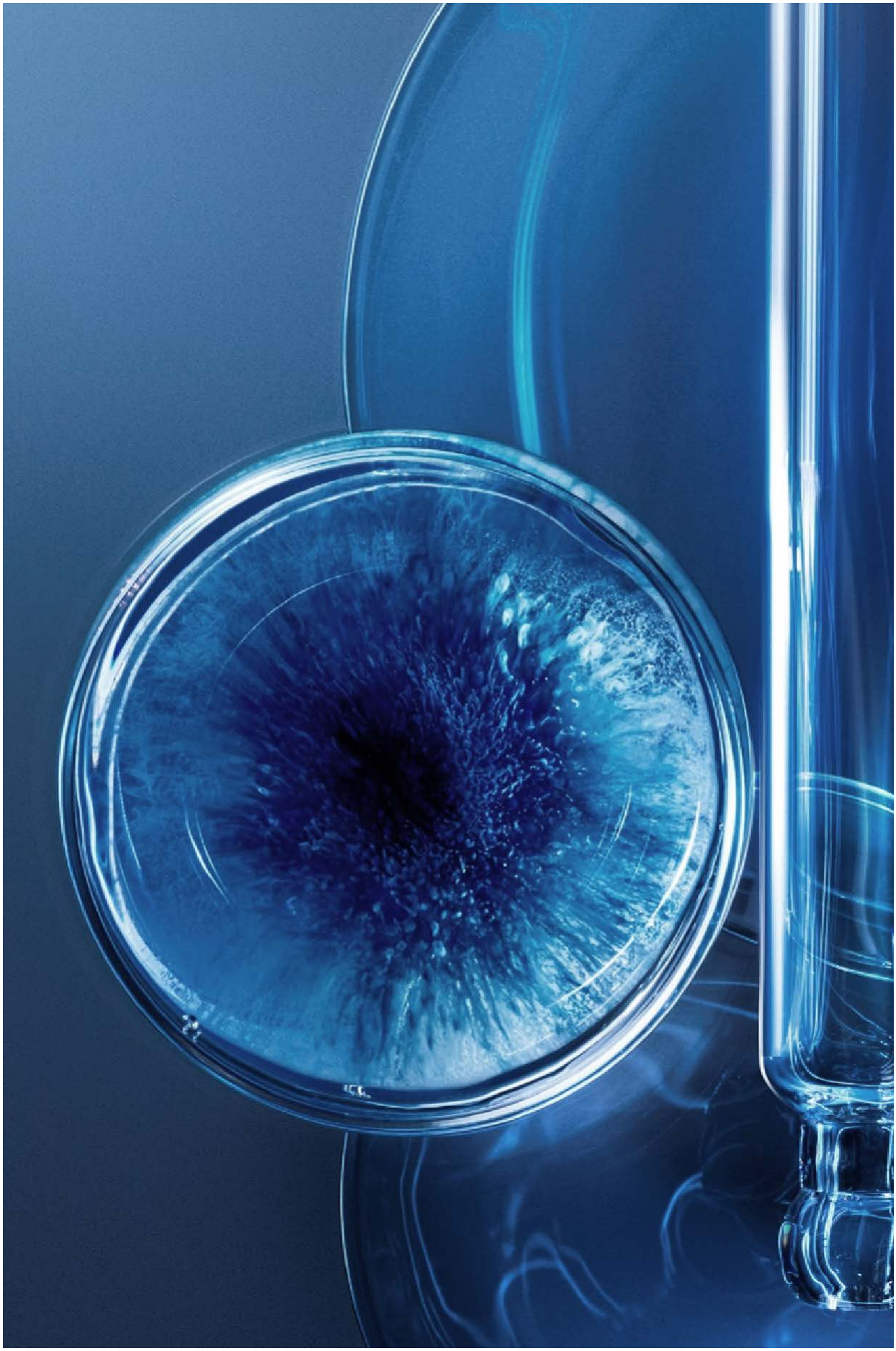

The usefulness of Dermocosmetic in Chronic Telogen Effluvium

AUTHORS

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INTRODUCTION

Telogen Effluvium (TE) is a non-inflammatory, non-scarring alopecia linked to various causes, impairing quality of life. Chronic TE contrasts with classic acute form by its persistence and its tendency to fluctuate for a period of years. Currently, topical or systemic medical treatments for anti-hair loss has been proven efficacy in chronic TE, but none is specific for this type of alopecia.

OBJECTIVE

The primary aim was to assess the efficacy and safety of a dermocosmetic containing 2,4 diamino-pyrimi- dine-oxide, SP94, Arginine, Piroctone Olamine, Vichy thermal water [AMINEXIL® INTENSIVE 5 (AMI5)] on the diameter of the hair shaft and hair density in subjects with chronic TE. Secondary objectives were to evaluate the cosmeticity and satisfaction of the treatment.

MATERIALS AND METHODS

Twenty subjects with chronic TE, hair loss medication naive, were studied to evaluate the efficacy of AMI5 applied every day for 3 months followed by 3 times a week for the next 9 months. Average diameter of hair shaft and hair density were measured by Trichoscan® at baseline, 3 months, 6 months and 1 year. Tolerability and satisfaction regarding the patient's perception of hair condition improvement were assessed at baseline and 12 months. Pleasantness of the treatment was assessed by oral interview by clinicians.

RESULTS

There was an increase of 9% in hair diameter and 22% in hair density at the end of the study ($p<0.001$). All the subjects noticed an improvement in their hair condition and the treatment was well tolerated. At the end of the study, subjects rated positively the pleasantness and effect of the product.

CONCLUSION

AMI5 increases hair density and thickness were observed in all subjects affected by chronic TE. A fully positive pleasantness and effect of the product were experienced by patients. Topical treatment with AMI5 might be considered in chronic TE.

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Assessment of hair and scalp symptoms knowledge among over 10 000 Chinese dermatologic patients: A cross-sectional descriptive survey

AUTHORS

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INTRODUCTION

Hair is essential to our well-being, health, and Quality of Life (QoL). The number of patients with scalp or hair disorders is rapidly increasing. However, low level of awareness deters many patients from seeking medical advice.

OBJECTIVE

No study assessed dermatologic patients' knowledge of scalp and hair diseases and treatment in China in the literature. The study aimed to investigate the level of disease burden and knowledge on scalp and hair disorders and treatment among Chinese patients.

MATERIALS AND METHODS

A cross-sectional descriptive survey was carried out between May to August 2022 in 11 tertiary-level hospitals in China, among clinic patients using a pre-designed questionnaire including DLQI.

RESULTS

10,305 patients were included (21.2% males and 68.8% females); 69.9% were 18–39-year-old. Among them, 55.3% were concerned about scalp & hair problems, yet only 29.6% were diagnosed with scalp & hair disease.

A total of 87.9% of subjects had at least one moderate to severe scalp or hair problem, including greasy scalp (70.5%), greasy hair (64.5%), poor hair quality (62.3%), hair loss (59.7%), itchy scalp (55.0%), dandruff (53.7%), and 28.3% of patients had all the symptoms. QoL was moderately or severely affected among >50% of the respondents.

CONCLUSION

This study underlines a need to increase awareness about various scalp and hair symptoms in overall dermatologic patients, with considerable impact regarding the cause, consequences if left untreated, and new treatment options.

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Use of SeS2-based shampoo in Brazilian clinical practice

AUTHORS

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INTRODUCTION

Seborrheic dermatitis (SD) is a chronic, relapsing inflammatory disorder affecting the scalp, face, and trunk. Previous studies demonstrated the Selenium disulfide (SeS2) efficacy to reduce scaling, itching, irritation and redness of the scalp in SD. SeS2 has shown a full spectrum antimicrobial action against Malassezia yeasts and bacterial species.

OBJECTIVE

The aim of this observational study was to explore how Brazilian dermatologists currently prescribe the SeS2-based shampoo, and its effectiveness for each situation prescribed in private practice.

MATERIALS AND METHODS

Dermatologists practicing in 9 states of Brazil were asked to prescribed SeS2-based shampoo to adults, of both sexes, in all hair types and phototypes. Each dermatologist completed a written questionnaire including demographic data, prescribed therapeutic regimen, and evaluation of clinical severity, including; scaling, infiltration, erythema, itching and oiliness of the scalp. Patients were also questionned about treatment satisfaction.

RESULTS

In total, 210 patients received the SeS2-based shampoo prescription by 155 dermatologists. SD was the most common condition addressed by dermatologists (92%). The majority of dermatologists considered the SeS2-based shampoo to treat mild to moderate SD (78%), in a 2-3 times per week regimen. S2-based shampoo was used in monotherapy in 72% of the patients and in association with micro-exfoliatior shampoo in 28% of the cases. After 28 days of treatment, 88% of subjects presented a good improvement. The association of shampoos demonstrated a superior improvement in reducing scalp infiltration, erythema and oiliness, but increased dryness of the hair shafts.

CONCLUSION

The Brazilian dermatologists considered the SeS2-based shampoo effectiveness to treat a mild to moderate DS. The 2-3 times per week regimen was well tolerated and effective in the majority of patients.

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Worldwide perception decoding of hair ecosystem: fiber, follicle, and scalp. A pilot study involving 12,624 women and men from 6 countries

AUTHORS

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INTRODUCTION

To better design haircare solutions adapted to consumers in their diversity, investigating worldwide in different gender, location, age, hair types is essential. Especially in countries where knowledge and literature are scarce.

OBJECTIVE

To understand the perception of global hair ecosystem, i.e., fiber, follicle, and scalp, in a large typology study covering northern and southern countries representing 50% of the world population.

MATERIALS AND METHODS

In six countries (Indonesia, India, China, Japan, Mexico and Brazil) and twenty-one cities, 9,458 women and 3,156 men were enrolled to answer in their own language to a self-questionnaire –30 queries covering hair types, scalp issues, hair damage, hair loss, lifestyles, routine, exposome and emotions.

RESULTS

i) Hair damage is a concern for 48% of volunteers with prevalence in China (68%) and Japan (56%).

ii) Dandruffs (16% of volunteers) and Sensitivity (11%) are the two first concerns collected on scalp with prevalence in China for the first (24%) and Indonesia for the second (29%). Interestingly for the latter, 60% of Indonesian women involved in experiment declare wearing hijab. Scalp sensitivity in Indonesia affects by twofold the emotional state (“confidence”, “good about myself”, “energy”, “relax”). In China, perception of absence of dandruffs rises by half the emotional state.

iii) Hair loss remains a transversal concern (~35% in all countries) ranked as higher one. With 42%, Mexico and India present the higher perceived severity.

iv) Regarding exposome, global perception seems more impacted by lifestyles and internal factors (stress, lack of sleep) than external (sun exposure, urban pollution, temperature changes).

CONCLUSION

To complete this perception mapping, a second aspect is devoted to objective assessments for hair ecosystem. Based on the comparative analysis of both creating more personalized treatments is at hand as well as raising awareness of key factors impacting quality of life of women and men worldwide.

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Age-associated thin hairs are characterized by molecular, structural and mechanical changes

AUTHORS

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ABSTRACT

Hair thinning occurs during normal chronological aging in women and in men leading to a changing level of thinner hair shafts alongside original thicker shafts. However, the characteristics of age-associated thin hairs are largely unknown so far.

The goal of our study was to analyze the specific features of thin hairs from Caucasian women older than 50 years, by comparing thin and thick hairs originated from the same individuals at multiscale namely mRNA and proteins levels, structural and molecular organization, and dynamic mechanical properties.

We observed a change of hair shape, a reduced number of cuticle layers and a reduced frequency of medulla in thin hairs. Regarding mechanical properties, both rigidity, viscosity and water diffusion were modified in thin hairs. Our results also revealed that thin hairs displayed an imbalance several gene expressions including hair keratins and keratin-associated proteins. X-ray diffraction analyses revealed differences supporting that thin and thick hairs are different with regards to the nature of the intermediate filaments making up their cortices. Hence, aged-associated thin hairs exhibit numerous modifications likely due to changes of hair program as evidenced by the modulations in the expression of hair keratins and keratin-associated proteins and by the X-ray diffraction specters.

We conclude that hair thinning with age does not consist simply of the production of a smaller hair. It is rather a more profound process likely relying on the implementation of an “aged hair program” that takes place within the hair follicle.

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Cosmetic routine in mildto moderateacne: Avisual evidence of efficacy over 2 months in all skin phototypes

AUTHORS

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INTRODUCTION

Dermocosmetics (DC) are increasingly being recognized as an integral part of acne management. DC may minimize the side effects of acne treatments, provide synergistic effects by improving the efficacy of other treatments, and limit exposure to environmental factors such as ultraviolet radiation.

OBJECTIVE

To assessed in all skin phototypes the efficacy and local tolerance of a dermocosmetic routine care used as a standalone solution for mild to moderate acne.

MATERIALS AND METHODS

Adults and children with mild to moderate facial acne with at least 15 non-inflammatory and 7 inflammatory lesions on the face and of any phototype applied an acne-dedicated cleanser and a topical anti-acne nonprescription product twice daily for 8 weeks. Clinical evaluations assessed acne severity using the GEA scale, clinical signs (erythema, oedema, dryness, desquamation and roughness) and the acne lesion count as well as local tolerance at weeks 4 and week 8. Clinical efficacy was evaluated by the dermatologist and using skin imaging tools. Patients self-assessed tightness, stinging, itching, warming and burning sensation.

RESULTS

The severity of acne improved in 25% of subjects after 4 weeks and up to 59% after 8 weeks. 60% had at least one grade improvement observed.

The total acne lesion count decreased at week 4 and 8 (20% and 34% respectively), non-inflammatory lesion count by 16% at week 4 and by 28% at week 8 and the inflammatory lesion count by 31% and 52%. Visual acne improvement over time was observed in patients of phototypes ranging from I to VI. Globally, 93% of patients had no clinical signs and 69% no symptoms reported.

CONCLUSION

This study confirms the efficacy of a cosmetic routine care associating a cleanser and an anti-acne topical after 8 weeks of use, with a high control of acne and a clinically significant efficacy across all 6 phototypes.

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Efficacy of a dermocosmetic cream compared to benzoyl peroxide gel on acne vulgaris treatment

AUTHORS

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INTRODUCTION

Acne vulgaris is a skin inflammatory disease characterized by non-inflammatory (comedones) and inflammatory lesions. Benzoyl peroxide (BPO) is widely used as an efficient, approved treatment for acne. However, this treatment is often associated with skin irritation and/or contact allergy. Current scientific research of the best combinations of ingredients is generating highly efficient dermocosmetic products which could potentially be used as monotherapy for patients with milder forms of acne.

OBJECTIVE

The objective of this study was to compare the efficacy of a dermocosmetic cream (DC) containing salicylic acid, lipohydroxy acid, niacinamide, procerad, glycerin, octopirox, zinc salt of L-pyrrolidone carboxylic acid (Zinc PCA), mannose, aqua posae filiformis, thermal spring water, with that of a gel containing 5% BPO in the treatment of acne vulgaris.

MATERIALS AND METHODS

The study was approved by an Ethics Committee. A total of 150 Caucasian subjects presenting at least 10 inflammatory lesions (IL) and 10 non-inflammatory lesions (NIL) were randomized in 2 parallel groups (DC or BPO applied twice a day). Dermatologist evaluated the number of acne lesions at baseline and after 28 and 56 days of treatment.

RESULTS

A significant reduction of acne lesions was observed versus baseline for both products. The effect of DC on lesion counts was an average reduction of 8.3 and 10.9 lesions for IL and 11.7 and 20.4 lesions for NIL after 28 and 56 days, respectively. BPO effect on lesion counts was an average reduction of 7.7 and 9.9 lesions for IL and 14.1 and 25.1 lesions for NIL over the same treatment periods. There were no statistically significant differences between the treatments.

CONCLUSION

The studied DC efficiently reduced the number of acne lesions with a level of efficacy comparable to that of BPO.

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The Tolerability of a Serum with Silymarin, Ascorbic Acid, Ferulic Acid, and Salicylic Acid Used in a Regimen with Prescription Acne Medication

AUTHORS

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INTRODUCTION

Many topical prescription acne medications are irritating and drying to the skin based on the characteristics of the active drug or the vehicle. Patients desire to optimize skin performance during acne treatment with use of antioxidant cosmeceuticals.

OBJECTIVE

A multinational study (United States and Germany) examined the cutaneous benefits of a topical antioxidant serum containing 0.5%-silymarin, 15%-ascorbic acid, 0.5%-ferulic acid, and 0.5%-salicylic acid subjects using prescription acne medications.

MATERIALS AND METHODS

Each country enrolled 20 subjects age 18-50 years of all Fitzpatrick skin types, currently using prescription acne medications in this multinational study. To their acne treatment regimen, subjects added a facial serum containing silymarin. Investigators rated subjects for facial dryness, erythema, and edema while the subjects rated themselves for the facial sensory attributes of stinging, tingling, itching, and burning. All assessments were conducted on a 4-point ordinal scale along with facial photography at baseline and week 4. Subjects also completed a self-assessment questionnaire regarding skin clarity improvement, skin radiance improvement, skin oil presence, and product perception after 1 and 4 weeks of product use.

RESULTS

40/40 subjects successfully completed the tolerability study without adverse events. Adding serum to prescription acne regimens resulted in an investigator assessed statistically significant reduction in facial erythema (-60%, $p<0.001$), dryness (-49%, $p=0.001$), and scaling (-67%, $p=0.008$). Subjects noted statistically significant reduction in facial tightness (-53%, $p=0.016$) and dryness (-45%, $p=0.023$). After one week of use, 70% of subjects agreed the serum made their skin feel less oily. After 4 weeks of use, 58% of subjects felt the serum improved skin clarity and 50% felt the serum improved skin radiance. 58% of subjects desired to continue using the serum after completion of their prescription acne therapy.

CONCLUSION

The antioxidant serum can be used in conjunction with prescription acne medication to improve skin appearance.

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Benefits of a dermocosmetic regimen in the management of local skin intolerance induced by a retinoid-based acne gel previously inadequately mitigated with routine adjunctive skin care

AUTHORS

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INTRODUCTION

Retinoid-based topical acne treatment may induce local tolerance issues that may reduce treatment adherence and efficacy. The tested dermocosmetic (DC) regimen composed of a cream containing maltodextrine, Bixa Orellana seed extract, niacinamide, panthenol and the post-biotic Aqua Posae Filiformis (APF) and a cleanser with maltodextrine, Bixa Orellana seed extract, niacinamide, APF, mannose and citric acid has been developed to improve acne treatment-related local side effects.

OBJECTIVE

To assess the benefit of a DC regimen in the management of local cutaneous side effects associated with use of a fixed dose of adapalene and benzoyl peroxide gel previously inadequately mitigated with routine adjunctive skin care.

MATERIALS AND METHODS

An open-label study was conducted in subjects >12 years old with sensitive skin treated for at least one month with the fixed-dose gel combination and presenting with treatment-related skin intolerance. Clinical signs, symptoms, acne severity using the GEA score, inflammatory as well as non-inflammatory lesion counts, quality of life (QOL) using CADI, treatment adherence using ECOB and global tolerance were assessed at baseline, Day 14 and 28. Subjects used the DC regimen twice daily and the fixed dose gel in the evening.

RESULTS

The skin sensitivity composite score had significantly improved. This improvement was observed in 74% and 95% of subjects at D14 and D28, respectively. Clinical signs (erythema, dryness, desquamation) were significantly improved at D28 with an improved overall tolerance to their treatment; confirmed by 95% of subjects. Acne severity and lesion counts had significantly improved at D28. Symptoms (itching, burning, tightness) evaluated by subjects were also significantly improved at D14 and D28 with a significant positive impact in CADI and treatment adherence at D28.

CONCLUSION

The tested DC regimen reduced signs and symptoms of local skin intolerance associated with a fixed dose retinoid-based topical acne treatment.

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An ultra-concentrated tri-acid complex (Salicylic acid, LHA, glycolic acid) serum improves post-therapeutic residual acne lesions with maintenance effect after treatment discontinuation

AUTHORS

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INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit. An important feature in the etiology of acne is the presence of pilosebaceous ductal hypercornification or microcomedone. An adequate management of acne should include a maintenance regimen to prevent recurrences after discontinuing a successful treatment.

OBJECTIVE

To assess the capacity of an ultra-concentrated tri-acid complex (UTAC) serum (active ingredients: Salicylic acid, LHA, glycolic acid combined with soothing ingredients) to maintain the outcome of a previous anti-acne therapy.

MATERIALS AND METHODS

After a drug-therapy period and within a month after drug therapy interruption, adult women with mandibular acne were treated with UTAC serum once daily for 2 months. Visits took place at baseline, weeks 1, 2, 4, 8 and 12 (1-month follow-up). Clinical evaluations (acne lesion counts, GEA grade, AFAST score and seborrhoea scores) and instrumental measurements (*in vivo* confocal microscopy) were performed at each visit.

RESULTS

Thirty adult women with mild-to-moderate acne most of whom had been recently treated with topical adapalene and/or benzoyl peroxide were included. A total of 38% of subjects had scattered lesions (grade 1) and 62% had a few acne lesions (grade 2). After 15 days, a significant decrease in the acne lesion counts was observed. And a significant decrease in the AFAST score was observed after 28 days. On Day 28, 66% of the subjects had no or only scattered acne lesions. These results were maintained until the end of study (Day 84). After 8 weeks, most subjects showed either no change (63.3%) or an improvement (30.0%) in acne severity. After the serum was interrupted for 4 weeks, the benefit no relapse was observed.

CONCLUSION

After discontinuation of an initial successful acne therapy, a once-daily use of UTAC serum was well-tolerated and beneficial over time in the maintenance of the anti-acne treatment benefit.

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International Expert Consensus Recommendations for Use of Dermocosmetics in Acne

AUTHORS

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INTRODUCTION

Acne vulgaris is a very common global problem. Efficacious treatments are available. However, clinicians and patients alike are continuously searching for ways to improve acne management. Recently, attention has focused on the use of dermocosmetics to enhance outcomes in patients with acne. Dermocosmetics (or "cosmeceuticals", DC) are skincare products that use sophisticated active ingredients to directly support and care for the symptoms of various skin conditions. They potentially have a biologic activity in skin that supports skin integrity and relieves skin conditions.

OBJECTIVE

To assess the benefit of DC in acne.

MATERIALS AND METHODS

A systematic literature review was performed and a panel of dermatologists with interest and expertise in acne management analyzed the literature, held a live meeting, and then conducted a three-step Delphi process online.

RESULTS

The panel acknowledged the evidence base for DC is less robust than that for prescription products but utilized available evidence and expert opinion to come to consensus. The panel suggested that DC may be used as monotherapy to treat milder forms of acne or to maintain the benefit post Rx treatment, supported by studies demonstrating improved global assessment, reduced acne lesions counts and skin oiliness, and effective maintenance after acne clearance. In addition, the panel recommends that DC may be used as adjuncts to prescription treatments. As adjuncts, DC may help to prevent and manage irritation and/or drug-induced adverse effects, and may also reduce skin oiliness, improve barrier function, and improve adherence, satisfaction, or quality of life of acne patients. Limited evidence also suggests that adjunctive use of DC may enhance efficacy, potentially through enabling the ability of patients to adhere to prescription therapy.

CONCLUSION

Literature sources support the benefits of DC in acne management.

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Efficacy evaluation of a dermocosmetic with skin repair properties after fractional laser surgery in acne scars

AUTHORS

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INTRODUCTION

Laser therapy is indicated in the reduction of pore size, acne scars, wrinkles and photoageing. However, it also causes skin reactions such as erythema, swelling, pain, burning and other discomfort. Post-laser care using dermocosmetics (DC) is highly indicated to increase the outcome of laser procedures.

OBJECTIVE

To evaluate the clinical efficacy and safety of a DC balm in the skin repairing process after fractional laser therapy in acne scars.

MATERIALS AND METHODS

84 adults who underwent acne scar fractional laser were included in this open label study. The population was equally randomized into an active group receiving the DC balm and control group receiving a routine facial care. Sebum content (SC), cuticle water content (CWC) and transepidermal water loss (TEWL) were measured before procedure (Baseline) and 7 and 14 days after the procedure. Lesional erythema and melanin index were assessed with skin image analyzer. Occurrence of post-laser complications were recorded after 14 days.

RESULTS

2-weeks after the procedure, SC and CWC levels in the DC balm group were significantly higher than in the control group (SC: 87.11±4.4µg/cm² vs 80.29±3.52 µg/cm²; CWC: 22.31±3.62% vs 18.95±3.15%). Conversely, the TEWL in the DC balm group was significantly less important than in the control group (14.94±3.62 $g \cdot m^{-2} \cdot h^{-1}$ vs 23.38±4.04 $g \cdot m^{-2} \cdot h^{-1}$, $p<0.001$); a significant improvement was observed as early as after one week.

After D7 and D14, the erythema and melanin index were significantly lower in the DC balm than in the control. The incidence of post laser complications was significantly higher in the control (23.8%) than in the DC balm group (7.1%).

CONCLUSION

The post-laser application of a specifically developed dermocosmetic balm for 14 days improves skin hydration, reduces procedure-related complications, and promotes the early recovery of skin damage after fractional laser operation of acne scars.

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A clinical study to assess the efficacy and tolerance of a Facial serum with anti-Acne benefits

AUTHORS

Shuting Li[1], Xianghua Zhang[2], Delphine Kerob[3], Zhongxing Zhang[2]

INTRODUCTION

Dermocosmetics (DC) play frequently a role as adjuvants to pharmacological treatments to mitigate side effects, as stand-alone products in the maintenance after an initial pharmacological or in the management of mild acne.

OBJECTIVE

This study evaluated the efficacy and safety of a facial serum (salicylic acid, glycolic acid, niacinamide and lipohydroxy acid) with anti-acne benefits in oily skin prone to acne.

MATERIALS AND METHODS

A single-centre study was conducted in China (46 female volunteers, 18 to 37 yo). Subjects applied 3 drops in the evening of a serum, as well as a moisturizer and a sunscreen for 4-weeks followed by a 2-week application period of the moisturizer and sunscreen only. The number of inflammatory, non-inflammatory lesions and post-inflammatory hyperpigmentation marks as well as pore visibility were assessed by the dermatologist at Baseline, D7, D28, D35 and D42. Subjects completed a satisfaction questionnaire at D28.

RESULTS

The number of non-inflammatory lesions had significantly decreased at D7 and D28 (25.9%). So did the number of inflammatory lesion (40.0% at D28). The number of post-inflammatory hyperpigmentation marks had significantly decreased at D7 with a 12.5% decrease at D28. The skin pore visibility score had significantly improved at D7 and D28 (18.1%) so did the skin tone evenness score at D28 (2.8%). 71% of the subjects considered that the “number of their pimples had decreased”, 76% that their "pimples became unremarkable", 76% that "the discomfort caused by pimples was reduced", 77% that "skin oiliness had improved". 81% were satisfied with the product and 95% were willing to continue using the serum.

CONCLUSION

After 4-weeks of a daily application of the serum, the number of non-inflammatory and inflammatory lesions, pore visibility and skin tone evenness had significantly improved in subjects with acne. Results were maintained during a follow-up period of 2-weeks.

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Porphyrins' fluorescence measurement to evaluate treatment efficacy in acne-prone skin: a validation study

AUTHORS

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INTRODUCTION

Seborrhea is a common cosmetic problem that occurs when oversized sebaceous glands produce excessive amount of sebum. In this case, an orange-red fluorescence originates from porphyrins, the metabolic products of *Cutibacterium acnes*, can be observed in the skin follicles with a Wood's lamp (UVA exposure). Previous data showed a relationship between the orange-red follicular fluorescence with the severity of acne.

OBJECTIVE

The objective of this validation study was to evaluate if the fluorescence diagnostic imaging performed with a Visiopor® could be useful for the monitoring of treatment efficacy in subjects with acne-prone skin.

MATERIALS AND METHODS

This study was conducted on 6 acne-prone skin women [18-30-years-old] before and after a 4-weeks-treatment with products dedicated to acne-prone skin (Effaclar cleansing Gel, Effaclar Duo and Effaclar H, La Roche-Posay, France). The casual sebum level was measured using a Sebumeter and the follicular fluorescence (percentage of the urea, number of orange-red spots and fluorescence intensity) was determined using the camera Visiopor® on the Forehead, cheeks, and chin.

RESULTS

As previously mentioned, the casual sebum level and intensity of fluorescence (percentage of the area and number of orange-red spots) were higher at the T zone than at the U zone in all subjects. Nevertheless, whatever the face area, a significant decrease in the area and number of porphyrins fluorescence spots was observed over time. In addition, the fluorescence intensity was reduced but only significantly at the level od the forehead. Casual sebum level evaluated with a Sebumeter slightly decreased particularly on the forehead. These results were supported by the improvements noticed by the investigator and the subjects themselves regarding greasy skin and presence of non-inflammatory acne lesions.

CONCLUSION

In conclusion, the fluorescence diagnostic imaging performed with a Visiopor® is reliable for the evaluation and monitoring of treatment efficacy in subjects with acne-prone skin and patients with acne.

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AI-ADL, is a relevant tool for assessing the burden of adult Acne

AUTHORS

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INTRODUCTION

Acne is a common skin disease, mainly affecting adolescents, young adults and adults of both sexes. However, few studies have looked at the impact of acne on adults.

OBJECTIVE

To assess the burden of acne in adults and young adults with a digital questionnaire.

MATERIALS AND METHODS

Subjects whose acne was confirmed by a doctor were recruited *via* Internet. Acne severity was assessed by the patient according to an algorithm used in previous studies. Burden of disease and quality of life was assessed through acne burden questionnaire [AI-ADL], the mental (MCS12) and physical (PCS12) part of the short form health survey (WBQ12), Stress visual analogue scale (VAS) and dermatology life quality index (DLQI). Each score was expressed in percentage of its total. To assess which scores differ among severity levels, we performed multivariate linear regressions with each score as outcome and with severity, age and sex as explaining variables.

RESULTS

Median PCS12 was 49.7% interquartile range (IQR), median MCS12 44.7% IQR, Stress VAS was 60% IQR, DLQI 16.7% IQR. Median AI-ADL was 34.3% IQR (21% IQR for mild patients, 29.5% IQR for moderate patients and 35% IQR for severe patients). Among all scores only the AI-ADL was significantly different for patients with moderate *versus* severe acne with a relative risk (RR) of 7.75%. Most other scores were different for mild *versus* moderate acne but the difference was very small. MCS12 RR was 1.47%, Stress VAS RR was -5.66%, WBQ12 was 3.84%, DLQI was -6.61% and AI-ADL RR was -10.03%. There was no difference for patients above and under 25y.

CONCLUSION

Non-specific quality of life and well-being scores were not discriminant. However, with a specific burden score, we were able to measure important variations between severity of acne, suggesting the importance of this specific tool to evaluate treatment efficiency.

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Efficacy of a dermocosmetic cream compared to Benzoyl Peroxide gel on acne vulgaris treatment

AUTHORS

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INTRODUCTION

Acne vulgaris is a skin inflammatory disease characterized by non-inflammatory (comedones) and inflammatory lesions. Benzoyl peroxide (BPO) is widely used as an efficient, approved treatment for acne. However, this treatment is often associated with skin irritation and/or contact allergy. Current scientific research of the best combinations of ingredients is generating highly efficient dermocosmetic products which could potentially be used as monotherapy for patients with milder forms of acne.

OBJECTIVE

The objective of this study was to compare the efficacy of a dermocosmetic cream (DC) containing salicylic acid, lipohydroxy acid, niacinamide, procerad, glycerin, octopirox, zinc salt of L-pyrrolidone carboxylic acid (Zinc PCA), mannose, aqua posae filiformis, thermal spring water, with that of a gel containing 5% BPO in the treatment of acne vulgaris.

MATERIALS AND METHODS

The study was approved by an Ethics Committee. A total of 150 Caucasian subjects presenting at least 10 inflammatory lesions (IL) and 10 non-inflammatory lesions (NIL) were randomized in 2 parallel groups (DC or BPO applied twice a day). Dermatologist evaluated the number of acne lesions at baseline and after 28 and 56 days of treatment.

RESULTS

A significant reduction of acne lesions was observed versus baseline for both products. The effect of DC on lesion counts was an average reduction of 8.3 and 10.9 lesions for IL and 11.7 and 20.4 lesions for NIL after 28 and 56 days, respectively. BPO effect on lesion counts was an average reduction of 7.7 and 9.9 lesions for IL and 14.1 and 25.1 lesions for NIL over the same treatment periods. There were no statistically significant differences between the treatments.

CONCLUSION

The studied DC efficiently reduced the number of acne lesions with a level of efficacy comparable to that of BPO.

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Tolerance of associations of an acne dedicated dermocosmetic with topical and systemic drugs: A Meta-Analysis on 5 Observational Studies

AUTHORS

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INTRODUCTION

According to acne severity, several topical and systemic drugs in mono or adjunctive therapies may be prescribed. The efficacy of these treatments is proven but some of them are associated with skin discomfort that may alter treatment adherence like skin irritation, dryness, itching, stinging and redness.

OBJECTIVE

To evaluate the tolerance of an acne-dedicated dermocosmetic (DC) containing salicylic acid, lipohydroxy acid, niacinamide, procerad, mannose and APF (a biomass of Vitreoscilla Filiformis grown in TSW) in association with a range of topical and systemic drugs, with a meta-analysis on observational studies from private consultations data.

MATERIALS AND METHODS

Data was obtained from 5 observational studies on patients over 12y starting a topical and/or systemic treatment and using the DC as an adjunct (N=7306). Tolerance was evaluated after two months of treatment. Topical drugs included: benzoyl peroxide and adapalene fixed drug-combination, benzoyl peroxide, retinoids, antibiotics, erythromycin and tretinoin fixed drug-combination, and azelaic acid. Systemic drugs included: contraceptive pills, cyclins, antiandrogens, and zinc gluconate. The confidence intervals for response and tolerance rates were estimated using bootstrapping.

RESULTS

In association with the DC, benzoyl peroxide and adapalene with a good tolerance rate of 91.5% and azelaic acid with 91.1% were the most tolerated topical associations; DC association with retinoids had the lowest good tolerance rate (84.1%). DC association with contraceptive pills (good tolerance rate of 87.6%) and with antiandrogens (87.2%) were the most tolerated association with systemic drugs; DC association with cyclins had the lowest good tolerance rate (84.1%).

CONCLUSION

This study highlights the good tolerance of the association of the DC with topical and systemic acne drugs, with a slightly higher tolerance for the association with topical drugs. This suggests that the lower adherence to these drugs may not be explained only by a bad tolerance.

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The efficacy and safety of a cream containing Salicylic acid, Lipohydroxy acid, Nicotinamide and Piroctone olamine combined with 5% Benzoyl peroxide in the treatment of Acne Vulgaris: A randomized controlled study

AUTHORS

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INTRODUCTION

Dermocosmetics (DC) play frequently a role as adjuvants to pharmacological treatments, as stand-alone products in the maintenance after an initial pharmacological treatment or in the management of mild acne.

OBJECTIVE

This study investigated the clinical efficacy of a DC cream containing salicylic acid, lipohydroxy acid, nicotinamide and piroctone olamine combined with 5% benzoyl peroxide (BPO) in the treatment of acne vulgaris.

MATERIALS AND METHODS

Patients were randomly divided into three groups of 22 subjects each:

Group A: treated with DC; Group B: DC combined with BPO; and Group C: treated with BPO.

The subjects were followed up at baseline, Day 7, Day 14, Day 28 and Day 56. The regression of acne comedones and inflammatory papules, skin erythema value, and adverse reactions were recorded.

RESULTS

After 4 and 8 weeks of treatment, the reduction of comedones by either DC alone or DC combined with BPO was significantly higher than that observed in the group only treated with BPO. As of Day 14, the reduction of inflammatory papules by BPO alone was significantly higher than that produced by DC alone. At 8 weeks of treatment, DC combined with BPO and BPO alone had significantly better clinical efficacy than DC alone. DC combined with BPO had the fastest skin lesion clearance rate, which was statistically significant. There was a gradual and statistically significant decrease of erythema for subjects treated with DC and there was no difference between groups treated by the combination of DC and BPO or BPO alone.

CONCLUSION

The association of the dermocosmetic cream combined with BPO is better than the DC cream alone or BPO alone in the treatment of acne vulgaris.

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Sleep disorders in adult Acnes

AUTHORS

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INTRODUCTION

Acne is a skin disease that preferentially affects adolescents. Several studies have shown that acne also affects adults with a prevalence of 5% in women and 3% in men 40-49 years old, and 12% in women and 3% in men 25-58 years old. Only few studies have looked at this population.

OBJECTIVE

To assess the impact of acne on sleep in adult subjects.

MATERIALS AND METHODS

An e-questionnaire was administered to subjects recruited via the Internet. Acne was confirmed by a doctor. Acne severity was assessed by the patient according to an algorithm used in previous studies. The Epworth questionnaire was used to assess day sleepiness. Isolated questions were used to assess sleep quality.

RESULTS

aytime sleepiness was absent for 56.3% patients, mild for 17.7%, moderate for 16.3%, severe for 9.8%. Taking more than 20 min to fall asleep in the preceding week was reported by 79% patients, being awaken with issues to fall back asleep by 69.9%, and sleeping less than 6h three times by 54.8%. After a night of sleep, 47.1% felt a bit tired and 11.4% felt really tired. None of these percentages were significantly different between acne severity levels. When asked specifically about the impact of their disease on sleep, preventing sleep was reported by 25% moderate acne and by 32% severe acne patients. Being awakened by the disease was reported by 26.4% moderate acne and by 31.1% severe acne patients.

CONCLUSION

Acne patients did not report different levels of sleep issues across severity levels. However, when asked specifically about the effect of their skin disease on sleep, getting awakened or prevented to sleep because of their disease was reported by more patients in the severe than moderate acne population (>30% vs 25-26%). Overall, this study demonstrates that adult acne is associated with sleep issues.

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Effectiveness and Safety of a dermocosmetic cream containing Salicylic Acid, Lipohydroxy Acid, Niacinamide, *Aqua-Posae-Filiformis, Procerad and Zinc-PCA* as an adjuvant treatment for Mild and Moderate Acne in Indonesia

AUTHORS

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INTRODUCTION

Acne is a chronic inflammatory condition in which dermocosmetics can be used as an adjuvant treatment to standard therapy with additive benefits in terms of efficacy or tolerability.

OBJECTIVE

The aim of this study was to evaluate the efficacy and tolerability of dermocosmetic cream containing Salicylic Acid, Lipohydroxy Acid, Niacinamide, Aqua-Posae-Filiformis, Procerad and Zinc-PCA and adapalene in Indonesian patients with mild to moderate acne.

MATERIALS AND METHODS

This multicenter, randomized, evaluator-blind, parallel-group study is conducted in five hospitals in Indonesia from May to December 2022. Patients with mild and moderate acne, aged 15 to 50 years, are randomised into three groups. All subject received 0.1% adapalene cream at night: Group-1 receive 0,1% adapalene cream only, Group-2 receive 0.1% adapalene cream every other night and dermocosmetic cream in the morning, and Group-3 receive 0.1% adapalene cream every night and dermocosmetic cream in the morning. Subjects are evaluated after four and eight weeks. Clinical response and treatment efficacy include acne lesion counts, GEA scale, IAEM scale, sebum levels recorded using a A-One Simple Ver. 2.53 one-click automatic full-facial skin analysis (BOMTECH ELECTRONICS Co., Ltd., Korea), investigator and patient satisfaction, patient's quality of life (QoL) using CADI and Acne QoL, as well as tolerability.

RESULTS

300 subjects have already been recruited. Clinical results will be presented

CONCLUSION

The usefulness of dermocosmetics as an adjuvant treatment to drugs has already been reported in the literature in the management of acne. This is the first time a randomised controlled clinical study is conducted combining a multitargeted dermocosmetic cream containing Salicylic Acid, Lipohydroxy Acid, Niacinamide, *Aqua-Posae-Filiformis*, *Procerad and Zinc-PCA* and adapalene in mild to moderate acne.

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Clinical and experimental assessment of a dermocosmetic cleansing gel in mild to moderate Truncal Acne

AUTHORS

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INTRODUCTION

Telogen Effluvium (TE) is a non-inflammatory, non-scarring alopecia linked to various causes, impairing quality of life. Chronic TE contrasts with classic acute form by its persistence and its tendency to fluctuate for a period of years. Currently, topical or systemic medical treatments for anti-hair loss has been proven efficacy in chronic TE, but none is specific for this type of alopecia.

OBJECTIVE

The primary aim was to assess the efficacy and safety of a dermocosmetic containing 2,4 diamino-pyrimi- dine-oxide, SP94, Arginine, Piroctone Olamine, Vichy thermal water [AMINEXIL® INTENSIVE 5 (AMI5)] on the diameter of the hair shaft and hair density in subjects with chronic TE. Secondary objectives were to evaluate the cosmeticity and satisfaction of the treatment.

MATERIALS AND METHODS

Twenty subjects with chronic TE, hair loss medication naive, were studied to evaluate the efficacy of AMI5 applied every day for 3 months followed by 3 times a week for the next 9 months. Average diameter of hair shaft and hair density were measured by Trichoscan® at baseline, 3 months, 6 months and 1 year. Tolerability and satisfaction regarding the patient's perception of hair condition improvement were assessed at baseline and 12 months. Pleasantness of the treatment was assessed by oral interview by clinicians.

RESULTS

There was an increase of 9% in hair diameter and 22% in hair density at the end of the study ($p<0.001$). All the subjects noticed an improvement in their hair condition and the treatment was well tolerated. At the end of the study, subjects rated positively the pleasantness and effect of the product.

CONCLUSION

AMI5 increases hair density and thickness were observed in all subjects affected by chronic TE. A fully positive pleasantness and effect of the product were experienced by patients. Topical treatment with AMI5 might be considered in chronic TE.

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A dermocosmetic regimen is beneficial in the management of skin sensitivity caused by a retinoid-based acne fixed combination

AUTHORS

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INTRODUCTION

Acne vulgaris is a chronic inflammatory skin disease with a high prevalence during adolescence, and a growing incidence in adults. The presently investigated dermocosmetic (DC) regimen consists of a cleanser and a cream formulation that has been developed to help to limit topical retinoid-induced skin discomfort in subjects with acne. The DC cleanser (contains Bixa Orellana seed extract, niacinamide, mannose and APF. The DC cream contains Bixa Orellana seed extract, a plant extract that reduces sebum production, hyperkeratinisation, and that reduces lipase activity from *C. acnes*. Moreover, the cream contains niacinamide, panthenol and the post-biotic *Aqua Posae Filiformis*.

OBJECTIVE

The aim of this study was to assess the benefit of a DC regimen compared to a routine care regimen (RC) by reducing skin discomfort signs and symptoms induced by a retinoid/benzoyl peroxide fixed combination in acne subjects.

MATERIALS AND METHODS

This double-blind, comparative clinical study included subjects of any skin phototype and of at least 16 years of age, with mild to moderate facial acne according to the GEA grading system (GEA grade II to III) and with at least 15 inflammatory lesions.

Clinical evaluations took place at Day 0, 7, 14, 28, and Day 84, including erythema, desquamation, burning, itching and stinging, all assessed on a 4-point scale (none to important), skin discomfort being a composite score of local treatment-related signs and symptoms and acne severity. Moreover, subjects assessed the cosmetic acceptability of both the RC and the RC regimen. Subjects applied the DC or RC daily together with the fixed combination for 84 days.

RESULTS

Overall, 88 subjects were included in this study. After 7 days of care with the adapalene/BPO-based fixed combination and the DC or RC regimens, the skin discomfort score had increased more rapidly with the RC (2.6±0.3) than with the DC (2.2±0.3). After 14 days of care, it had decreased in both groups, with a significant mean difference (0.8 points, $p=0.0049$) in favour of the DC (1.6±0.3) compared to the RC (2.4±0.3). DC always performed better than the RC. The percentage of subjects with desquamation was always higher in the RC than in the DC group; differences were statistically significant at Day 14 (DC: 20.9% vs RC: 43.2%, $p<0.026$) and Day 84 (DC: 20.9% vs RC: 40.9%, $p<0.044$). The GEA score in both groups decreased over time from 2.7 and 2.8 to 1.4 and 1.5, for the DC and RC groups respectively. The total number of inflammatory, non-inflammatory and total lesions decreased over time with no significant group-difference. The cosmetic acceptability at the end of the study was higher for the DC than for the RC regimen.

CONCLUSION

DC significantly reduces retinoid/BPO-based fixed combination-related local signs and symptoms as well as skin discomfort compared to RC especially during the first 14 days of treatment without interfering with the clinical efficacy of the treatment thus helping to maintain treatment adherence.

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Clinical efficacy of Emollients in Atopic Dermatitis patients: Long-lasting efficacy

AUTHORS

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INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin disorder that involves alteration of skin physical barrier, microbiome and immune system. It affects children and adults with a substantial impact on quality of life (QoL). Emollients are the baseline therapy for any severity of AD with emollient "plus" being emollients with active ingredients to maintain healthy skin microbiome.

OBJECTIVE

Evaluation of the efficacy of an emollient "plus" containing Aqua Posae filiformis, Microresyl, LRP Thermal Spring Water, Shea Butter and Niacinamide to improve AD after 1 month and maintain the improvement for 5 additional months.

MATERIALS AND METHODS

Monocentric, open label study conducted with 56 subjects (45% children ≥3 years old (YO); 55% adults) having mild AD under dermatological control. All subjects were treated twice daily for 6 months with the emollient "plus". The evaluation of the efficacy of the emollient "plus" was based on the SCORing Atopic Dermatitis (SCORAD) reduction after 28 days and the SCORAD maintainance during the following 5 months (assessed at D84 and D168). Additionally, impact of AD on QoL was evaluated through a DLQI and CDLQI questionnaire.

RESULTS

At D28, the average SCORAD was 40% lower compared to baseline (D0: 15.29; D28 9.11; $p<0.001$). During the maintenance phase, the average SCORAD at Day 84 and D168 was respectively reduced by 8% and 17% compared to Day 28 (D84: 8.37; D168: 7.52; $p<0.05$). The continuous use of the emollient "plus" improved 90% of the adults and 84% of the children QoL scores by the end of the study (Adults: D0: 6.6; D168: 0.7; Children: D0: 5.3; D168: 0.8; $p<0.001$).

CONCLUSION

This study highlights the short and long-lasting efficacy of emollient"plus" containing Aqua Posae filiformis, Microresyl, LRP Thermal Spring Water, Shea Butter and Niacinamide for managing mild AD.

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Comparison of different skin care regimens for patients with moderate to severe atopic dermatitis in addition to systemic treatment: results of a multicenter randomized controlled trial

AUTHORS

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INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by eczema and itching that significantly impairs the quality of life of these patients. Moderate to severe AD can be successfully managed by systemic treatment with drugs such as Cyclosporin A, biologics (dupilumab, tralokinumab) or small molecules such as JAK inhibitors. This allows these patients to significantly improve their quality of life. Current guidelines for management of AD recommend emollients and eudermic cleansers as an important aspect of skin care for all patients to improve the epidermal barrier and provide anti-irritant and anti-pruritic effects. The IP, Emollient +, was designed not only to improve the physical skin barrier, but also to rebalance the skin microbiome which has a key role in AD.

MATERIALS AND METHODS

In a randomized controlled multi-center study, the benefit of a combination skin care routine of a balm improving skin barrier and microbiome together with a corresponding syndet (Emollient + group) was compared to a routine with commercial emollients *plus* cleansers (routine emollient group) in patients with moderate to severe atopic dermatitis treated with either Cyclosporine A, Dupilumab, or a JAK inhibitor.

RESULTS

A total of 57 patients have been randomized in the two groups. After ten weeks of treatment, Emollient + in comparison to control emollients significantly better (p=0.0277) reduced pruritus and improved some DLQI aspects (p=0.0261) in these patients. In particular, the impact of the disease on working or doing sports is more reduced in patients under Emollient + regimen compared to the control group.

CONCLUSION

In patients with moderate to severe AD receiving systemic treatment, additional treatment with Emollient + significantly improves pruritus and quality of life aspects compared to routine treatment with commercial emollients. In addition, patients under Emollient + regimen used less emollient balm compared to control group.

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Efficacy and tolerance of an Emollient + on babies and children with atopic dermatitis: An Observational Study

AUTHORS

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INTRODUCTION

Atopic dermatitis (AD) is one of the most prevalent inflammatory skin diseases, preferentially affecting children. One of the most documented consequences of AD on babies and children is a decrease in quality of sleep. An Emollient + with active ingredients such as shea butter, niacinamide, LRP thermal spring water (TSW), APF (a biomass of VF grown in TSW) and microresyl has been developed to restore skin barrier, rebalance microbiome, and prevent the excessive proliferation of staphylococci.

OBJECTIVE

To evaluate the efficacy and tolerance of this Emollient + in babies and children, we carried an observational study from pediatricians' private consultations data.

MATERIALS AND METHODS

Data are from an observational study from Greece pediatricians on babies and children below 18 years of age with mild to moderate AD. Efficacy and tolerance were evaluated after a one-month treatment period. Response to treatment was defined as at least one severity grade decrease on a five-points scale.

RESULTS

A total of 674 subjects (46.6% female) aged 3.1 (±3.3) years received the Emollient+ once or twice daily (83.1%). After two months of treatment, 83.9% of subjects experienced an improvement on dryness, 84.9% of subjects observed a significant improvement on sleep quality, and itching sensations was reduced on average by 78.8%. The overall quality of life of subjects, measured by CDLQI, was improved on average by 78.0%, this score was reduced from an inclusion average of 5.9 to a post treatment average of 1.3. The tolerance of the product was excellent with a 95.7% good tolerance rate.

CONCLUSION

Since sleep disorders may have a significant impact on children's development with behavioral problems, daily use of emollients on subjects with an altered skin barrier may help manage the skin disease and improve the patient's QoL by reducing the global burden of the disease.

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Efficacy and tolerance of an Emollient+ on sleep and quality of life on patients with skin disease with severe xerosis: An observational study

AUTHORS

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INTRODUCTION

Severe dryness is frequently associated with itch, pain and even bleeding and therefore interferes with the ability to work or sleep. An Emollient+ with active ingredients including shea butter, niacinamide, thermal spring water (TSW), APF (a biomass of Vitreoscilla Filiformis grown in TSW) and microresyl has been developed to restore skin barrier, rebalance microbiome, and prevent the excessive proliferation of staphylococci by fighting against the persistence of bacteria and the creation of biofilm.

OBJECTIVE

To evaluate the efficacy and tolerance of the Emollient+ efficacy in monotherapy, we carried an observational study from private consultations data.

MATERIALS AND METHODS

Data are from an observational study with 11 countries on patients >16 years of age with either atopic dermatitis, senile xerosis, psoriasis or any other severe xerosis. Efficacy and tolerance were evaluated after a 2-months treatment period. Response to treatment was defined as at least one severity grade decrease on a five-points scale. Tolerance was evaluated by patients using a 4-point scale.

RESULTS

A total of 1551 patients (71.5% female) aged 46.5 (±19.9) years received the Emollient+ once or twice daily (73.5%). 26.1% of patients have phototype IV to VI and 88.1% live in urban zones. After two months of treatment, 90.0% of patients experienced an improvement on dryness, 87.0% of patients with altered sleep quality at inclusion observed a significant improvement, and itching sensations was reduced on average by 82.2%. The overall QoL of patients, measured by DLQI, was improved on average by 79.7%, this score was reduced from an inclusion average of 6.4 to a post treatment average of 1.3. Product showed a 95.3% good tolerance rate.

CONCLUSION

This study highlights that the daily use of the Emollient+ on patients with severe xerosis symptoms may help to manage the skin disease and improve the patient's QoL.

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Impact of the daily use of an Emollient+ on corticosteroid consumption in children and adults with atopic dermatitis

AUTHORS

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INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by eczema and itching. AD sometimes start in adulthood but in more than 85% of patients it starts in early childhood and can persist to adulthood. Educational programs and daily emollients/emollients+ are the basis of AD treatment to restore skin barrier and prevent flares, while topical corticosteroids (TCS) are used to manage AD flares. An Emollient+ with active ingredients including shea butter, niacinamide, thermal spring water (TSW), APF (a biomass of Vitreoscilla Filiformis grown in TSW) and microresyl has been developed to restore physical and microbial skin barrier, preventing the excessive proliferation of *Staphylococcus aureus*.

OBJECTIVE

To evaluate the corticosparing effect of using an Emollient+ compared to usual emollients

MATERIALS AND METHODS

An open-label randomized study in 126 patients with mild to moderate AD (SCORAD 20-30) from 3 to 71 years. Patients using Emollient+ and their usual emollient (control group) received TCS at the start of the study to manage AD flares. Efficacy of treatment (SCORAD and PO-SCORAD), corticosteroid consumption and QoL by Atopic dermatitis burden Scale (ABS) and Patient benefit Index (PBI) were assessed at D0, D28, D56 and D84 by a dermatologists

RESULTS

After 28 days treatment period, TCS consumption was 30.8% lower in the Emolient+ group versus control group (6.0g vs 9.2g, P-value=0.041). No difference was observed on evaluation of AD severity using SCORDAD and PO-SCORAD, indicating that clinical efficacy was maintained regardless of TCS reduction. Quality of life was improved in a similar manner for both groups.

CONCLUSION

The daily use of Emollient+ helps decreases TCS consumption without decreasing treatment efficacy.

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Increased skin pH and transepidermal water loss may serve as predictor for atopic dermatitis flares

AUTHORS

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INTRODUCTION

Alterations in epidermal barrier function have been shown to play a key role in pathogenesis of atopic dermatitis (AD). An important regulatory role of the epidermal barrier homeostasis and of the skin microbiome diversity is the stratum corneum pH.

OBJECTIVE

To demonstrate the relationship between epidermal barrier alteration and clinical manifestation of AD by investigating alterations in trans-epidermal water loss (TEWL) and skin pH in relation to epidermal barrier function and AD severity.

MATERIALS AND METHODS

Changes over time in skin pH, TEWL in healthy, peri-lesional and lesional skin were compared to the changes in disease evolution. Disease severity was evaluated using a modified local Scoring Atopic Dermatitis. A Support Vector Machine-learning classifier was used to classify flares vs non-flares periods with Day -1 and Day -2 pH and TEWL measurements.

RESULTS

Skin pH and TEWL were significantly higher in lesional skin than in non-lesional skin of AD patients and in healthy controls. Skin hydration was significantly lower in lesional skin than in non-lesional skin and in healthy control. There was a positive association between skin pH values and AD progression based on clinical severity assessment. The mean difference between lesional and peri-lesional skin pH as well as TEWL was significantly higher during a flare. Skin pH and TEWL changes did not fully explain the AD severity alterations. Machine-learning model produced a balanced accuracy of 74% with an average sensitivity of 81% and 67% specificity, suggesting a good predictive value.

CONCLUSION

The level of dysfunction of the epidermal barrier function in patients with AD, quantified by pH and TEWL, correlated with AD severity. It appears that skin pH and TEWL may be used as markers to predict skin flares and worsening of AD. Normalization of skin pH and TEWL could have therapeutic potential in prevention of AD flares.

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Comparison of different skin care routines for patients with moderate to severe atopic dermatitis in addition to Dupilumab: Results of a multicenter randomized controlled trial

AUTHORS

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INTRODUCTION

Atopic dermatitis (AD) negatively impacts patients' quality-of-life (QoL), especially due to itching. Up to 25% of the population will develop AD, of whom 1/3 may experience moderate to severe (MTS) symptoms. Several systemic medications are approved for the treatment of MTS AD, among them ciclosporin, Dupilumab and JAK inhibitors. Although there is still no cure for AD, these treatments have significantly improved patients' QoL. Current AD clinical guidelines recommend emollients and skin cleansers as base therapy for all severity grades.

OBJECTIVE

Assessing the benefit of combining Dupilumab with an emollient+ that targets both the physical and microbial barriers of the skin, which is increasingly believed to play a significant role in the pathophysiology of AD, in terms of improving pruritus and quality of life for patients with moderate to severe AD.

MATERIALS AND METHODS

A randomized controlled, multi-center study compared the benefits of a combined skin care routine of an emollient+ plus corresponding syndet (Emollient+ group) with a balm and cleanser routine (Control) in dupilumab-treated patients with MTS AD.

RESULTS

A total of 44 patients were randomly allocated into the two groups. After ten weeks of treatment, current, worst, and average pruritus were significantly improved ($p<0.042$) in the Emollient+ group compared to Control group. In addition, patients under Emollient+ needed less balm compared to Control group. The impact of the disease on quality-of-life aspects like working or doing sports was better reduced in patients under Emollient+.

CONCLUSION

In MTS AD patients treated with dupilumab, adjunctive skin care with Emollient+ significantly improves pruritus symptoms and quality-of-life aspects compared to routine skin care. In addition, patients under Emollient+ used less emollient balm compared to Control group.

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Investigating the UV-induced IPD/PPD process throuh adapted clinical method and reflectance confocal microscopy

AUTHORS

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INTRODUCTION

UV induced pigmentation caused by Immediate pigment darkening (IPD), persistent pigment darkening (PPD) and delayed tanning (DT) can be traced by instrumental measurement, such as the L* of skin by colorimeter. Previous studies have used RCM to observe pigmentary lesion on human skin after UV induce, however there is lack of study on the observation of IPD/PPD tanning process on normal Asian skin in real-life condition.

OBJECTIVE

We investigated UV-induced pigmentation and melanin evolution after UV exposure following a real-life design using colorimeter and RCM. A cosmetic product containing ferulic acid (FA) was studied for its anti-pigmentation efficacy.

MATERIALS AND METHODS

Thirty Chinese females were recruited in this study with four-day continuous UV exposure on their backs. UV dosage was 11.36J/cm^2 and instrumental measurements were conducted at baseline (T0), immediately after (Timm), and 2 hours after (T2h) UV exposure each day. One treated area and one non-treated area were investigated.

RESULTS

After each UV exposure, L^1 value of both areas decreased immediately. It started increasing in the following 24 hours after the UV exposure, which was still significantly lower than baseline value. The L^1 value has a same changing curve as the first 24 hours to decrease further during four-day continuous UV exposure.
Furthermore, the treated area revealed significantly less reduction of L^1 value than the non-treated area after exposure at Timm, T2h, T24h and T72h. Also, RCM detected different spatial melanin density changes from IPD/PPD versus DT.

CONCLUSION

We found that the peak of skin pigmentation happens immediately after UV exposure. This pigmentation can persist up to 24 hours after a single UV exposure. Treatment of formulation containing FA delivers a marked anti-pigmentation efficacy. In addition, RCM can trace the basal melanin evolution which provides new angle to understand the linkage between melanocyte activity and UV-induced pigmentation.

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Definition of accuracy and relevance of an automated grading (deep-learning-based) of facial signs from selfie images: An observational study on 1,041 women of various ages, phototypes and ancestries

AUTHORS

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INTRODUCTION

Real-life validation is necessary to ensure our artificial intelligence (AI) skin diagnostic tool is inclusive across a diverse and representative US population of various ages, ancestries and skin phototypes.

OBJECTIVE

To explore the relevance and accuracy of an automated, algorithm-based analysis of facial signs in representative women of different ancestries, ages and phototypes, living in the same country.

MATERIALS AND METHODS

In a cross-sectional study of selfie images of 1041 US women, algorithm-based analyses of 7 facial signs were automatically graded by an AI-based algorithm and by 50 US dermatologists of various profiles (age, gender, ancestry, geographical location). For automated analysis and dermatologist assessment, the same referential skin atlas was used to standardize the grading scales. The average values and their variability were compared with respect to age, ancestry, and phototype.

RESULTS

For five signs, the gradings obtained by the automated system were strongly correlated with dermatologists' assessments ($r \geq 0.75$); cheek skin pores were moderately correlated ($r = 0.63$) and pigmentation signs, especially the darkest skin tones, were weakly correlated ($r = 0.40$) to the dermatologist assessments. Age and ancestry had no effect on the correlations. In many cases, the automated system performed better than the dermatologist-assessed clinical grading due to 0.3-0.5 grading unit differences among the dermatologist panel that were not related to any individual characteristic (e.g., gender, age, ancestry, location). The use of phototypes, as discontinuous categorical variables, is likely a limiting factor in the assessments of gradings, whether obtained by automated analysis or clinical assessment of the images.

CONCLUSION

The A.I-based automatic procedure was accurate and clinically relevant for analyzing facial signs in a diverse and inclusive population of US women, as confirmed by a diverse panel of dermatologists, although skin tone requires further improvement.

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Spatial distribution of exogeneous versus endogenous ceramides in human skin

AUTHORS

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INTRODUCTION

The role of ceramides as a key structural element for the integrity of stratum corneum (SC) is well known. Changes in their integrity, such as the particular ordered lamellar structure, local absence, or discontunities, are associated with non-desireable skin conditions. Many topical compositions are targeted to repair and restore the condition of these lipids by the introduction of analogous modified ceramides. There is therefore a need to develop objective chemical analytical methods to target the presence and effect of added exogenous ceramides in the SC.

OBJECTIVE

Identification and localization of exogeneous ceramides from topical compositions in stratum corneum tissue, and to clearly distinguish them from already present endogeneous ceramides.

MATERIALS AND METHODS

Abdominal skin samples treated with a formulation containing 1% of exogeneous ceramide Cer(d18:1/18:0) C36H71NO3 were prepared. Cross sections were analyzed by ToF-SIMS, which provides spatially resolved mass spectrometric data in the submicrometer range. The data display the distribution of specific molecular species, or entire mass spectra representing the molecular composition of regions of interest. Samples were subsequently analyzed with SEM for combined molecular and structural imaging of the SC and underlying epidermis.

RESULTS

ToF-SIMS images of endogenous skin lipids demonstrated localization of long-chain fatty acids and ceramides to SC, whereas cholesterol sulfate was primarily localized to the viable epidermis below SC, as expected from previous studies. The exogenous ceramide was exclusively identified and clearly distinguished from the endogenous ceramides by their different molecular weights, corresponding to molecular ions in the mass spectra. It localized entirely to SC, with a slightly different distribution compared to the endogenous ones. Correlation with SEM images indicated that the exogenous ceramide is localized to the surface of SC, or possibly to the few outermost corneocyte layers, whereas the endogenous ceramides are present throughout the entire SC.

CONCLUSION

An effective methodology was here described to identify and localize specific molecules in different skin layers with submicrometer resolution. Specifically, an exogenous ceramide was exclusively detected and found to be localized to the outermost SC surface, clearly distinguishable from endogenous ceramides among the intercellular lipids.

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Topical Hyaluronic acid skin penetration evaluated by tape stripping using ELISA kit assay

AUTHORS

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INTRODUCTION

Hyaluronic Acid (HA) is an endogenous skin matrix component with moisturizing and anti-inflammatory and healing properties. Cosmetic formulations containing HA aim to enhance skin structure, hydrate skin and reduce wrinkles.

OBJECTIVE

The skin diffusion of HA into stratum corneum after application of a formulation containing two different size of HA, High Molecular weight (HMW-HA) and Low Molecular Weight (LMW-HA)) was evaluated.

MATERIALS AND METHODS

Ex vivo human skin samples were developped to validate an ELISA assay measuring HA in the stratum corneum (SC), viable epidermis and dermis, and to identify optimal washing and extraction methods. The clinical study involved 31 healthy female volunteers of 57 years-old (mean age) with dry skin. The formula containing 0.5% HMW-HA and 1% LMW-HA was applied daily for seven days on their inner forearms. Samples of SC (5 tape strips) were taken before and 2 h after the application on D0, D1 and D7. The ELISA assay was suitable for measuring HA in the SC but not epidermal or dermal layers. The amount of HA in SC layers 3 to 5 were used to represent the HA level in the SC, whereas layers 1 and 2 were considered as surface “residual film.

RESULTS

After each application, there was a significantly higher amount of HA compared to the amount before application, which was observed using both wash methods. The residual level 24 h after the first application was at least 8 times higher than before the first application and at least 31 times higher after 7 applications.

CONCLUSION

In conclusion, these studies validated the use of the ELISA method for the measurement of HA in SC samples. The ex vivo experiments provided recommendations for the clinical study. The clinical study demonstrated the diffusion, accumulation and maintenance of HA levels in the SC after repeated topical application of the formulation containing HMW-HA and LMW-HA.

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Definition of accuracy and relevance of an automated grading (deep-learning-based) of facial signs from selfie images: An observational study on 1,041 women of various ages, phototypes and ancestries

AUTHORS

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In a cross-sectional study of selfie images of 1041 US women, algorithm-based analyses of 7 facial signs were automatically graded by an AI-based algorithm and by 50 US dermatologists of various profiles (age, gender, ancestry, geographical location). For automated analysis and dermatologist assessment, the same referential skin atlas was used to standardize the grading scales. The average values and their variability were compared with respect to age, ancestry, and phototype.

RESULTS

For five signs (Forehead wrinkles, Periorbital wrinkles, Nasolabial fold, Ptosis of the lower part of the face and Diffused redness), the gradings obtained by the automated system were strongly correlated with dermatologists' assessments ($r \geq 0.75$) (table 4 sent); cheek skin pores were moderately correlated ($r = 0.63$) and pigmentation signs, especially the darkest skin tones, were weakly correlated ($r = 0.40$) to the dermatologist assessments (Fig 1 sent). Age and ancestry had no effect on the correlations. In many cases, the automated system performed better than the dermatologist-assessed clinical grading due to 0.3-0.5 grading unit differences among the dermatologist panel that were not related to any individual characteristic (e.g., gender, age, ancestry, location). The use of phototypes, as discontinuous categorical variables, is likely a limiting factor in the assessments of gradings, whether obtained by automated analysis or clinical assessment of the images.

CONCLUSION

The A.I-based automatic procedure was accurate and clinically relevant for analyzing facial signs in a diverse and inclusive population of US women, as confirmed by a diverse panel of dermatologists, although skin tone requires further improvement.

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Effectiveness of skincare products for menopausal women containing a combination of C-xyloside and cassia extract

AUTHORS

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INTRODUCTION

The synthesis of glycosaminoglycans decreases in aging skin, especially at menopause.

OBJECTIVE

To evaluate the effectiveness of a combination of two active ingredients, C-xyloside and cassia extract, in skincare products tailored for menopausal women.

MATERIALS AND METHODS

The effects of C-xyloside, cassia extract, and both combined, were evaluated in vitro by measuring gene expression of 16 extracellular matrix genes by RT-qPCR technology, and GAG neosynthesis by incorporation of [3H]-glucosamine or [35S]-sulfate.

Day balm and serum products containing these ingredients were tested *in vivo*. In 220 menopausal women aged from 50 to 67 years old, balm was applied twice daily for 3 months, and skin roughness, wrinkles, and skin tonicity were assessed on a 10-point scale. In 41 menopausal women aged from 54 to 65 years old with dry to combination skin on the face (50% with sensitive skin), serum was applied twice daily for 2 months; assessments were lower face ptosis by dynamic atlas, wrinkle visibility on a 10-point scale, and dark spot size by image analysis.

RESULTS

The combination of C-xyloside and cassia extract had a synergistic effect on gene expression of HAS1 and HAS2 in dermal fibroblasts, both coding for enzymes involved in hyaluronic acid synthesis. The combination showed higher incorporation of [3H]-glucosamine than C-xyloside. After 3 months of day balm application, day tonicity, roughness, and wrinkles significantly decreased by 43%, 40%, and 29%, respectively. After 2 months of serum use dark spots, wrinkles, and sagginess significantly decreased by 22%, 12%, and 6%, respectively.

CONCLUSION

The *in vitro* results indicate that the combination targets the hyaluronic acid pathway, which was corroborated by improvements in skin quality in the clinical tests.

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Interest of a combination of cosmetic active ingredients to fight against oxidative stress

AUTHORS

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INTRODUCTION

Oxidative stress in skin plays a major role in the aging process. This is true for intrinsic aging and even more for extrinsic aging since it can be caused by a variety of exposome factors.

OBJECTIVE

Showing the interest of a combination of Neohesperidin, Maritime Pine Polyphenols, Vitamin E and Vitamin C to fight against the effects of external oxidative stress on the skin. The efficacy of this combination of actives was evaluated in an *in vitro* and in two *ex vivo* models.

MATERIALS AND METHODS

Measurement of 8 hydroxy guanosine has been done in normal human dermal fibroblasts after a treatment with hydrogen peroxide previously treated or not by the combo. 8-OHDG expression was measured using image analysis. Measurements of ROS production and melanin content have been done on human skin biopsies from abdominal plastic surgery.

Skin biopsies were topically treated or not with the combo of actives included in the cosmetic formula. These biopsies underwent UVB or UVA irradiations. UVA-rays skin samples have been harvested, cryo-fixed and cut before images acquisition. The fluorescence analysis was then performed within the dermis area. UVB-rays skin samples were embedded in paraffin and skin section were performed and stained. The estimation of melanin has been evaluated by estimating the intensity and the distribution of grey tone.

RESULTS

The combo showed a protective effect against ROS-induced skin damages by inhibiting significantly 8-OHdG production after H_2O_2 stimulation. The antioxidant properties of this combination were also observed on *ex vivo* skin explants where the combo in cosmetic formula, topically applied, significantly inhibited ROS production after UVA irradiation and also significantly inhibited melanin oxidation after UVB irradiation.

CONCLUSION

Taken together, these results indicate that the usage of the combo and the formula have an efficacy strategy for preventing oxidative stress-induced skin pigmentation and aging.

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A cross-sectional study using questionnaires and artificial intelligence diagnostic to evaluate the impact of the exposome on skin aging in participants from 11 different locations in Argentina

AUTHORS

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INTRODUCTION

Skin aging is a gradual cumulative process that may be accelerated by various exposome factors.

OBJECTIVE

The objective of this study was to investigate associations between exposome factors and facial skin aging in participants from 11 locations in Argentina.

MATERIALS AND METHODS

In this observational study, participants from 11 Argentinian locations were evaluated by exposome questionnaire, Glogau photoaging classification, AI-based algorithm analysis of 7 skin aging signs, and SCINEXA score.

RESULTS

Of 1,346 participants, most were women (82%), aged 31-50 years old (62%), living in urban areas (94%) at less than 1600 m altitude (95%). The Glogau skin age was higher than the chronological age for 28% of overall participants, 36% of men, and 45% of participants from Ciudad de Buenos Aires versus 12 % from Jujuy ($p< 0.001$). Men had higher AI scores for pronounced wrinkles (1.68 for men vs 1.42 for women), lack of luminosity (1.99 men vs 1.85 women), and lack of skin firmness (1.26 men vs 1.11 women) (all $p<0.05$). Odds increased for a skin age greater than the chronological age for men (Odds Ration [OR]= 1.59; 95% CI 1.18-2.13), outdoor physical activity (OR= 1.33; 95% CI 1.00 – 1.76), exposure to agrochemicals (OR= 1.59: 95% CI 1.01-2.51), and lower socioeconomic levels (OR= 2.06; 95% CI 1.32-3.21). Odds of premature aging decreased for high daily consumption of water (OR= 0.76; 95% CI 0.59-0.97), use of dermocosmetics or retinoids, and use of antiaging treatments (OR= 0.74; 95% CI 0.57-0.97).

CONCLUSION

Some exposome factors increased the risk for premature skin aging (physical outdoor activity, exposure to agrochemicals), while others reduced premature aging (drinking water, anti-aging treatments, use of dermocosmetics). Locations with higher pollution levels had more premature skin aging.

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Tailored dermocosmetic regimens for perimenopausal and menopausal women improved AI diagnostic skin aging signs and quality of life

AUTHORS

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INTRODUCTION

Changes in hormone levels, notably estrogen decline, during perimenopause and menopause have various negative effects on skin aging which often receive less attention than other menopausal symptoms despite having a significant impact on quality of life (QoL).

OBJECTIVE

To evaluate the effectiveness and impact on skin aging signs and QoL of specifically designed anti-aging dermocosmetic products for women during the perimenopause or menopause.

MATERIALS AND METHODS

An open study of 101 perimenopausal women (no menstruation for 4 - 12 months or irregular menstruation for <5 years) and 101 menopausal women (no menstruation for >12 months) not taking hormone replacement therapy was conducted. Adapted dermocosmetic regimens, containing proxylane and cassia extract in serum, day cream, and night cream, were applied for 56 days. Assessments at Day 0 and Day 56 included automatic AI diagnostics of selfie pictures for 8 clinical facial signs, hydration and transepidermal water loss (TEWL), and a 28-item Menopausal Skin QoL questionnaire.

RESULTS

Mean age was 50 ± 3.9 years (range 41-57) and 59 ± 3.8 years (range 50-66) for the perimenopause and menopause groups, respectively. AI diagnostics showed improvements for 5 types of wrinkles and vascular signs after 56 days of application of the respective dermocosmetic regimen for both the menopause and perimenopause groups. After using the dermocosmetic regimens for 56 days, hydration significantly increased (30% and 18% for the menopause and perimenopause groups) and TEWL decreased. The questionnaire responses indicated that the women felt better about their skin after using the dermocosmetic regimens, which improved their self-esteem and QoL.

CONCLUSION

Targeting the skin specific issues of perimenopause and menopause with tailored dermocosmetic regimens, containing proxylane and cassia extract, improved signs of skin aging resulting in a significant positive impact on QoL.

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Gender-related differences in the facial aging of Chinese subjects and their relations with perceived age

AUTHORS

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INTRODUCTION

To better design cosmetic solutions adapted to consumers diversity it is essential to investigate clinical age-related differences among genders.

OBJECTIVE

To describe the progressing severity of facial signs and their links with perceived age, of Chinese men and women.

MATERIALS AND METHODS

Full-face photographs of 438 Chinese subjects (220 men, 218 women) differently-aged (18–80y) were taken. These photographs afforded a zoom on 5 facial signs of aging: forehead and crow's feet wrinkles, nasolabial fold, marionette lines and ptosis of the lower face. A panel of 15 experts graded each sign, using the Asian skin aging atlas reference. In addition, a naïve panel of 80 Chinese women (20–60y) was asked to attribute an apparent age.

RESULTS

Despite slight differences in severity between genders, men and women share in common a rather regular progression rate, correlated with perceived ages. 15 % of men were judged older by more than 10y, and all 5 signs were found more severe than the means of the other 85%. Forehead and Crow's feet wrinkles appear more pronounced in men. Ptosis is slightly more pronounced in women. Nasolabial fold does not differ. Marionette lines show distinct changes: those of men show a lessened severity and a slower rate of progression. In contrast with changes in facial signs with real ages, the upper face seems privileged in the perception of ages in women whereas the latter seems more focusing on its lower part in men.

CONCLUSION

The facial skin aging process in Chinese subjects presents an almost linear progression with perceived ages, common to both genders, at the exception of marionette lines that are more marked and more rapidly progressing in women.

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Gender-related differences in the facial aging of French subjects and their relations with perceived ages and tiredness

AUTHORS

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INTRODUCTION

To better design cosmetic solution adapted to consumers in their diversity, investigating clinical age-related differences among genders is essential.

OBJECTIVE

i) To assess and compare the changes in five facial signs with age between genders of French subjects and

ii) To evaluate their links with perceived ages and tiredness.

MATERIALS AND METHODS

Once zoomed from standardized photographs, five signs of 518 French subjects of both genders and different ages (18–69y), were graded by 15 experts, using a referential skin aging atlas. A large naïve panel of 1,000 French subjects (500 men and 500 women) was asked to attribute a perceived age and a degree of tiredness to 200 subjects (among the 518).

RESULTS

The severity of the signs increases with time at a linear-like rate. The changes in Marionette lines significantly differ between genders, much more pronounced in women, Nasolabial fold was found more pronounced in men at older ages (> 50y). Before 50's, Forehead wrinkles present a slightly higher severity in men whereas at 50's women present more severe ptosis. Crow's feet wrinkles did not show significant changes. Perceived ages were found correlated with the severities of the facial signs and the perception of tiredness was associated to perceived ages in men, but not in women older than 40y. The gender-related perceptions from the panel in both ages and tiredness showed a low discrepancy. Interestingly, as for changes in facial signs, the upper-half face seems more affected for men and lower-half face for women, after 40y the panel seems focusing on the same areas to predict an age.

CONCLUSION

As compared to the previous Chinese study, this work reveals some slight ethnical-related differences, indicating that the facial signs of the lower face play a major role in the assessment of perceived age of both genders from different ethnicity.

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Mastering the performance of retinol from chemical stabilization to clinical and perceived performance

AUTHORS

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ABSTRACT

Some active ingredients used in cosmetic products are not stable. They may degrade rapidly under the effect of light, oxygen, metal ions, oxidizing agents, water or even under the effect temperature rise (>40°C). This instability may result in major formulation issues such as color, odor changes and efficacy loss that compromise the quality of formulae and limits the use of some active ingredients. BHT and EDTA are classically used to stabilize oxygen-sensitive ingredient in different formulations. Due to their environmental profile a replacement had to be found. A full study has been put in place to replace both BHT (Butylated hydroxytoluene) and EDTA (Ethylenediaminetetraacetic acid) by EDDS (trisodium ethylenediamine disuccinate) and Tinogard TT (pentaerythrityl tetra-di-t-butyl hydroxycinnamate) in a cream containing retinol. The goal was to deliver a stable retinol with clinical and perceived performances.

The first step was to ensure that the retinol was stable in the required conditions. A cream was design with the new protective system. In aluminum tube the metering showed a loss of 5%. In the second time it was important to determine the Minimal Epidermis Active Dose (MEAD) for retinol. Tests were conducted on the expression of transcripts in normal human epidermal keratinocytes. It was showed that, depending on the marker, estimated threshold of the MEAD ranged 3 to 10 µM.

A cream containing 0.2% of retinol has hence been tested to determine if its bioavailability was above this threshold. It was determined that the average epidermal bioavailability was of 14 µM. Validating this point, it was tested on Caucasian skin (n = 50) for 6 months to follow the effect of this retinol delivered in the epidermis on difference age signs. Both clinical (wrinkles, fines lines, plump, skin tone, glow, skin smoothness, etc.) and perceived effect were monitored. These results demonstrated both a continuous improvement of the effect throughout the course of the 6 months. All along the test, tolerance (objective and visible signs) and perception of discomfort were assessed showing that this amount of retinol delivered within the epidermis daily did not trigger any major discomfort of tolerance issue for most of the panel.

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An all-in-one dynamic line evaluation system and its application

AUTHORS

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INTRODUCTION

The dynamic line will progressively turns into persistent wrinkle, due to repeated mechanical stress and decline of the skin elasticity. Many researchers examine dynamic line induced by external mechanical compression. However, A real-life and digital system that could provide objective and accurate evaluation of the dynamic line is lacking.

OBJECTIVE

We aimed at developing an all-in-one evaluation system to examine the real-time changes of dynamic line during the expression and evaluate the anti-dynamic line efficacy of cosmetic product.

MATERIALS AND METHODS

An all-in-one dynamic line evaluation platform was developed, which contains a standard multi-direction image capture device, a head repositioning system, an angle adjustable shelf and a computer-controlled system that can capture high-resolution, high frame rate photographs of facial expressions. A cosmetic product which contains SYN®-AKE and proxylane was evaluated on the anti-dynamic line efficacy with this system, as SYN®-AKE and proxylane were reported to work on muscle cell contraction and different skin aging biomarkers respectively. Two facial expressions (smile and raising eyebrow) were examined using this system at baseline and week 8. The dynamic line on localized areas (Crow's feet, Underneath eye, Forehead, Nasolabial) were evaluated by dermatologist on the photos and T8w values was compared with baseline.

RESULTS

This dynamic line evaluation system was able to accurately document the facial expression process. The product containing SYN®-AKE and proxylane significantly decreased dynamic line on Forehead, Crow's feet, Nasolabial and Underneath eye, with improvement rates of 9.66%, 12.63%, 18.33% and 11.55% respectively, after eight weeks of application.

CONCLUSION

This method offers a new way to objectively characterize the skin dynamic line. It can be used to evaluate the anti-dynamic line efficacy of cosmetic products. The anti-dynamic line efficacy of the product in this study may be due to the muscle contraction and antiaging efficacy provided by the SYN®-AKE and proxylane respectively.

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Skin improvement of ablative fractional carbon dioxide laser treatment combined with a repairing & anti-aging serum

AUTHORS

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INTRODUCTION

It is meaningful to understand the opportunities for cosmetic industry under booming development of cosmetic dermatology, as skin could be damaged to a certain extent after beauty procedure and usually require time for recovery.

OBJECTIVE

To evaluate whether the application of a cosmetic anti-aging facial serum containing Bifida ferment lysate and Sphingomonas ferment extract could accelerate skin regeneration and enhance anti-aging efficacy after ablative fractional CO_2 laser treatment.

MATERIALS AND METHODS

64 Chinese female (20-50y) were randomly divided into the test and control groups (32 subjects/group). 3 stages were included: stage I-control group used for standard products, while test group used for standard products plus anti-aging serum for 2 weeks; stage II-both groups were only provided with epidermal growth factor for 10 days after laser; stage III-subjects followed same routine as in stage I for another 2 weeks. Instrumental measurement, clinical evaluation and self-assessment questionnaire were included during each stage. The side effects after laser treatment were also assessed by dermatologist and subjects themselves.

RESULTS

Significant better efficacy on skin barrier function improvement was observed for test group ($P<0.05$) during all test stages. The skin barrier function with serum pre-treatment recovered to a better level than baseline within 3 days after procedure, with a recovery rate of 82.4% only 1 day after laser treatment, while control group did not recover even until the end of the study. Additionally, the significant improvement was also achieved for skin elasticity, smoothness, brightness and hydration for test group compared to control group at the end of the study, with an improvement rate of 11.2%, 19.9%, 7.5% and 14.3%, respectively.

CONCLUSION

Skin pre-treated with a newly developed cosmetic facial serum before ablative fractional laser could enhance skin barrier, with the boosting effectiveness of ablative fractional CO_2 laser in the treatment of cutaneous aging.

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Anti-skin aging benefit from a dual wavelength LLLT device and its enhanced efficacy with cosmetic

AUTHORS

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INTRODUCTION

Cosmetic products have been used as safe, pleasant and common daily skincare routine for preventing or slowing down skin aging. Some consumers are not satisfied with the efficacy of some products. Beauty devices have become a solution to augment cosmetic performance by boosting efficacy, but not compromising the user experience and safety. A dual LED Low-Level Light Therapy (LLLT) device was developed with yellow and IR LEDs and associated with cosmetic products. The specific wavelengths mix was proved to maximize fiberblast growth in in-vitro testing. Herein, we describe the results of an in-vivo clinical trial to prove the concept.

OBJECTIVE

To explore the clinical efficacy potential of a l LLLT device associated with an anti-aging essence.

MATERIALS AND METHODS

A clinical trial was conducted with 100 consumers from 20-65 years old with light to moderate severity of aging according to a Skin Aging Atlas. All consumers were separated into 2 groups. One group used the LLLT device, and the essence and the other group only used essence (control group). A clinical grading by a dermatologist was followed at multiple measurement time including baseline, 4 weeks, 8 weeks treatment and at the 4 following weeks after stopping treatment.

RESULTS

A significant efficacy ($p<0.05$) of wrinkles, texture and skin tone were observed from both group after 8 weeks' treatment. LLLT device boosted small folds on nasolabial area, texture and radiance when using together with essence vs. essence alone group. More significant superior efficacy ($p<0.05$) was observed almost on all attributes at the ends of a 4 week relapse covering facial wrinkles, texture, firm and elastics, texture, radiance and tone. No adverse event or skin discomfort was reported in the clinical trial.

CONCLUSION

The association of LED LLLT I& cosmetic products is a new approach to augment the clinical efficacy of cosmetic anti-aging products.

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Clinical Evaluationof Anti-Aging Effectiveness of Combining Two Antioxidant Serums in Chinese Females with Mild-to-Moderate Skin Aging

AUTHORS

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INTRODUCTION

Antioxidant products benefit skin by reducing oxidative stress in dermal fibroblasts. A topical serum containing 15% Vitamin C, 1% Vitamin E and 0.5% ferulic acid (CEF) has been reported to improve the appearance of photodamaged skin. Another study reported the same conclusion for daily application of a topical nighttime serum containing 1% resveratrol , 0.5% baicalin and 1% vitamin E (RBE). However , there is a lack of studies examining combination effects of these two serums.

OBJECTIVE

To evaluate anti-aging effects of combining RBE and CEF in Chinese females with mild-to-moderate skin aging.

MATERIALS AND METHODS

A prospective, split-face, randomized controlled trial was conducted among 44 Chinese females with mild-to-moderate facial skin aging. Daily application of CEF in the morning and RBE at night was randomized to half of subjects' faces. The other half applied CEF only as a control. Skin elasticity (R2), tightness (F4), smoothness (Sesm), glossiness, crow's feet area and depth were measured on both sides at baseline, day 28, day 56, and day 84 after enrollment. Subjective clinical assessments by physicians and participants' satisfaction questionnaire were also collected. Skin tolerance was evaluated by physicians.

RESULTS

The average age of enrolled participants was 44.6±0.9 years old. Both test sides showed significant increases in all measurements during follow-up compared to baseline. Comparing to the control side, combining RBE and CEF showed better percentage improvements since day 28 and achieved maximum at day 84 in elasticity (25. 25% vs. 19.19%, P=0.0026), tightness (36.76% vs. 21.18%, P<0.001) and glossiness (34.62% vs. 15.09%, P<0.001). Physician assessments presented similar results. All participants were satisfied with anti-aging effects (i.e. face-lifting, tightening, increasing elasticity, fine line reducing) and reported positive overall feeling for the combination treatment. No adverse effect was observed.

CONCLUSION

The combination of antioxidant serums showed significantly better effects on skin anti-aging and higher satisfaction compared to using CEF alone.

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Objective and subjective evaluation of a daily self-massage on skin aging signs

AUTHORS

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INTRODUCTION

Considered as one of the oldest forms of care, massage is empirically associated with morphological changes and well-being benefits. Regarding the new impetus of this practice in the anti-aging strategy, the real benefits remain an open field of research.

OBJECTIVE

To evaluate the impact of a daily self-massage on the visible facial skin aging signs and the well-being on women.

MATERIALS AND METHODS

A clinical test was conducted, combining assessments of facial aging signs by a dermatologist thanks to an analogical scale and a subjective assessment with consumers self-questionnaire. 50 French women, Fitzpatrick skin type II or III, (40–60y) were enrolled in the study to do a specific face self-massage, once a day for 2 weeks, by using a vegetal oils-base to facilitate the gestures. This 3-min face workout is based on 14 gestures like stretching, flicking, deep typing, friction and smoothing on the face and the neck.

RESULTS

After 2 weeks of the self-massage routine at-home, the assessments performed by the clinician showed several statistically significant improvements on skin aging signs: ptosis (P=0.0034, Wilcoxon test, -4,9%), fines lines (P< 0.0000, Wilcoxon test, -23,8%), plumpness ((P< 0.0000, Wilcoxon test, +4,4%) and radiance ((P< 0.0000, Wilcoxon test, +16,7%). Benefits are also perceived by the consumers, the majority (more than 85% for each question) is agreed to declare that their skin looks smoother, bouncy and their fine lines reduced. Moreover, the interest of the massage is highly perceived on a wellness benefit: 100% of women declare that the massage boosts their well-being feeling.

CONCLUSION

This study highlights the positive impacts that a daily face workout could bring to reduce the visible signs of ageing. This practice with evidence-based should become a part of a more global anti-ageing strategy, including the mental wellness benefits.

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Assessing the impact of an aerial chronic urban pollution on some facial signs of differently-aged Chinese men

AUTHORS

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INTRODUCTION

Investigations on Chinese men facial skin remain scarce. To better design a cosmetic solution adapted to consumers in their diversity, investigating exposome-related impacts differences among genders is essential.

OBJECTIVE

To assess the impact of an aerial chronic urban pollution (UP) on the severities of some facial signs of Chinese men living in two close but differently polluted Chinese cities.

MATERIALS AND METHODS

Standardized digital photographs were taken on 201 subjects from two cohorts of Chinese men (100 inhabitants of Baoding/very polluted and 101 inhabitants of Dalian/less polluted) differently aged (20–60y) allowing a focus on 17 different facial signs. The latter were graded by 15 experts, using a clinical referential skin atlas. A questionnaire was filled by all subjects collecting their habits and uses with regard sun-exposures and skincare products. A naïve panel of 80 Chinese women of comparable ages, attributed a perceived age to each subject under blind conditions.

RESULTS

These confirm previous data obtained on Chinese women, with a similar protocol, i.e., that some facial signs show an increased severity in the more polluted city. However, changes in facial signs, with age, are of a different pattern according to gender. In Chinese men, most signs show early onsets with however low age-related changes, inversely to those observed in women, at the exception of vascular disorders. Habits of sun-exposures and uses of skincare product were found totally similar in both cohorts, reinforcing the specific role of UP in the progressive changes of facial signs. Similar to the results previously obtained on Chinese women, men living in a more polluted city were judged older than those living in a less polluted aerial environment.

CONCLUSION

The present work confirms that a more severe UP increases the severities of some facial signs in Chinese men.

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In vivo multiphoton FLIM quantification and characterization of Melanins in subjects with different variants in MC1R and SLC45A2 key pigmentation

AUTHORS

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INTRODUCTION

Two key pigmentation genes are associated with melanoma risk: *i*) MC1R, melanocortin type 1 receptor, whose "loss of function" variants are associated with an increased risk, and *ii*) MATP/SLC45A2, encoding a melanosomal transporter, and whose L374F is strongly associated with protection against melanoma. Characterizing melanins *in vivo* is a challenging topic that can be addressed by multiphoton fluorescence lifetime imaging (FLIM) and associated bi-exponential, phasor and Pseudo-FLIM analyses for specific melanin detection and eu-/pheo-melanins discrimination.

OBJECTIVE

To characterize *in vivo* the impact of different pigmentation genotypes on the global 3D epidermal melanin density, its z-distribution profile and melanins' type in normal human epidermis.

MATERIALS AND METHODS

54 healthy adult volunteers, carriers of: 1) two MC1R deleterious variants and no L374F protective variant (n=10); 2) one MC1R deleterious variant, and no L374F protective variant (n=13); 3) no MC1R deleterious variant nor L374F protective variant (n=18); 4) at least one protective L374F variant and no deleterious variant of the MC1R gene (n=13). Subjects' pigmentary and sun sensitivity characteristics were collected. Multiphoton 2PEF/SHG 3D z-stacks, 2PEF-FLIM 2D images and colorimetry measurements were performed on dorsal and ventral forearms.

RESULTS

3D melanin density strongly differs between groups 1 and 4 and is correlated with pigmentary characteristics. Melanin density z-distribution profiles allow evidencing significant differences: limited to the basal epidermal layer in group 1 to occupying more than 2/3 of epidermis in group 4. Melanin in *stratum basale* has smaller phase and modulation fluorescence lifetimes in group 4 (mean±sd: t_φ=0.70±0.16 ns; t_m=1.69±0.25 ns) compared to group 1 (t_φ=0.77±0.14 ns; t_m=1.85±0.21 ns), probably associated to different eu-/pheo-melanin levels.

CONCLUSION

Multiphoton FLIM imaging, besides measuring melanin's amount and epidermal distribution, opens the possibility of quantifying eu-/pheo-melanin levels *in vivo*, thus allowing a better characterization of the populations at risk and the evaluation/development of photoprotection products.

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2-mercaptonicotinoyl glycine, a new potent brightening agent exhibiting a unique mode of action investigated vitro & vivo

AUTHORS

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INTRODUCTION

2-MNG *(2-mercaptonicotinoyl glycine)* has been designed as a new molecule providing high performance toward inhibition of melanin production while exibiting a low environmental impact.

OBJECTIVE

To determine its unique mode of action and in vivo performance regarding prevention of immediate melanine darkening, as well as the reduction of neo-melanin production.

MATERIALS AND METHODS

Performance and mechanism of action were carried out either *in vitro* through pigmented reconstructed epidermis, as well as *in vivo* on volunteers III/IV/V Southeast Asia under UV-daylight.

RESULTS

- *In vitro* investigations have revealed that 2-MNG is a structure interacting with melanin precursors, avoiding them to be integrated into growing melanin, and leading to a significant inhibition of melanin production.
- *In vivo* dose effect (*0.5 & 1%)* of this new active has been revealed versus vehicle under ultraviolet daylight exposure, to prevent melanin immediate darkening, either to reduce neo-melanin production.

CONCLUSION

In contrary to most of brightening agents, 2-MNG is not a tyrosinase inhibitor but leading to a significant inhibition of melanin production. This unique mode of action lead to an high permornance either on anti-pigmentation and de-pigmentation with a strong melanocyte safety.

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2-mercaptonicotinoyl glycine prevents and decreases Ultraviolet-induced pigmentation: Clinical trial on dark skin

AUTHORS

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INTRODUCTION

Chronic nonextreme sun exposures induce two skin pigmentation mechanisms, preexisting melanin oxidation and new melanin synthesis. 2-mercaptonicotinoyl glycine (2-MNG) has been revealed in vitro as a new molecule, belonging to mercaptoniacinamide, providing high performances on these two pigmentation mechanismes.

OBJECTIVE

Controlled clinical trial to assess *in vivo* performance on South-East Asian skin, defined as melanin rich by ITA classification, to prevent melanin oxidation, as well as to reduce neo-melanin production under UV-daylight exposure.

MATERIALS AND METHODS

33 femal and male, aged 18 to 50 years with phototypes III/IV/V *(-01° ≤ ITA° ≤ 28°)* were treated on mini-zones on the back, five days a week during seven weeks, at a dose of 4mg/cm^2. During the second week, volunteers were exposed under 0.5 MED of UV-daylight during 4 consecutives days. 2-MNG at 0.5 & 1% alone and 2-MNG 0.5% in association with LHA (0.3%), and Mexoryl-SX (1.5%) were tested versus vehicles and versus positive references Kopcinol at 2.5%. Evaluation criteria were performed using Chromameter measurements (*delta E, ITA° and erytema a* value*), and clinical assessment (*skin pigmentation and erythema scales*)

RESULTS

- 2-MNG prevent significantly immediate darkening and inhibited new melanin production versus vehicle, with higher performance at 1% than at 0.5%.
- 2-MNG (0.5%) in association with LHA (0.3%), and Mexoryl-SX (1.5%) had significant higher performance against UV-induced pigmentation than 2-MNG 0.5% alone.
- 2-MNG 0.5 & 1% leds to a significantly better performance against UV-induced pigmentation than 2.5% Kopcinol.
- No side effects were reported all along the clinical trial.

CONCLUSION

2-MNG efficient dose effect (0.5 & 1%) has been revealed on the two skin pigmentation mechanisms induced by UV exposures. It has also been observed that the association with LHA and Mexoryl enhances its efficacy. It can therefore be formulated to provide efficacy on South-East Asian skin pigmentation induced by UV exposure.

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2-Mercaptonicotinoyl Glycine: A new molecule that prevents and decreases UV-induced pigmentation. Evaluation in Chinese skins of pigmentation changes through a double-blind, vehicle control protocol and comparison versus anti-pigmentation standards

AUTHORS

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INTRODUCTION

Modulation of facial skin tone is an essential beauty expectation especially in Asia. Cosmetic regimens combined several mechanisms: reducing melanin quantity, inhibiting melanin synthesis, photoprotection, etc. Developing a new active ingredient dealing with several mechanisms is essential to propose personalized treatments for all skin tones worldwide.

OBJECTIVE

To evaluate clinically, *in vivo*, the anti-pigmentation and/or de-pigmentation efficacy of 2-Mercaptonicotinoyl Glycine (2-MNG) in preventing or decreasing UV-induced pigmentation in Chinese skin. 2-MNG has been revealed *in vitro* as a new molecule providing high performances.

MATERIALS AND METHODS

Thirty Chinese women (21–50y) with phototypes III were enrolled. Different products (2-MNG -0.5%,1%- + associations at 0.5% with LHA (0.3%), and with Mexoryl SX(1.5%) + Vehicle + reference Vitamin C 7%) were applied on mini-zone, in randomized and blinded protocol, on the back, five days a week during seven weeks, at a dose of 4mg/cm2. During the second week, volunteers were exposed under 0.5MED of UV-daylight during 4 consecutive days. Assessments were performed instrumentally using Chromameter and clinically using skin pigmentation and erythema scales.

Comparison of performance for 2-MNG versus standard ant-pigmentation actives (Polydatin, Ferulic Acid, Resveratrol, Ellagic Acid, etc.) was established through a bayesian metanalysis based on previous studies conducted in the same conditions.

RESULTS

2-MNG has significant anti-pigmentation efficacy versus vehicle.

2-MNG (0.5%) in all associations has significant anti-pigmentation efficacy than 2-MNG (0.5%) alone.

All 2-MNG-based products performed significantly better than Vitamin C.

Test is validated with efficacy demonstration of Vitamin C compared to its vehicle.

Metanalysis demonstrate that all 2-MNG-based products have significantly better anti-pigmention performance than standards.

CONCLUSION

This new, highly efficient, ingredient in different concentrations or in association is interesting approach to develop products targeting main concerns of women and men worldwide. New real-life studies will be conducted in different phototypes or pigmentary lesions.

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Discovery of 2-mercaptonicotinoyl glycine, a new potent brightening agent for hyperpigmentation management, exhibiting a low environmental impact

AUTHORS

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INTRODUCTION

Research on new eco-friendly brightening agents taking into account efficacy, safety and low environmental impact is of great importance to significantly improve existing actives on the market and avoid unwanted side-effects.

OBJECTIVE

Discovery of an innovative technology for hyperpigmentation management exhibiting high efficacy and low environmental impact

MATERIALS AND METHODS

A high-throughput screening test evaluating melanin production on a large chemical diversity and *in silico* predictive methodology were used to eco-design original and performant chemical structures.

RESULTS

After assessment of the most promising structures, 2-mercaptonicotinoyl glycine was selected due to its very favorable balance between ecodesign and high performance on melanin production inhibition. Its potent efficacy for managing melanin production was confirmed via topical application by using pigmented reconstructed epidermis.

CONCLUSION

This new technology significantly improves the overall performance of brightening agents on the market such as 4-n-butylresorcinol.

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Is AHR at the centerstage of systemic and topical responses of skin to pollution exposure, leading to pigmentary disorder?

AUTHORS

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INTRODUCTION

The aryl hydrocarbon receptor (AhR) is a ligand-activated transcription factor that is activated by xenobiotics and is expressed by different cellular compartments of skin. AhR signaling represents a molecular pathway that integrates the effects of the environment and metabolism on skin and presents as a potential target for therapeutic intervention.

OBJECTIVE

To explore AhR as one of the molecular mechanisms that is linked to skin dysfunction upon chronic exposure to pollution.

MATERIALS AND METHODS

We have conducted a clinical study involving equal numbers (n=67) of volunteers living in highly polluted city and less polluted cities in China. We measured the levels of polycyclic aromatic hydrocarbons (PAH) in the hair follicles of volunteers to establish individual pollution exposure. Molecular parameters included skin surface metabolomics, proteomics and microbiome analysis. For in vitro validation, we cultured primary human keratinocytes either alone or with melanocytes to study impact of PAH on pigmentation and to explore the

RESULTS

We found that women living in polluted environment presented with high prevalence and severity of certain skin clinical signs related to pigmentation. These signs correlated with PAH levels from the systemic route and was the first indication towards a potential involvement of the AHR pathway. To confirm these results and using AhR PCR Array, we show its activation using keratinocyte 2D cultures. To further make the connection with pigmentation and using keratinocyte/melanocyte co-culture model exposed to pollutants, we show an enhancement of melanogenesis and again showed the activation of AHR mediated Phase 1 genes.

CONCLUSION

These results open the possibility of testing AHR ligands with an aim to modulate pollution induced effects on skin surface. Studies are underway to test microbiome and plant derived ligands as actives against pollution induced pigmentation via AHR pathway.

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Topical Tranexamic Acid, Kojic Acid, And Niacinamide Containing Regimen Plus Antioxidants Vitamin C and E with Single Session of Q-switch (Qs) Laser: Integrated Skincare Program Of Melasma in Asians

AUTHORS

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INTRODUCTION

Management of melasma in Asians is complex and challenging. It needs integrated modalities, long term maintenance with consistent lifestyle modification and compliance. Controversies exist on how to combine the existing modes of treatment, like the role of Q-switch or Picosecond lasers.

OBJECTIVE

We sought to determine a structured skincare program involving single laser treatment with maintenance skin care by a multi-modal regimen on improving treatment outcomes in melasma patients.

MATERIALS AND METHODS

Twenty-five ethnic Hong Kong Chinese patients (22 female, age 38-64) were recruited in one specialist centre during 2022-2023. They underwent a structured skincare conditioning protocol containing topical 3% Tranexamic acid (TXA), 1% kojic acid, 5% niacinamide, 5% hydroxyethylpiperazine ethane sulfonic acid (HEPES) and topical antioxidant (15% L-ascorbic acid, 1% Alpha-tocopherol, 0.5% Ferulic Acid) for two weeks, then received energy based device (QS 755 laser, 4mm 3J, one to two passes, mild erythema as end point) treatment once. Immediate cooling and epidermal repair started after procedure. Patients then resumed the same regimen for another eight weeks. Several photos, Melasma Area and Severity Index (MASI) from baseline and each follow-up was documented. The patients were given structured standard counseling, clarifying information related to proper skin care and advice on product use in each consultation and follow-up by phone or social messaging apps with standard questionnaire were given every two weeks.

RESULTS

All patients completed the treatment protocol. They reported a good compliance to the protocol (96%). MASI score improved (26-48 at day 0 to 8-34 at week 10) in all patients without rebound and relapse. Median MASI improvement for individual patient was 18. One case got post procedure hyperpigmentation but improved at week 10.

CONCLUSION

Structured integrated skincare regimen containing topical Vitamin C, E, and Ferulic Acid as well as Tranexamic Acid , Kojic Acid , and Niacinamide in HEPES along with a single session of Q-switch laser are effective in controlling melasma and for maintenance in ten weeks.

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2-Mercaptonicotinoyl Glycine: A new molecule that prevents and decreases UV-induced pigmentation. Evaluation in Chinese skins of pigmentation changes through a double-blind, vehicle control protocol and comparison versus anti-pigmentation standards

AUTHORS

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INTRODUCTION

Modulation of facial skin tone is an essential beauty expectation especially in Asia. Cosmetic regimens combined several mechanisms: reducing melanin quantity, inhibiting melanin synthesis, photoprotection, etc. Developing a new active ingredient dealing with several mechanisms is essential to propose personalized treatments for all skin tones worldwide.

OBJECTIVE

To evaluate clinically, *in vivo*, the anti-pigmentation and/or de-pigmentation efficacy of 2-Mercaptonicotinoyl Glycine (2-MNG) in preventing or decreasing UV-induced pigmentation in Chinese skin. 2-MNG has been revealed *in vitro* as a new molecule providing high performances.

MATERIALS AND METHODS

Thirty Chinese women (21–50y) with phototypes III were enrolled. Different products (2-MNG -0.5%,1%- + associations at 0.5% with LHA (0.3%), and with Mexoryl SX(1.5%) + Vehicle + reference Vitamin C 7%) were applied on mini-zone, in randomized and blinded protocol, on the back, five days a week during seven weeks, at a dose of 4mg/cm2. During the second week, volunteers were exposed under 0.5MED of UV-daylight during 4 consecutive days. Assessments were performed instrumentally using Chromameter and clinically using skin pigmentation and erythema scales.

Comparison of performance for 2-MNG versus standard ant-pigmentation actives (Polydatin, Ferulic Acid, Resveratrol, Ellagic Acid, etc.) was established through a bayesian metanalysis based on previous studies conducted in the same conditions.

RESULTS

-2-MNG has significant anti-pigmentation efficacy versus vehicle.

-2-MNG (0.5%) in all associations has significant anti-pigmentation efficacy than 2-MNG (0.5%) alone.

-All 2-MNG-based products performed significantly better than Vitamin C.

-Test is validated with efficacy demonstration of Vitamin C compared to its vehicle.

-Metanalysis demonstrate that all 2-MNG-based products have significantly better anti-pigmention performance than standards.

CONCLUSION

This new, highly efficient, ingredient in different concentrations or in association is interesting approach to develop products targeting main concerns of women and men worldwide. New real-life studies will be conducted in different phototypes or pigmentary lesions.

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2-mercaptonicotinoyl glycine, a new potent brightening agent exhibiting an unique mode of action investigated vitro & vivo

AUTHORS

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INTRODUCTION

2-MNG *(2-mercaptonicotinoyl glycine)* has been designed as a new molecule providing high performance toward inhibition of melanin production while exibiting a low environmental impact.

OBJECTIVE

To determine its unique mode of action and in vivo performance regarding prevention of immediate melanine darkening, as well as the reduction of neo-melanin production.

MATERIALS AND METHODS

Performance and mechanism of action were carried out either *in vitro* through pigmented reconstructed epidermis, as well as *in vivo* on volunteers III/IV/V South East Asia under UV-daylight.

RESULTS

- *In vitro* investigations have revealed that 2-MNG is a structure interacting with melanin precursors, avoiding them to be integrated into growing melanin, and leading to a significant inhibition of melanin production.
- *In vivo* dose effect *(0.5 & 1%)* of this new active has been revealed versus vehicle under ultraviolet daylight exposure, either to prevent melanin immediate darkening, either to reduce neo-melanin production.

CONCLUSION

In contrary to most of brightening agents, 2-MNG is not a tyrosinase inhibitor but leading to a significant inhibition of melanin production. This unique mode of action lead to an high permornance either on anti-pigmentation and de-pigmentation with a strong melanocyte safety.

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2-mercaptonicotinoyl glycine prevents and decreases Ultraviolet-induced pigmentation: Clinical trial on dark skin

AUTHORS

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INTRODUCTION

Chronic nonextreme sun exposures induce two skin pigmentation mechanisms, preexisting melanin oxidation and new melanin synthesis. 2-mercaptonicotinoyl glycine (2-MNG) has been revealed in vitro as a new molecule, belonging to mercaptoniacinamide, providing high performances on these two pigmentation mechanismes.

OBJECTIVE

Controlled clinical trial to assess *in vivo* performance on South-East Asian skin, defined as melanin rich by ITA classification, to prevent melanin oxidation, as well as to reduce neo-melanin production under UV-daylight exposure.

MATERIALS AND METHODS

33 femal and male, aged 18 to 50 years with phototypes III/IV/V *(-01° ≤ ITA° ≤ 28°)* were treated on mini-zones on the back, five days a week during seven weeks, at a dose of 4mg/cm^2. During the second week, volunteers were exposed under 0.5 MED of UV-daylight during 4 consecutives days. 2-MNG at 0.5 & 1% alone and 2-MNG 0.5% in association with LHA (0.3%), and Mexoryl-SX (1.5%) were tested versus vehicles and versus positive references Kopcinol at 2.5 & 5%. Evaluation criteria were performed using Chromameter measurements (*delta E, ITA° and erytema a* value*), and clinical assessment (*skin pigmentation and erythema scales*)

RESULTS

- 2-MNG had significant anti-pigmentation and depigmentation efficacy versus vehicle, with higher performance at 1% than at 0.5%.
- 2-MNG (0.5%) in association with LHA (0.3%), and Mexoryl-SX (1.5%) had significant higher performance against UV-induced pigmentation than 2-MNG alone.
- 2-MNG 0.5 & 1% leds to a significantly better performance against UV-induced pigmentation than 2.5% & 5% Kopcinol.
- No side effects were reported all along the clinical trial.

CONCLUSION

2-MNG efficient dose effect (0.5 & 1%) has been revealed on the two skin pigmentation mechanisms induced by UV exposures. It has also been observed that the association with LHA and Mexoryl enhances its efficacy. It can therefore be formulated to provide efficacy on South-East Asian skin pigmentation induced by UV exposure.

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Pigmentary disorders, prevalence, impact on quality of life, social stigmatization: results of the first large international survey

AUTHORS

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INTRODUCTION

Pigmentary disorders (PD) such as Melasma, Post-inflammatory Hyperpigmentation (PIH), Solar Lentigo, Vitiligo, Peri-Orbital Hyperpigmentation (POH) and Axillary Hyperpigmentation (AH) are frequent dermatological conditions, but little is known on their real-world prevalence and impact.

OBJECTIVE

This first worldwide survey evaluates the prevalence of PD and its impact on quality of life (QOL) and stigmatization.

MATERIALS AND METHODS

Survey (N= 48,000) conducted in 34 countries from all continents from December 2022-February 2023. An automated selection from the Ipsos Panel ensured representative samples (gender, age, employment status and country region) based on quota method.
The online auto-administered questionnaire covered demographics, phototype, self-reported pigmentation condition based on a descriptive text and image; its management and impact on QOL, stigmatization, and sun protection behavior.

RESULTS

50% of the population report having at least one PD such as solar lentigo 27%, AH 18%, PIH 15%, POH 15%, melasma 11% and vitiligo 8%, with an average age of 44yo and affecting more women (59%). Previous dermatological diagnosis was reported in a third (36%) of the population, and 19% made their own diagnosis thanks to the questionnaire.

All PD significantly impact QOL and lead to stigmatization. DLQI was >10/30 for 28% of them, from 15% for solar lentigo to 47% for vitiligo. Stigmatization is important in all conditions: 44% of patients with a PD have concealed/hidden the visible parts of their affected skin and 32% have avoided some people.
Although sun exposure is well recognized by the medical community to worsen the pigmentation, respondents reported a low-level protection against the sun: only 38% protect their skin all year, and only 38% consider that sun exposure is deleterious to their condition.

CONCLUSION

This first large international survey on PD shows the high prevalence of PD worldwide, their significant impact on QOL and stigmatization, highlighting the need for photoprotection education.

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Improving parent-child relationships in paediatric oncology through the use of "magic" massage

AUTHORS

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INTRODUCTION

The onset of cancer in childhood is devastating, despite positive trends in cure rates. The diagnosis has traumatic effects on the parents, and all of them describe the pain of watching their child suffer and being powerless to help. Paediatric oncology departments are constantly seeking to improve children's mental and physical experience during treatment. What can be done to ensure this experience does not leave too deep a mental, physical and sensory impact on them?

OBJECTIVE

The objective is to evaluate the effectiveness of these massages on parent-child relationships and on the therapeutic alliance between healthcare providers and parents.

MATERIALS AND METHODS

A narrative review was conducted using three databases: Cairn, Pubmed and ScienceDirect. Twenty articles were reviewed from those published in the last 15 years. Our keywords cancer/child/touch or massage were the same as those used in developing magic massage.

RESULTS

Massage reduces pain by releasing endorphins. It boosts the immune system, stimulates the circulatory and nervous systems, as well as the vestibular system. It is described as pleasant when it is performed slowly.
As it involves a relationship with another person, massage activates the mirror neurons and promotes the development of empathy. Massage strengthens the social bond through the release of endorphins.
Massage enables children to better appreciate and experience their bodies and to develop their emotional intelligence.

CONCLUSION

This literature review was a basis for developing magic massage in order to support children's wellbeing. To obtain further evidence of qualitative improvement in the parent-child relationship, a study of a significant sample of families should be conducted.

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Metal Chelation and Antioxidant Properties of a Serum with Ascorbic Acid, Ferulic Acid, and Tocopherol

AUTHORS

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INTRODUCTION

More than 99% of the world population is exposed to air that exceeds the WHO air quality guidelines for pollution. Particulate matter (PM) which is known to be enriched in redox-active metals such as iron and copper is a major source. When deposited on skin, these trace metals may participate in the Fenton reaction and exacerbate free radical formation leading to oxidative damage in the skin.

OBJECTIVE

Our goal was to evaluate the iron and copper chelation and antioxidant properties of a serum containing 15% ascorbic acid, 0.5% ferulic acid, and 1% tocopherol.

MATERIALS AND METHODS

In an initial experiment, electron paramagnetic resonance (EPR) spectroscopy (Bruker EMX nano) was used to measure the free and chelated forms of iron(III) and copper(II) in the presence and absence of test serum. Experimentation was performed at 100°K for better sensitivity. Next, free radical generation was evaluated in tubo and using an ex vivo stratum corneum model. Hydroxyl radical and hydroperoxyl radical formation was measured using 5,5-dimethyl-1-pyrroline N-oxide (DMPO) as a spin trap in presence of a Fenton generator system (Iron(II) + H2O2).

RESULTS

Data from the first experiment showed a highly significant reduction of free iron and copper in presence of serum suggesting a strong chelating effect. The reduction was observed to be dose dependent and linear. In the second set of experiments, both the in tubo and ex vivo stratum corneum models showed induction of hydroxyl and hydroperoxyl radicals by the Fenton generator which was strongly suppressed in the presence of serum.

CONCLUSION

The serum containing 15% ascorbic acid, 0.5% ferulic acid, and 1% tocopherol showed strong chelation and antioxidant properties in the EPR model systems tested. These results suggest the potential benefit of this topical serum to help protect skin from damage induced by pollution enriched in particulate matter.

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Using a complex of acids in a make-up primer for overtime effects on reduction of pores and skin roughness

AUTHORS

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INTRODUCTION

Enlarged facial pores remain a common dermatologic and cosmetic concern from acne and rosacea, among other conditions, that is difficult to treat due to the multifactorial nature of their pathogenesis. Make-up products for skin with imperfections can no longer be limited to just visually cover facial imperfections. Today, consumers are looking for overtime effects and dermatological active ingredients, widely used in skincare for years, are increasingly used in make-up.

OBJECTIVE

The aim of the study was to evaluate the long-term efficacy on the quality of the skin we had by introducing 3% of dermatological active ingredients [salicylic acid, capryloyl salicylic acid, lactic acid and 1-ethanesulfonic,- 4-(2-hydroxyethyl)-piperazin acid] into a make-up primer and to assess its non comedogenic property.

MATERIALS AND METHODS

3% of dermatological active ingredients were added in a primer with instant pore visibility reduction to promote overtime effects. We performed a cosmetoclinical study on 41 women presenting pores and rough skin. Pore visibility and skin smoothness parameters were assessed by clinical expert graders on ten points scales. A non-comedogenic test was conducted on 41 Women having oily, mixed with oily tendency prone to acne skin, 63% with sensitive face, phototype I to VI.

RESULTS

We obtained measurable and significant results on skin just after application (Timm) and on bare skin after 8 weeks for reduction of pores visibility and skin roughness. The primer was non comedogenic.

CONCLUSION

The trend that concerns make-up formula with real skin care benefits is what is called “skinification”. 3% of an acid complex was formulated in a primer. Daily application of this make-up primer resulted in reduction of pores visibility and skin roughness.

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Mechanoreceptor Activation from Topical Treatments Modulates the Sensorial Perception of our Skin

AUTHORS

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OBJECTIVE

In order to decode the feeling of skin tightness and how to soothe this discomfort, we considered the ingredient's effect on *stratum corneum* (SC) biomechanics and correlated these effects with mechanoreceptor activation through a silico / vitro / vivo approach.

MATERIALS AND METHODS

In vivo clinical trial was used to assess the tightness perception dichotomy between 2 groups of women suffering (n=30) or not (n=30) from tightness; *in vitro* experiments were used to measure the mechanical stresses induced to the SC after applying a cleanser and a moisturizer application and *in silico* simulations were used to illustrate how the measured mechanical stresses in the SC result in the development of stress at the depth of cutaneous mechanoreceptors, triggering tightness perceptual responses.

RESULTS

Before any cream application, women prone to tightness tend to have a more rigid SC, however cleanser application increases SC stiffness in all women. Surprisingly, no correlation was found between tightness perception and hydration measurements by the Corneometer or barrier function, as evaluated by transepidermal water loss. After application an optimized moisturizing formula containing specific vegetal oils, consumers report a strong decrease in tightness and dryness perception. These results match with laboratory experiments where the cleanser was shown to increase SC drying stresses by 34%, while decreased by 48% with subsequent application of the moisturizer. The effect of the specific oils was also measured. Finite element modeling, using experimental results as input, elucidates how the changes of the mechanical status of the SC produce strains in underlying epidermis that activates multiple cutaneous mechano-receptors at a level correlated with the self-perceived comfort.

CONCLUSION

Integration of the *vivo, vitro* and *silico* approaches provides a novel framework for fully understanding how skin tightness sensations form and propagate. These results provide a more quantitative process for engineering cosmetic products to include wellness factors.

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The lipid markers of dry skin in African women

AUTHORS

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INTRODUCTION

Women of African descent complain of a dry body skin and often apply moisturisers more than once a day. The reason for this habit remains unclear, as few research studies on skin in Africa are scarce. Some studies suggest that terminal epidermal differentiation may be different in heavily pigmented skin. Our aim was to determine if ceramides, known to play a role in other ethnic groups, are also associated with dry skin in African women.

OBJECTIVE

Two groups of healthy female volunteers, phototype V-VI, aged 20-50 years, were recruited for the study. Skin dryness was measured on the legs with a corneometer, and a trained clinician determined the clinical score of dryness. Volunteers who had a corneometer score <40 a.u. and a dry leg score ≥ 3 on the dry skin atlas were included in the dry skin group (n=29), whereas subjects in the normal skin group (n=29) showed a corneometer score ≥40 a.u. and a dry leg clinical score ≤ 1. *Stratum corneum* samples were collected from the calf with D-squame strips. After methanol extraction, lipids were analysed by UPLC coupled with Orbitrap High Resolution Mass Spectrometry.

MATERIALS AND METHODS

Twenty subjects with chronic TE, hair loss medication naive, were studied to evaluate the efficacy of AMI5 applied every day for 3 months followed by 3 times a week for the next 9 months. Average diameter of hair shaft and hair density were measured by Trichoscan® at baseline, 3 months, 6 months and 1 year. Tolerability and satisfaction regarding the patient's perception of hair condition improvement were assessed at baseline and 12 months. Pleasantness of the treatment was assessed by oral interview by clinicians.

RESULTS

A significantly reduced ratio of ceramides to cholesterol was observed in the dry skin group. In particular, the ratio of the four most abundant ceramide families (CER[NH], CER[NP], CER[AH], CER[AP]) to cholesterol was significantly lower in the dry skin group. The reduction was particularly pronounced for CER[NP]/CHOL, and analysis of the ratio of CER[NP] to its precursor CER[NDS] confirmed that impaired skin hydration is related to differences in the metabolism of this ceramide class. Ceramides with long chains were also found to be significantly less abundant in dry skin.

CONCLUSION

These differences in ceramides content could have significant implications for the skin's ability to retain water.

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Decoding skin tightness, from clinical parameters to biomarkers: ceramides as the new target

AUTHORS

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INTRODUCTION

The sensation of comfort perceived by consumers after using a cosmetic treatment is expressed in subjective terms, such as feelings of “tightness”, “dryness” or “sensitive skin”. Our challenge was to better understand the typology of tight skin.

MATERIALS AND METHODS

The facial skin of women prone (n=30) and not prone (n=30) to feeling tightness was characterized using instrumental, biological and clinical methods as well as subjective questionnaires. A harsh cleanser was used to induce skin tightness sensation in a standardized manner. Clinical scores of dryness, as well as instrumental measurements of hydration (corneometer), barrier function (TEWL, pH measurement), sebum level, superficial skin (DTM) and corneocytes mechanical properties (Atomic Force Microscopy) were performed on the face.

RESULTS

Tightness and dryness perception are correlated but differences in hydration measured by corneometer or NMF levels could not be evidenced between the two groups. S*tratum corneum* (SC) from women prone to tightness is more rigid. Surprisingly, this difference in rigidity could be caused by differences in the composition of mainly 2 types of ceramides AP and NP and of keratin matrix. More volunteers react to lower concentrations of capsaicin in tightness prone group, which suggest a highest prevalence of sensitive skin in this group but the barrier function does not appear to play a major role. Modulation of glutamate metabolism and S100 calcium binding proteins have been described, which suggests inflammation. No microbiome modulation has been measured.

CONCLUSION

This study demonstrates that the SC stiffness is a major factor to explain skin tightness perception. The skin surface mechanical softening would be correlated with the level of highly hydroxylated ceramides AP and NP, which could reinforce the skin’s natural moisture barrier and keep water locked within the SC.

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Sex-Related Differences in the Efficacy of Moisturizing Treatments

AUTHORS

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INTRODUCTION

Moisturizing treatments help maintain skin health by repairing or improving the skin barrier function, particularly in patients afflicted with dry skin xerosis. Their use as therapeutics to alleviate symptoms assosiated with xerosis is well known; however, the mechanisms through which moisturizers function remain unclear. Elucidating these pathways will allow for more effective use and design of moisturizing treatments, particularly as prescriptions become more patient-specific, factoring in information such as sex.

OBJECTIVE

In this study, we explore how moisturizers interact and alter the top layer of human skin, the stratum corneum (SC). In particular, we research moisturizer's effect on the mechanical properties of the SC, and how this relates to treatment efficacy. Furthermore, we investigate how differences in sex impact the role of moisturizers in alleviating skin tightness and dryness.

MATERIALS AND METHODS

We use the *ex vivo* wafer-curvature technique to measure mechanical stresses that develop in the SC (3 male and 4 female) during dehydration, before and after application of six different moisturizers. Reduction in peak stress post-application corresponds to improved moisturization, and has been shown to correlate with alleviation of skin tightness.

RESULTS

We show that all moisturizers reduce SC stress, though some are more effective than others. Furthermore, all moisturizing treatments reduced stresses in male tissue moreso than in female tissue ($p<0.05$), indicating that male patients may be more receptive to these type of theurapeutics. The rate at which stresses developed in female SC was nearly double, indicating structural or compositional differences in the skin barrier.

CONCLUSION

In this study, we show that moisturizing treatments reduce mechanical stresses in the SC, thereby alleviating sensations of tightness associated with various xerosis. Furthermore, we demonstrate that the efficacy of moisturizers varies with sex, uncovering a possible difference that could be exploited in the design of novel moisturizers.

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Clinical Evaluation of the Moisturizing, Redness Reduction and Oil-control Effects of a Lotion Containing Azelaic Acid, Alpha-arbutin with Botanical Ingredients on Sensitive Oily to Combination Skin

AUTHORS

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INTRODUCTION

Sensitive oily to combination skin has exuberant oil secretion, open pores and tends to have blackheads or acne. The typical characteristics of that type of skin are oily "T-zone" (forehead, nose, and chin) combined symptoms such as redness, itching, flaking, burning, or stinging. Due to its complex etiology and pathogenesis, effective treatments of sensitive oily to combination skin are lacking.

OBJECTIVE

To evaluate the moisturizing, redness reduction and oil-control effects of a lotion containing Azelaic Acid, Alpha-arbutin with Botanical Ingredients (Formula number 85534966) on sensitive oily to combination skin.

MATERIALS AND METHODS

A prospective, randomized, split-face, controlled trial was conducted with 42 Chinese female subjects with sensitive oily to combination skin aged 18-45 years with a lactic acid tingling score ≥3. One side of the face was randomized to receive the test product and the other side to receive glycerin cream. One application was made every morning and evening for 28 days. Trans epidermal water loss (TEWL), melanin index, erythema index, skin glossiness and skin oil content were detected at baseline, day 7, day 14, and day 28 after using products.

RESULTS

Compared to baseline, the skin on the test product sides showed a significant increase in skin glossiness, and significant decreases in TEWL, melanin index, erythema index, skin oil content on day 7, day 14, and day 28. Compared to the control product-treated sides, there was a significant increase in skin glossiness, and significant decreases in TEWL, melanin index, erythema index, skin oil content on day 7, day 14, and day 28 on the test product-treated sides.

CONCLUSION

The test lotion has moisturizing, redness reduction and oil-control effects on sensitive oily to combination skin.

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Clinical Evaluation of the Moisturizing and Soothing effects of a Serum Containing Hyaluronic Acid with Botanical Ingredients on Sensitive Skin

AUTHORS

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INTRODUCTION

Sensitive skin refers to a state of hyper-reactivity of the skin that occurs under physiological or pathological conditions, mainly on the face, where irritation causes symptoms such as redness, itching, flaking, burning, or stinging. Due to its complex etiology and pathogenesis, effective treatments are lacking.

OBJECTIVE

To evaluate the moisturizing and soothing effects of a serum containing hyaluronic acid with botanical ingredients (Formula number 74001529) on sensitive skin.

MATERIALS AND METHODS

A prospective, randomized, split-face, controlled trial was conducted with 30 Chinese male and female participants aged 18-60 years with a lactic acid tingling score ≥3. One side of the face was randomized to receive the test product and the other side to receive saline solution. One application was made every morning and evening for 14 days. Before application of the product (baseline) and after 14 days of product use, the skin stratum corneum moisture content, skin transdermal water loss, cutaneous hemoglobin content, and skin redness values were measured; after 14 days, product satisfaction was assessed by questionnaire. This study was approved by the Institutional Review Board of YeSkin Hospital and written informed consent was obtained.

RESULTS

Compared to baseline, the skin on the test product side on day 14 showed a significant increase in cutaneous stratum corneum moisture content (20.20% increase), and significant decreases in transdermal water loss (14. 55% decrease), cutaneous hemoglobin content (7.49% decrease), and skin redness a-value (7.91% decrease). Compared to the side treated with saline, on day 14, there was a significant increase in the moisture content of the cutaneous stratum corneum, and significant decreases in transcutaneous water loss, cutaneous hemoglobin content and skin redness a-values on the test product side. Participants were 100% satisfied after 14 days of using the test product.

CONCLUSION

The test serum has moisturizing and soothing effects on sensitive skin.

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Evaluation of a dermocosmetic in subjects with an allergic diathesis and an intolerance to their usual cosmetic skin care

AUTHORS

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INTRODUCTION

Intolerance to dermocosmetics is a frequent issue with patients having sensitive skin in allergic contact dermatitis (ACD), since their skin barrier is altered, and the skin microbiome unbalanced. The dermocosmetic (DC) tested has been specifically developed to restore the natural skin barrier and rebalance the skin immune system to reduce skin intolerance.

OBJECTIVE

To assess the local tolerance and efficacy of a specifically developed DC (composed of Niacinamide, fractions of the probiotic Sphingobioma and Neurosensine, a natural soothing compound that acts on skin sensitivity in decreasing erythema, irritation and pruritus) in subjects with an allergic background and intolerance to dermocosmetics.

MATERIALS AND METHODS

An open-labeled, multicenter study was conducted in Caucasian subjects >16 years of age with an allergic background and intolerance to cosmetics lasting for at least 2 years prior to inclusion. Dermatological assessments at Day 0, 14 and 28 of skin sensitivity composite score, stinging test, local tolerance, transepidermal water loss (TEWL), and skin hydration were performed. Subjects rated their satisfaction with the DC, for both face and periocular use.

RESULTS

A significant decrease of at least 85% of frequency and intensity of facial skin intolerance and reactivity (Sensiscore) was observed at Day 14 and 28.

Stinging test scores significantly decreased from 3.9 at baseline to 2.4 at Day 14 and 1.4 at Day 28. Subjects reported improvement on skin reactivity of 81% at Day 28, with similar improvements in the frequency and intensity of signs and symptoms such as skin irritation, erythema, stinging, burning, discomfort. TEWL and skin hydration also showed significant improvements at Day 14 and 28.

CONCLUSION

The tested DC reduced the frequency and intensity of skin intolerability and reactivity in in subjects with an atopic diathesis and prior cosmetic skin care intolerance.

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Tolerance and efficacy of a dermocosmetic applied for four weeks in subjects with periorbital eczema

AUTHORS

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INTRODUCTION

Eyelid dermatitis is a frequent issue encountered in patients with an allergic or atopic diathesis.

The tested dermocosmetic (DC) has been specifically developed to restore the skin barrier of the periocular region and to provide relief from signs and symptoms related to eczema. It contains Niacinamide, fractions of the probiotic Sphingobioma and Neurosensine, a natural soothing compound that acts on skin sensitivity in decreasing erythema, irritation and pruritus.

OBJECTIVE

To assess the tolerance and efficacy of the DC in subjects with perioorbital eczema.

MATERIALS AND METHODS

An open-label study was conducted in adult subjects with periorbital eczema and sensitive skin. DC was applied twice daily for 28 days. No prescription topicals were allowed. Dermatological signs and symptoms on the periorbital region and ophthalmological signs and symptoms as well as tear film break-up time and colorimetric examination of the cornea and conjunctiva were assessed at Day 0, 14 and 28. Subjects assessed the impact in quality of life (QoL) using DLQI and self-assessed the efficacy and cosmetic acceptability of the DC.

RESULTS

The DC had a rapid effect (10 min after the 1st application) on reducing itching, prickling, dryness, tightness and burning sensations. Clinical signs (eczema, desquamation/dryness, erythema, swelling, roughness) as evaluated by dermatologists, and symptoms (itching, prickling, heat/burning sensation, tightness) by subjects, significantly ($p<0.001$) improved by Day 14 and were sustained to Day 28.

The DC significantly improved ($p<0.001$) the perception of irritation (73%) and swelling (66%) while soothing (59%) the periorbital skin regions at Day 28.

QOL evaluated by DLQI had significantly improved at Day 28 (0.82±1.0) compared to Day 0 (4.17±2.23); No local adverse reactions were reported. Ophthalmological examinations paralleled the dermatological tolerance of the DC.

CONCLUSION

The tested DC is highly efficacious in reducing clinical signs and symptoms of periorbital eczema and was well tolerated.

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The repairing effect of dermocosmetics containing panthenol and madecassoside in sensitive skin after wearing of medical masks

AUTHORS

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INTRODUCTION

With the COVID-19 pandemic evolving, it is still important to use personal protective equipment including medical masks to limit the spread of the virus. However, wearing a medical mask over a prolonged period has been reported to cause damage to the skin.

OBJECTIVE

The objective of this study was to evaluate in sensitive skin the benefit of a dermocosmetic (DC) balm and mask containing panthenol and madecassoside after wearing a medical mask.

MATERIALS AND METHODS

A single-centre, controlled, randomized study was conducted in 64 women, aged between 18 and 40 years. All subjects wore medical masks for 4 hours (T0). Group 1 applied a dermocosmetic (DC) balm and Group 2 applied a combination of a DC mask for 20 minutes and the DC balm to be applied one hour after the DC mask on one half-side of the face while no products were applied on the other half-side which served as a control. Clinical assessments included the grading of dryness, transepidermal water loss (TEWL), as well as redness.

RESULTS

Four hours after wearing a medical mask, skin dryness TEWL and redness ratio were significantly increase of 2.40%, 3.97% and 7.78%, respectively. After a single application of the DC balm skin dryness, TEWL and redness on the balm-treated side had significantly decreased to T0 and differences in skin dryness and TEWL reduction were significant compared to the control side. A similar effect was observed after one hour after the application of the DC mask and a slightly improved effect after the combined application of the mask and balm.

CONCLUSION

The application of a DC balm and mask containing ingredients with skin repairing properties significantly enhances the skin barrier repair process and reduces skin dryness and transepidermal water loss after a prolonged use of medical masks.

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The effect of acute and chronic use of cleansers on skin

AUTHORS

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INTRODUCTION

Facial cleansing is key in acne management to remove dirt, oil, unwanted pollutants and to condition the skin for topical treatments. Most studies linking cleansers to skin microbiome alterations targeted mainly healthy and non-facial skin. Additionally, these studies evaluated the impact of a single acute washing, and little is known about longer-term alterations of skin microbiome with chronic use of cleansers, especially for acne prone skin.

OBJECTIVE

To assess the effect of acute and chronic use of four different types of cleansers on microbiome and properties of acne and healthy skin.

MATERIALS AND METHODS

Three marketed facial cleansers with different surfactant compositions and one prebiotic cleanser were evaluated for 28 days in 4 groups of 10 acne subjects each. The prebiotic cleanser was also evaluated on 15 healthy participants. Facial microbiome samples were collected before, right after, 3h and 5h after cleansing (D0 & D28) and subjected to 16S rRNA sequencing and qPCR. Skin properties and acne characteristics were also measured.

RESULTS

At D0, all cleansers significantly decrease sebum, hydration, bacterial diversity, and *Staphylococcus* on all skin types for at least 3 hours, but sebum and bacterial levels recover to baseline by 5 hours. Similar effects were observed after 28 days of cleanser use with faster recovery of sebum and microbial diversity in comparison to D0 and a marked decrease of acne inflammatory lesions. Although no significant differences in microbiome composition between acne and healthy skin were observed, the prebiotic cleanser induced a faster recovery of sebum level and microbiome diversity on healthy skin compared to acne skin.

CONCLUSION

Our results indicate that all cleansers transiently influence the acne skin microbiome and properties. The different behavior observed with the prebiotic cleanser lays foundation for future studies to develop next generation cleansing solutions for a balanced skin microbiome for compromised and healthy skin.

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Universal scalp microbiome serum for healthy beautiful hair

AUTHORS

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INTRODUCTION

Scalp surface serves as the body's first line of defense as well as a host to a myriad of microorganisms including bacteria and fungi. Environmental factors are reported to be linked to scalp barrier and scalp microbiome disequilibrium. We developed a formula designed to act on scalp and its ecosystem.

OBJECTIVE

Formula is a serum containing vitamin CG, polysorbate 21 and a complex of 7 pre- and probiotics fractions including yeast extract, bifidus and lactobacillus fractions, D-Mannose and oligosaccharides complex. Benefits of this scalp care were evaluated on two studies.

MATERIALS AND METHODS

41 subjects were included with sensitive scalp. Discomfort sensations, cosmetic acceptability, efficacy of the serum, transepidermal water loss and tolerance were assessed before and during 21 days of serum application. Squalene and squalene peroxide were sampled.

33 subjects with normal scalp applied the serum for 2 weeks. Microbiome evaluations were performed quantitatively and qualitatively before and after scalp surface aggression.

RESULTS

Global scalp discomfort score significantly improved after 1st serum application (-52%) and lasted until end of study. Squalene peroxide content was significantly reduced (-15%) highlighting oxidative stress reduction. After 1st application, 100% of subjects stated that the serum provided a cooling sensation and 26% that hair and scalp were better protected from external aggression.

Scalp surface aggression decreased bacterial and fungal load and diversity of the scalp microbiota. Serum application doesn't change the recovery of the quantity but promoted a faster recovery of scalp microbial diversity, compared to bare scalp after 2 weeks of application.

CONCLUSION

For the first time, a specifically designed cosmetic formula containing vitamin CG, polysorbate 21 and a combination of 7 pre- and probiotics fractions can bring a quicker and complete recovery of scalp microbiota after aggression and reduce global discomfort and symptoms in subjects with sensitive scalp, and as well as markers of oxidative stress.

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Linking stratum corneum barrier and mechanical improvement to ceramide metabolic pathway using multiomics approach

AUTHORS

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INTRODUCTION

Despite many advances in skin engineering, challenges in the production of models with all *in-vivo* functions remain. The link between the physical properties of skin and the proteinic and lipidic structure has been evaluated in reconstructed skin models supplemented or not with a mix of lipids.

OBJECTIVE

The effect of adding a mix of free fatty acids (FFA), cholesterol and vitamin E (FBA mix) was evaluated in the culture media of reconstructed SkinEthic™ RHE skin models. Barrier function and mechanical properties were evaluated using different methods: Transepithelial electrical resistance (TEER), Transepidermal water loss (TEWL), penetration of reference chemicals and Dynamic Mechanical Analysis (DMA). Targeted lipidomic approach focused on free fatty acids, free and bound ceramides. Untargeted proteomics was undertaken.

MATERIALS AND METHODS

Twenty subjects with chronic TE, hair loss medication naive, were studied to evaluate the efficacy of AMI5 applied every day for 3 months followed by 3 times a week for the next 9 months. Average diameter of hair shaft and hair density were measured by Trichoscan® at baseline, 3 months, 6 months and 1 year. Tolerability and satisfaction regarding the patient's perception of hair condition improvement were assessed at baseline and 12 months. Pleasantness of the treatment was assessed by oral interview by clinicians.

RESULTS

Improved barrier function was measured with TEWL, TEER and permeation levels demonstrating the positive impact of the FBA mix. The reduction of the RHE stratum corneum stiffness with FBA mix was measured. A significant increased level of protein-bound ceramides was observed (3-fold). No impact was observed on cholesterol and free ceramides. Protein analysis revealed regulation of 3 enzymes involved in the ceramide metabolic pathway.

CONCLUSION

Molecular entities associated with the improved barrier function and mechanical strength of reconstructed skin were determined using targeted lipidomic and untargeted proteomics approaches. This mechanical and physical improvement was associated with the increased level of bound ceramides. This study demonstrates that it is possible to evaluate the physical impact of appropriate supplementation with biological efficacy. Besides barrier function, ceramides compounds could also be linked with stratum corneum mechanical softness. It is often considered that bound ceramides are crucial to reinforce the structural organization of intercellular lipids. This should be studied further, in order to demonstrate the role of these ceramides in the mechanical lubrication of these lipidic layers.

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Benefits Beyond Barrier Function: Efficacy of Two Ceramide-Containing Lotions on Stratum Corneum Cell Cohesion using Image Analysis

AUTHORS

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BACKGROUND AND OBJECTIVE

Ceramide-containing moisturizers have been shown to improve ceramide content in stratum corneum (SC), and, therefore, skin barrier function. This study evaluates the impact of two lotions containing 3 skin identical ceramides and a multivesicular emulsion (MVE) delivery system for sustained release on skin barrier function, hydration and SC cell cohesion at multiple depths using image analysis method.

MATERIALS AND METHODS

Twenty-four subjects with transepidermal water loss (TEWL) value ≥8 g/(h*m^2) and hydration value＜45 a.u. on the inner forearm were included in this 14-day study. Three test sites were designated on the inner forearm; Test Products A & B were applied once daily to randomized sites and the other site remained untreated. TEWL and hydration were measured on baseline (D0), Day 7 (D7), Day 14-before stripping (D14-BS). On Day 14, all test areas were stripped with 15 tapes; TEWL and hydration were measured 15 minutes after stripping (D14-15min). The 5^{th}, 10^{th}, 15^{th} tape from all test areas were imaged (Canfiled, VEOS® SLR) and analyzed by Image Pro-plus for SC cell area.

RESULTS

Products A & B significantly increased skin hydration and decreased TEWL at D7, D14-BS and D14-15min compared to D0 *($p<0.05$)*; Products A and B significantly increased hydration and decreased TEWL at D7 and D14-BS compared to untreated site *($p<0.05$)*.

The area of SC cells on the 5th tape from sites treated with Product A area was smaller than the untreated site *($p<0.05$)*. The area of SC cells on the 10^{th} tape from sites treated with Products A & B were smaller than the untreated site *($p<0.05$)*.

CONCLUSION

The test ceramide-containing lotions reinforced skin barrier function in two weeks, associated with increased skin hydration and improved cell cohesion deep into the SC.

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The role of skin care in promoting a healthy skin barrier in cutaneous inflammatory conditions in children and adult patients with skin of color

AUTHORS

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INTRODUCTION

Differences in skin barrier properties among skin of color (SOC) children and adults with cutaneous inflammatory conditions such as acne, atopic dermatitis (AD), psoriasis, and rosacea, together with differences in culture, impact the choice of skincare.

The ongoing project aims to improve the understanding of differences in skin barrier properties among SOC patients to help improve clinical outcomes.

OBJECTIVE

This review discusses publications by the authors on inflammatory skin conditions in SOC children and adults and the nuances of skin care as monotherapy or adjunct to prescription treatment.

MATERIALS AND METHODS

The project uses a modified Delphi hybrid process comprising face-to-face discussions followed by an online review. Depending on the availability and quality of the publications, systematic or structured literature searches identified publications on SOC children and adults with cutaneous inflammatory conditions and differences in the clinical presentation, sequelae, skincare use, and desired treatment outcomes. The project further explored the role of ceramide-containing cleansers and moisturizers.

RESULTS

There are SOC differences in the clinical presentation of cutaneous inflammatory conditions. Publications suggest that the treatment of SOC children and adults with cutaneous inflammatory diseases should include: addressing post-inflammatory hyperpigmentation and treatment regimens that carefully consider active ingredients, vehicles, and dosing tolerability. Ceramide-containing cleansers and moisturizers can support the repair and maintenance of skin barrier integrity in all patient populations.

CONCLUSION

Appropriate skincare recommendations, including considerations of SOC barrier function properties and cultural differences in skin care practices, are essential to maintaining a healthy skin barrier.

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Treatment and maintenance of xerotic skin using a once daily lipid replenishing cleanser and moisturizer

AUTHORS

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INTRODUCTION

Xerotic skin presents with dryness, scales, and flakes, which can lead to irritation, and painful fissures and cracks. These signs and symptoms can negatively affect patients' quality of life.

OBJECTIVE

The purpose of this open-label, multicentre cohort study was to evaluate the improvement of mild-to-moderate xerosis following the use of a once-daily gentle cleanser and moisturizer, over a duration of 28 days.

MATERIALS AND METHODS

The study included 48 subjects from 4 Canadian sites with a documented history of xerosis on the torso, arms, and/or legs. Clinical assessments were performed at baseline and end of study (Day 28 +/- 5 days) using the physician-assessed Dry Skin Classification Scale (DSCS) and the Global Aesthetic Improvement Scale (GAIS). The primary study endpoint was the proportion of subjects having at least a one-grade improvement in skin dryness, based on the DSCS.

RESULTS

Subjects were enrolled [8 males (16.67%); 40 females (83.33%)], with 47 subjects completing all study endpoints. The average age of the sample was 47.14 years (SD: 18.08). Ethnic subgroups included Caucasian (n = 35; 72.92%), Asian (n = 8; 16,67%), Filipino (n = 3; 6.25%), Aboriginal (n = 1; 2.08%) and Arab/West Asian (n = 1; 2.08%). All subjects (100%) reported being entirely compliant with the once-daily application regimen. No product-related adverse events were reported. In addition, 91.49% (N = 43/47) of subjects in the per-protocol population met the primary endpoint, including: 51.06% (n = 24) of subjects demonstrating a multi-point decrease and 40.43% (n = 19) of subjects demonstrating a multi-point decrease in skin dryness. At the end of the study, 95.74% (45/47) of subjects at least "improved" based on the physician-assessed GAIS.

CONCLUSION

The once-daily regimen was very well tolerated in a cohort of subjects that are prone to skin irritation. The investigative cleanser and moisturizer significantly improved aesthetic signs of xerosis, including skin dryness.

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Inferring Skin-Brain-Skin Connections from Infodemiology Data using Dynamic Bayesian Networks

AUTHORS

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INTRODUCTION

The relationship between skin diseases and mental illnesses has been extensively studied in the literature using cross-sectional epidemiological data. Typically, such data can only measure association (rather than causation) and include only a subset of the diseases we may be interested in.

OBJECTIVE

To complement the evidence from such analyses by learning a dynamic Bayesian network of 13 conditions from the Google search trends dataset.

MATERIALS AND METHODS

In this study we used the Google COVID-19 Public Dataset, an analysis ready large longitudinal search dataset, to model the interplay between skin diseases and mental illnesses using dynamic Bayesian networks (dynamicBNs). The resulting network model can represent both cyclic and acyclic causal relationships, easy to interpret and accounts for the spatio-temporal trends in the data in a probabilistically rigorous way.

RESULTS

Results confirm the strong and cyclic skin-skin and brain-brain relationships. We observed strong cyclic relationships, smaller as expected, between skin and brain search popularities. For acne, we observed a direct and cyclic relationship with anxiety and an indirect relationship with depression through sleep disorders. For dermatitis, we observed an indirect link with anxiety through an acyclic impact on sleep disorder and an indirect link with depression through attention deficit hyperactivity disorder. Furthermore, the network highlighted the strong weight of sleep disorder on health characterized by the high number of direct connections with diseases in the network.

CONCLUSION

Results on diseases interplay, indirect relationships, and the key role of mediators, such as sleep disorder, will allow healthcare professionals to address diseases management more holistically for a more successful treatment. Even if all skin and mental diseases are considered jointly, each disease subnetwork is unique, allowing for more targeted interventions.

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Efficacy and tolerability of a prebiotic-containing multipurpose healing balm in the management of skin irritation of various etiologies across phototypes, localizations and ages

AUTHORS

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INTRODUCTION

Occasions are many where skin is irritated with no specific dermatological disease behind. Topical healing products can be used with expectations including perfect tolerance, rapid calming effect and quick come back to a mark-free skin across phototypes worldwide. Evidence is growing that to restore skin microbiome plays an important role.

OBJECTIVE

To evaluate the efficacy and tolerability of a prebiotic-containing healing balm in the management of irritations of various etiologies.

MATERIALS AND METHODS

This is an open label non comparative study conducted in two centers (Poland, n=27 and Mauritius, n=27) in male and female, all phototypes, 3 to 70 year-old, with various kind of non-disease-specific irritations of the skin, lips, genitals and peri anal region. Product was applied at least twice daily for 21 days. Evaluations were conducted by a dermatologist as per: IGA for improvement, success rate (IGA 3 and 4), local signs, pain and pruritus, post recovery marks, local tolerance. Special attention was given at generating accurate skin images using close-up shots (Skincam®).

RESULTS

Success was obtained in 90% of subjects at day 21 with 70% experiencing total recovery. Pigmentation was contained, especially in the dark skin group from Mauritius where it only slightly increased. Pain and pruritus nearly disappeared after the first application of the product. Local tolerance was considered good or excellent in 98% of cases. Subgroup analysis showed consistent efficacy across ages, localizations, phototypes and etiologies. Pictures are provided to illustrate efficacy across subgroups.

CONCLUSION

The study showed the efficacy of a prebiotic-containing multipurpose healing balm in various nonspecific irritative dermatitis over 21 days with a success rate of 90% across phototypes, ages and localizations including lips and genitals. Hyperpigmentation was contained and an immediate calming effect was observed. It is likely that the effect on the microbiome restauration plays an important role in these results.

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Evaluation of the efficacy and safety of high molecular mucopolysaccharide medical dressing on skin barrier repair after Picoway laser treatment

AUTHORS

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INTRODUCTION

Picoway is a laser that treats acne scars, wrinkles and dark spots caused from pigmentation or for tattoo removal. Dressing as useful to help the skin recover after laser treatment.

OBJECTIVE

To study the efficacy and safety of high molecular mucopolysaccharide medical wound dressing on skin repair after Picoway laser treatment.

MATERIALS AND METHODS

Subjects after Picoway laser treatment were randomly divided into medical wound dressing group and control group. Subjects in medical wound dressing group were treated with medical wound dressing combined with hospital preparation cream immediately after treatment and twice a day in the morning and evening for 7 days, while the control group were treated with hospital preparation cream alone immediately after treatment and twice a day for 7 days.

RESULTS

30 subjects divided into 2 groups, with 16 subjects (35.68±3.75 y.o.) in test group and 14 subjects (35.92±3.28 y.o.) in control group. The quantitative evaluation results of skin image analyzer (VISIA-6®) showed that the improvement of redness area, texture and brown spots in the medical wound dressing group was better than that in the control group ($P<0.05$) after 7 days treatment. CK skin tester (Multi Probe Adapter, MPA-580) test results showed that the skin water content of the medical wound dressing group was significantly higher than that of the control group at different time points after laser, and the transepidermal water loss at each time point was significantly lower than that of the control group ($P<0.05$). There were no obvious adverse reactions in all subjects.

CONCLUSION

The tested dressing is safe and effective repair option after Picoway laser. Its use after Picoway laser treatment has a moisturizing effect and could help promote the recovery of the skin barrier and improve acute inflammatory reaction.

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Optimizing outcomes and preventing complications of non-surgical and surgical procedures with supportive skin care

Authors

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INTRODUCTION

Awareness of potential risks and side effects (e.g., infection, hypopigmentation, hyperpigmentation, and scarring) of dermatologic procedures, and proper use of preventive measures, will help reduce their incidence and optimize their management should they occur. Also, supportive skin care management can help protect the skin barrier, control inflammation, and enhance natural healing to optimize final outcomes and thus influence patient satisfaction.

OBJECTIVE

To provide expert recommendations to optimize outcomes and prevent complications of non-surgical and surgical procedures with practical tips on supportive skin care.

MATERIALS AND METHODS

A group of experts in cosmetic surgery and dermatology reviewed the published literature and discussed recommendations on how to optimize outcomes on various non-surgical and surgical procedures depending on the patient's skin type, skin phototype and extent of issues that need correcting.

RESULTS

Broad-spectrum sunscreen with high protection against ultraviolet (UV)B (SPF 50+) and UVA rays (SPF/UVA-PF < 3), especially long UVA, is essential for all treatment modalities, both before and after the procedures, to help prevent, improve and limit recurrences of pigmentation disorders. Supportive skin care management to prepare, cleanse and protect the skin, and post-procedure skin care with healing and anti-inflammatory ingredients are recommended to speed up regeneration and wound healing, prevent complications, and minimize scarring and downtime.

CONCLUSION

The recovery time for healing and skin barrier repair will depend on the invasiveness of the procedures. In addition to healing and anti-inflammatory post-procedure skin care for speeding up regeneration and improving outcomes, adjunctive skin care with antioxidant, anti-aging, and lightening properties may enhance skin benefits of the various procedures.

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M89PF, a combination of Vichy mineralizing water, probiotic fractions, niacinamide and hyaluronic acid reinforces the skin barrier and shows efficacy and high tolerability in facial dermatoses and after ablative and non-ablative facial procedures

AUTHORS

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INTRODUCTION

M89PF containing Vichy volcanic mineralizing water, probiotic fractions of *Vitreoscilla filiformis,* niacinamide and hyaluronic acid, has been developed to repair the skin barrier and to reinforce skin defences against acute exposome factors.

OBJECTIVE

This prospective, observational, worldwide study assessed the efficacy and tolerance of M89PF in facial dermatoses (FD), including sensitive and reactive skin due to exposome factors and after ablative or non-ablative facial procedures (FP).

MATERIALS AND METHODS

Adults with FD or having undergone FP applied M89PF for 4 weeks, 1, 2 or more than 2 times per day, as suggested by their dermatologist, on their entire face. Information about demographics, skin characteristics, reason for use, clinical signs and subject-reported symptoms, investigator, and subject satisfaction, as well as local tolerability of M89PF were collected at baseline and after 4 weeks.

RESULTS

Data from 2326 subjects from 16 countries were analysed. The mean age was 37.5±12.2 years. 32.1% used M89PF after FP (28.0% reported post-peeling use); FD accounted for 67.9% and among those, 28.4% had sensitive and reactive skin due to exposome factors skin.

After 4 weeks, erythema, desquamation and irritation had improved or disappeared in 84.8%, 86.0% and 89.0% of subjects with signs at baseline, respectively. Globally, 71.5% reported improved skin hydration. All changes were significant ($p<0.0001$). Skin was soothed or very soothed in 97.2% of subjects and 96.6% appreciated the texture of M89PF. The subjects' global satisfaction score was 8.6±1.8 on a scale from 0 to 10; 96.2% of the investigators were satisfied.

Subject-reported symptoms (dryness, burning, itching, or stinging/tingling sensations, pain) had significantly ($p<0.001$) improved.

96.7% of the subjects reported a good or very good local tolerability of M89PF.

CONCLUSION

In subjects with facial dermatoses and post-dermatological procedures, M89PF was an effective adjunct in reducing associated signs and symptoms with high levels of satisfaction.

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Enhanced skin tone improvement from beauty procedure

AUTHORS

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INTRODUCTION

Intense Pulsed Light (IPL), one of the most popular non-invasive beauty procedures, functions for skin tone enhancement and rejuvenation shortly. Cosmetic skincare products can potentially help minimize the side effect of the beauty procedure, and may enhance or better preserve the skin benefit.

OBJECTIVE

To evaluate the skin changes after IPL treatment together with a skin brightening product containing Ferulic acid, Phenylethyl Resorcinol, and Niacinamide.

MATERIALS AND METHODS

66 Chinese females (20-45y.o.), with mild to moderate skin quality concerns, were randomly divided into 2 groups (test and control). Both groups were asked to use standard products throughout the 4-week study and medical masks for 3 days, while the test group started to add test serum at T3D (3-days after the procedure). IPL was performed by a dermatologist at T0. Efficacy evaluations were performed at T0 (before the procedure), T3D (before product application), T10D, T17D, and T31D, and included dermatologist clinical grading, tolerance

RESULTS

Compared to T3D, skin evenness, fairness, radiance, smoothness, and cheek pores were significantly improved after the 4-week test serum application. Compared to control group, the test group showed significantly better efficacy in improving skin fairness and refining cheek pores after 14-days application, and significantly better efficacy in improving skin fairness after 28-days application. Skin evenness in the control group was significantly decreased at T17D, indicating the diminishing efficacy from the procedure. However, the test group showed no significant changes in skin qualities and texture from T10d to T31D, indicating a long-lasting maintenance efficacy.

CONCLUSION

The test product can effectively boost the IPL procedure efficacy, particularly in skin fairness and cheek pores, with good tolerability. It can maintain skin evenness without diminishing after continuous usage. With proper cosmetic treatment, enhanced skin benefit can be achieved together with beauty procedure.

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Integrative Skincare Trial of 1064-nm Picosecond Laser Followed by Phloretin, Vitamin C and Ferulic Acid Serum for Treatment of Hyperpigmentation in Photodamaged Facial in Latin Skin

AUTHORS

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INTRODUCTION

Hyperpigmentation is a common concern for Latin skin. Few published studies address overall skin rejuvenation in this group using picosecond laser (PL) to target pigmentation and stimulate dermal remodeling. The combination of Phloretin, Vitamin C and Ferulic Acid (PCF) topically has been shown to be efficient for the treatment of aging and hyperpigmentation on intact skin. The laser associated drug delivery is a promising method to promote better penetration of actives into the skin, reduce side effects and improve results.

OBJECTIVE

The aim of this trial was to evaluate the short and long-term clinical efficacy of the combination of an antioxidant serum containing PCF with a PL treatment.

MATERIALS AND METHODS

Twenty subjects (age, 41–72 years; Fitzpatrick skin types II to VI) with clinical signs of photoaging and hyperpigmentation were enrolled in the study and submitted to 3 sessions of PL (1064 nm, 530 ps, ZyeVydence, Brazil) at 15 days intervals. After the procedure, they received PCF serum topically, and were instructed to self-apply the same amount daily and sunscreen SPF 50 for 90 days. Subjects were evaluated in D0, D15, D30 and D90 after the first PL session. Clinical evaluations were conducted by dermatologists using GAIS (Global Aesthetic Improvement Scale) and WSRS (Wrinkle Severity Rating Scale) scales. Visia® (Canfield Scientific, Inc, New York, NY) were used for objective analysis and standardized photos. The subjects were instructed to fill out self-assessment questionnaires.

RESULTS

The treatment was well tolerated, and no unexpected adverse events were observed. The treatment achieved significant improvement in hyperpigmentation ($p<0.001$). All subjects were satisfied with their results and would recommend treatment.

CONCLUSION

Application of a combination of an antioxidant serum containing PCF with a picosecond laser may complement laser treatment and can be helpful to treat hyperpigmentation in photodamaged facial Latin skin.

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Characterization of an ablative fractional CO_2 laser-induced wound healing model based on *in vitro* 3D reconstructed skin

AUTHORS

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INTRODUCTION

In this study, we developed an *in vitro* wound healing model with patterned wound areas based on a well-established reconstructed full-thickness skin model, by exposing to fractional ablative CO laser with controlled energy. It allowed qualitative observation of wound area by H&E staining and OCT noninvasive scanning. We further developed OCT based quantitative method to follow the wound volume in dermis. Together with the transcriptomic analysis of critical biomarkers, the key wound healing process including inflammation, re-epithelialization and regeneration, as well as the dermal remodeling has been characterized.

OBJECTIVE

Fractional ablative laser resurfacing has been considered as one of most promising minimally invasive beauty procedure in the treatment of wrinkles, skin rejuvenation, acne and burn scars. However, the fractional ablative laser induced skin wound healing process and its molecular mechanism have not yet to be fully elucidated. Moreover, it lacks appropriate pre-clinical models to aid the development of pre/post-procedure skin care products. This study describes the invention and characterization of a novel *in vitro* wound healing model based on a full-thickness reconstructed skin by exposing the tissue to fractional ablative laser treatment.

MATERIALS AND METHODS

A 3D full-thickness skin model was fabricated and treated with fractional ablative CO2 laser. Wound healing process were characterized by HE staining, non-invasive OCT imaging, immunostaining, as well as trans-epidermal water loss measurement. Cytokines and proteins involved in the inflammatory and dermal remodeling process were studied by ELISA and protein array assays.

RESULTS

Fractional ablative CO2 treatment induced a wound zone of 9 mm in diameter, containing 56 micro wounds with 200um diameter and 500-700 um in depth on reconstructed full-thickness skin model. HE staining revealed a typical wound morphology and healing process with migration of keratinocytes, formation and extrusion of necrotic tissue, cell inclusion in dermis, which correlates with clinical observations. Based on OCT and TEWL measurements, the re-epithelialization took place over 2 days. Laser triggered keratinocytes proliferation and differentiation demonstrated by activated Ki67 and Filaggrin expression respectively. Injury invoked cytokines, MMP3 and ICAM-1 showed instant upregulation on Day 1. Decreased epidermis thickness and depression of IGFBP-2 protein level synergistically indicated the unavoidable thermal side effects from laser treatment. Down regulated DKK-1 protein level and up regulation of α-SMA together implicated the risk of potential fibrosis post laser treatment.

CONCLUSION

This *in vitro* laser wounded reconstructed skin model captured the key events of wound healing process, could be used to investigate the mechanisms of wound healing triggered by a commonly used beauty procedure, also provides a valuable tool for evaluating the efficacy of novel actives for the post-procedure application.

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Enlarged photoprotection efficiently covering the whole UV spectrum: evaluation of 2 month-clinical changes in pigmentation and wrinkles visibility through a real life split - face study in different phototypes from Brazil and China

AUTHORS

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INTRODUCTION

Today, state-of-the-art sunscreen formulas can efficiently filter UV wavelengths up to 370/380 nm but have limited absorption in the 370/380–400 nm range of wavelengths. Recently, a new cyclic merocyanine UVA1 absorber, Methoxypropylamino Cyclohexenylidene Ethoxyethylcyanoacetate (MCE), exhibiting a maximal peak of absorption at 385 nm was approved by the Scientific Committee on Consumer Safety (SCSS) for use in sunscreen products.

OBJECTIVE

To evaluate in vivo global anti-aging benefits of a higher and broader UVA1 protection with the daily application of a sunscreen formulation enriched with MCE in Brazilian and Chinese populations.

MATERIALS AND METHODS

A double-blind, split half-face clinical study was conducted during summer season with healthy female volunteers (30–65y) in Brazil (52 volunteers, phototypes II-III) and China (61, III-IV). After 2 weeks of wash-out, a sunscreen with 3% MCE (SPF 50+) and a reference sunscreen (SPF 50+ without MCE) were applied twice daily with controlled applications for two months. Volunteers were sun-exposed up to two hours daily and had standard pictures acquisition. Dermatologists graded the pictures at baseline and after two months of treatment based on reference standardized scales of Skin Aging Atlas.

RESULTS

Clinical assessment on pictures showed that after two months, the MCE-enriched sunscreen significantly ($p<0.05$) improved aging signs when compared to the reference formula: i) wrinkles/texture in Brazil (Forehead, Crow's feet, upper-lip or Nasolabial) and China (Upper-lip, Texture of mouth, Nasolabial) and ii) pigmentation signs in Brazil (Whole face pigmentation and density of dark spots) and China (Contrast and Size of dark spots, Malar pigmentation, Whole face pigmentation).

CONCLUSION

For the first time, in real-life conditions, a broad spectrum photoprotection including long-UVA, demonstrated an extra-efficacy in the prevention and correction of facial skin aging signs of Brazilian and Chinese women.

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Efficacy of a Topical Serum Containing Phyto Botanical Blend and Hyaluronic Acid in the Acneiform Eruption Prevention and Skin Barrier Recovery After CO2 Fractional Laser

AUTHORS

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INTRODUCTION

The acneiform eruption can occur in up to 80% of patients after ablative procedures with more frequency in subjects with a previous acne history. The use of products with occlusive moisturizing and/or corticosteroid potency also seem to be implicated in the increase of acneiform eruption.

OBJECTIVE

The study aims evaluate the effect of a topical serum containing 4.5% phyto botanical blend (extracts of cucumber, thyme, olive, mulberry and eucalyptus leaves), 0.2% of hyaluronic acid and 9.5% of glycerin after ablative fractional carbon dioxide (AFC02).

MATERIALS AND METHODS

30 adults, phototype II to III, with combination to oily skin and any facial skin condition were enrolled to receive AFCO2 treatment . After the AFCO2, all subjects were instructed to apply the serum immediately and twice daily thereafter for 14 days at home. The skin's hydration and skin barrier recovery were evaluated instrumentally, while the degree of irritation , acneiform eruption and overall skin improvement were evaluated visually by dermatologists.

RESULTS

The serum improved immediately the hydration (17%) and barrier skin recovery (11%), but with an increase of erythema. The subjects reported an improvement in soothing, recovery, hydration and tightness perception with a slight increase of the burning, heating and pain sensation. During resurfacing of the skin (D3), erythema improved (44%) while hydration and skin barrier function worsened; probably, due to scabbing and edema which is common during AFCO2 resurfacing. The subjects reported an improvement of the irritation perception. Otherwise, after 14 days the overall aspect of the skin improved to 45% according to the dermatological evaluation and no acneiform eruption was observed.

CONCLUSION

The serum significantly improved hydration, barrier recovery, erythema, and irritation degree during AFCO2 resurfacing. Additionally, no acneiform eruptions associated with FCO2 were observed which indicates the product can support in the prevention of acneiform eruptions.

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Laser-Assisted Delivery of Vitamin C, Vitamin E, and Ferulic Acid Formula Serum for Skin Rejuvenation : a Prospective Split-Face Double-Blind Randomized Placebo-Controlled Trial

AUTHORS

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INTRODUCTION

The short -term efficacy of a combination of 15% vitamin C, 1% vitamin E and 0.5% ferulic acid (CEF) serum in reducing the severity and duration of postoperative pain and duration of re-epithelialization was previously evaluated, and shown to decrease downtime followed by a fractional ablative laser resurfacing.

OBJECTIVE

The objective of the study was to evaluate the long-term clinical efficacy of a CEF serum after a single laser skin resurfacing session.

MATERIALS AND METHODS

A total of 34 female patients aged 35 to 55 years with Fitzpatrick skin types II to V underwent a single full-face fractional Erbium (2940nm Etherea, Brazil) in this prospective IRB approved study. Right after the laser treatment all patients underwent a post-procedure treatment with a CEF serum on one side of the face and placebo on the other half face for three months. Wrinkles, texture and evenness of skin tone parameters were clinically evaluated for 90 days after the laser procedure. Analysis of the data was carried out by descriptive statistics and frequency distributions.

RESULTS

There was a statistically significant relevance (95% confidence interval) for the wrinkles parameter between the antioxidant side and the placebo by the end of 90 days. The antioxidant side of the face showed less wrinkles than the placebo side at all time points. An improvement of 26% in decreasing wrinkle grading, where was observed on the antioxidant half of the face, whereas on the placebo side, improvement was 10%.

Trend analysis showed a more even skin tone at T30 and T60 for the antioxidant side of the face, achieving a 18% overall improvement, when compared to the placebo side of the face (10% improvement).

CONCLUSION

The application of a CEF serum at an appropriate concentration and pH, right after fractional ablative laser skin resurfacing is safe and tolerable.

Long-term application of the antioxidant formula will promote collagen synthesis and therefore improve wrinkles and fine lines while enhancing skin protection to prevent future damage.

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Synergistic effects of two dermocosmetics containing different sizes of Hyaluronic acid in combination with laser co2 on aging Brazilian skin: A prospective, controlled study

AUTHORS

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INTRODUCTION

Hyaluronic acid (HA) has been widely applied in cosmetic industries due to multiple biological effects such as skin hydration, collagen and elastin stimulation, wound healing, tissue regeneration and anti-inflammatory effects.

OBJECTIVE

To evaluate the synergistic anti-aging effects of an ablative procedure with a skincare routine using topical ampoules containing three different sizes of HA, panthenol, glycerin, copper gluconate and a topicalserum containing two different sizes of HA, Vitamin B5, madecassoside, in Brazilian women.

MATERIALS AND METHODS

Healthy females were submitted to CO2 laser procedure with standardized parameters and randomized in two groups. The treatment group was instructed to use one ampoule immediately after the procedure and once daily during the next 7 days; then, the topical serum was used once daily during 77 days. The control group was instructed to use vaseline, as positive control, immediately after the procedure and once daily during the next 7 days. All subjects used a sunscreen SPF 60. Repair efficacy, anti-aging efficacy, cosmeticity and tolerability were evaluated.

RESULTS

The ampoules showed a significative repair effect after CO2 laser procedure, with a significantly reduction in erythema, edema, scab, burning, warmth, skin tightness and stinging sensations when compared to baseline. No significant difference was observed between groups. After 7 days of treatment a booster effect was observed, wrinkles significantly reduced (-17.39%) when compared to control group (-9.67%). The additional use of topical serum for 77 days also showed a boost effect, wrinkles significantly reduced (-26.16%) when compared to control group (-19.34%).

CONCLUSION

Treatment had a synergistic effect with CO2 laser in the improvement of the skin aging signs in Brazilian women. Additionally, the ampoule could be a new clinical alternative to repair skin after the procedure, since it is able to repair with good tolerability and high level of satisfaction.

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Evaluation of the additional benefit of a sunscreen containing vitamin E, peptides, niacinamide, Vichy volcanic mineralizing water and probiotics fraction to improve the skin ageing signs

AUTHORS

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INTRODUCTION

The skin ageing exposome consists of external and internal factors and their interactions, especially UV, smoking and pollution, resulting into biological and clinical signs of skin ageing such as substantially changes of the extracellular matrix components, collagen and elastin, which provide tensile strength and elasticity respectively.

OBJECTIVE

This study aimed at evaluating the neocollagenesis efficacy and its consequently skin viscoelastic benefits, of a sunscreen SPF 60 containing vitamin E, 4% of peptides, 2% of niacinamide, Vichy volcanic mineralizing water and probiotics fraction associated with netlock technology.

MATERIALS AND METHODS

20 subjects (15% male and 85% female) with 30 to 50 years old, phototypes II – VI with uneven textured facial skin and mild to moderate wrinkles (Atlas by Roland Bazin) were enrolled in this study. The subjects were instructed to apply the sunscreen, on the face, every morning. The biological parameters were evaluated by non-invasive instrumental methods, including the diffuse reflectance spectroscopy (collagen type I synthesis) and Cutometer® (firmness and elasticity). All analysis were performed after 30, 60 and 90 days of the sunscreen use.

RESULTS

Since the type I collagen synthesis increased by 15,7% (D30), 16,4% (D60) and 32,4% (D90) when compared to baseline, a continuous improvement of the neocollagenesis was observed. Following the collagen improvement, the skin firmness increased by 3,0%, 6,4% and 11,9% and skin elasticity improved by 6,4%, 10,1% and 14,3% after 30, 60 and 90 days of application, respectively.

CONCLUSION

The results demonstrated a continuous and significant improvement of neocollagenesis, firmness and elasticity after 30, 60 and 90 days of daily use of the investigational product.

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Assessing a one-year standardized photo-protection over a classical skin care routine. The Brazilian experience

AUTHORS

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INTRODUCTION

Long-term studies dealing with the photoaging process are scarce, mostly for practical issues.

OBJECTIVE

To assess, in real-life conditions, the effectiveness of a strong photoprotection (SPF 60, PPD=24, [UVA/UVB]>1/3) in counteracting the photoaging process of some facial signs over a one-year period of twice-daily applications.

MATERIALS AND METHODS

Two groups, among 290 Brazilian women aged 30–65y, were constituted and well-balanced in ages and phototypes (II–VI). For one year, one group kept on its routine whereas the second group applied twice daily a strong photoprotective product. Standardized photographs were taken (D_0/D_{365}) that were further analyzed by 15 dermatologists. The latter established a grading score in the severity of 8 signs (wrinkles/pigmentation), using referential illustrations. Subjects of the second group were asked (D_{90}/D_{365}), to fill a questionnaire dealing with their self-perception of their skin status.

RESULTS

In both groups, the 8 signs show a slight severity increase along one year. In 4 signs (Forehead wrinkles, Marionette lines, Wrinkles created by lower face ptosis, Size of dark spot), this increase appears significantly slowed down in the second group, by 30 to 50% as compared to the other group. The effect of the photoprotective product seems more evidenced as subjects self-declared being more sun-exposed daily (153 min/day vs. 123 min/day). Results suggest that the contribution of photoaging is approximately half that of global aging (chronological aging admixed with photoaging). Self-questionnaire showed that skin was perceived as improved after usage, with significance after 12 vs. 3 months of application in three aspects (less oily, more radiant and intensity of dark spots).

CONCLUSION

AMI5 increases hair density and thickness were observed in all subjects affected by chronic TE. A fully positive pleasantness and effect of the product were experienced by patients. Topical treatment with AMI5 might be considered in chronic TE.

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Efficacy of an enlarged photoprotection covering the whole UV spectrum: evaluation of a 1 month-clinical changes in pigmentation and wrinkles visibility through a real life split-face study

AUTHORS

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INTRODUCTION

The current sunscreens can efficiently filter UV-wavelengths up to 370/380 nm but have limited absorption in the 370/380–400 nm range. Recently, a new cyclic merocyanine UVA1 absorber, Methoxypropylamino Cyclohexenylidene Ethoxyethylcyanoacetate (MCE), exhibiting a maximal peak of absorption at 385 nm has been developed and was further approved by the scientific Committee on Consumer Safety (SCSS) for use. Formulations containing MCE have demonstrated a higher UVA1 protection *in vitro* and anti-pigmentation efficacy *in vivo* under controlled UV exposure.

OBJECTIVE

To evaluate *in vivo* anti-aging benefits of this broader UVA1 protection with the daily application of a sunscreen enriched with MCE for one month.

MATERIALS AND METHODS

A double-blind, split half-face clinical study was conducted in Brazil during summer season with healthy females (35–65y) phototypes I to III. After 2 weeks of wash-out, a sunscreen with 1% MCE (SPF 50+) and a reference sunscreen (SPF 50+ without MCE) were applied twice daily with controlled applications for one month. Volunteers were sun-exposed up to two hours daily and had standard pictures acquisition. Dermatologists graded the pictures at baseline and after one month of applications based on reference standardized scales of Skin Aging Atlas.

RESULTS

Clinical assessment on pictures showed that, after one month, the MCE-enriched sunscreen significantly improved wrinkles (crow's feet, upper-lip, ptosis wrinkles), texture of the mouth contour, upper-lip texture, whole face pigmentation and vascular disorders when compared to baseline and to the reference formula. In addition, MCE sunscreen presented significantly better results vs the reference for other pigmentation signals (forehead, lateral facial and upper-lip pigmentation).

CONCLUSION

For the first time, in real life conditions, a broad spectrum photoprotection including long-UVA provided by the MCE UV filter, is shown offering an added efficacy in the prevention and correction of facial skin aging signs of Brazilian women with Phototypes I to III.

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Benefit of an enlarged photoprotection in the UVA1 wavelengths range

AUTHORS

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INTRODUCTION

UVA1 rays (340–400 nm) which represent at least 75% of solar UVs, generate epidermal and dermal damage and impair essential functions such as immunity, development, inflammation, or dermal matrix organization. Clinically, they contribute to hyperpigmentation, immunosuppression, carcinogenesis, and photoaging. Current sunscreens can filter UV rays up to 370 nm but lack sufficient absorption in the 370–400 nm range. This supported the development of new UVA1 filters; one of these, Methoxypropylamino Cyclohexenylidene Ethoxyethylcyanoacetate (MCE, λmax 385 nm), was recently listed in the Annex VI of EU authorized UV filters.

OBJECTIVE

In 3D skin model and in clinical trials, the protection afforded by reference sunscreen formulations covering UVB, UVA2, and UVA1 up to 370nm and similar formulas enriched with MCE filter covering the whole UV spectrum up to 400 nm was evaluated.

MATERIALS AND METHODS

Photoprotection efficacy was evaluated through morphological, and gene expression analysis in 3D skin model exposed to UVA1 and in vivo, in intra-individual randomized clinical trials conducted under controlled UVA1 or UVB+UVA exposure, and real sun. Colorimetric measurement and visual scoring were assessed to follow induced pigmentation, used as the clinical surrogate for UV impact.

RESULTS

In vitro data showed that formulations with MCE enabled significantly higher protection compared to the reference sunscreen, with better morphological preservation and fewer gene expression modulations. In vivo, whatever the exposure condition, the level of induced pigmentation was increased. In all studies, the comparison showed a higher prevention of hyperpigmentation with the sunscreen including MCE compared to the reference. A dose response revealed that the gain of protection was achieved from 0,5% MCE.

CONCLUSION

Thanks to the UVA1 filtering properties of MCE, leading to a coverage of the whole UV spectrum in sunscreens, a higher photoprotection against sun-induced harmful impacts was achieved.

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Real-life Visible light Photoprotection in the Management of Melasma and Photodamage in Skin of Color Individuals

AUTHORS

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INTRODUCTION

Visible light (VL, 400-700nm), accounting for half of the sunlight spectrum, not only contributes to pigmentation disorders, but also darkens skin additionally when combined with long wavelength UVA. This effect is activated through VL sensor Opsin3 and prolonged in skin of color (SOC) melanocytes. In a mini-zone skin study, we demonstrated that iron oxide containing formulations absorbed light in both ultraviolet and visible spectrum, and protected Fitzpatrick IV skin from VL induced hyperpigmentation. A real-life study showed that a broad-spectrum sunscreen containing iron oxides helped better manage melasma than broad-spectrum sunscreen only.

OBJECTIVE

To assess the added benefit of iron oxide containing products on top of a broad-spectrum sunscreen, for improving the appearance of photodamage and melasma in women with FPT III and higher under real-life conditions.

MATERIALS AND METHODS

Forty-two women with pigmentation disorders (20 melasma, 22 photodamage, FPT III-VI, age 25-65) were randomized into two groups in a 12-week monocenter study: Group 1 -- broad-spectrum sunscreen, Group 2 -- iron oxide containing foundation (3-27% FeO) on top of broad-spectrum sunscreen. Evaluation included expert grading, colorimetric measurements, and self-assessment questionnaires.

RESULTS

Both groups showed significant improvement in clinical gradings (facial dyschromia & skin quality) over time. Colorimetric measurement in hyperpigmented area showed that at week 12, more melasma subjects in Group 2 had improved skin radiance than in Group 1: 36% *v.s.* 0% (ΔL>=4, very strong effect, p=0.04), and 55% *v.s.* 22% (ΔL>=2.5, strong effect, p=0.14).

Quality-of-life questionnaire in all subjects showed that Group 2 sun care protocol significantly improved skin appearance, reduced frustration & embarrassment due to skin condition over baseline, but not Group 1.

CONCLUSION

Our findings highlight that including iron-oxide-containing formulations to a suncare routine can play a dual role: camouflaging existing skin concerns and reducing the development of sun induced pigmentations for SOC individuals.

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Innovation in UV protection. When it becomes a daily Must-Have

AUTHORS

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INTRODUCTION

According to the World Cancer Research UV radiation is the first cause of skin cancers, however, 15% of women and 34% of men still do not protect themselves when exposed to the sun. Optimizing the sun care formulation to satisfy the most reluctant consumers is thus a major challenge.

OBJECTIVE

Demonstrate the efficacy of a unique filter technology based on an amphiphilic acrylate copolymer INCI C12-22 alkyl acrylate/hydroxyethylacrylate (AAHAcp).

MATERIALS AND METHODS

The formula was characterized by Confocal Laser Scanning Microscope (CLSM) and using Optical Coherence Tomography (OCT) to analyze its film-forming properties on skin micro-relief. Photoprotection efficacy was measured with ISO standard Sun Protection Factor (SPF) method. Resistance to migration was measured in vitro and resistance to sweat and heat was evaluated in vivo. Finally, sensorial properties were determined with the help of sensory panel tests.

RESULTS

The new AAHAcp formulation forms finer and more regular droplets (entrapping UV filters) compared to conventional emulsions. OCT analysis shows that the films containing AAHAcp are particularly covering and have a consequent thickness (versus the solar references tested), whatever the microrelief of the skin. The AAHAcp formula yielded an SPF twice higher than the emulsions based on conventional technologies. Diffusion factor of the AAHAcp formula is reduced and no migration is observed after 2h of sauna condition in vivo. Panelists report that the product has a very light texture, with bare skin feeling, non greasy, and letting the skin breathe. It leaves an invisible skin finish, with no white residue, even while swimming.

CONCLUSION

For the first time, thanks to a new specific polymer creating a new type of emulsion, we succeed in reconciliating in a single sun care product maximal SPF efficacy, resistance to numerous stresses and optimal sensoriality.

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Characterization of changes with age and sun-exposures in South African women: an algorithm-based automatic grading pilot study

AUTHORS

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INTRODUCTION

With regard to constitutive dark skin tones, the relative impacts of photo-aging and photo-protection remain an open field of research.

OBJECTIVE

To evaluate the capacity of the automatic detection system to accurately grade, from smartphones' selfie pictures, the severity of fifteen facial signs in South African women and their changes related to age and sun-exposure habits.

MATERIALS AND METHODS

A two-steps approach was conducted, based on self-taken selfie images. First, to assess on 306 South African women (20–69y) enrolled in Pretoria area, age changes on fifteen signs measured by an Artificial Intelligence (A.I.)-based grading system validated by experts/dermatologists. Second, as these South African panelists were recruited according to their behavior towards sun-exposure i.e., non-sun-phobic (NSP, N=151) and sun-phobic (SP, N=155) and their regular and early use of a photo-protective product, to characterize the facial photo-

RESULTS

i) Automatic scores showed significant changes with age, by decade, of Sagging and Wrinkles/Texture ($p<0.05$) after 20y and 30y, respectively. Pigmentation cluster scores presented no significant changes with age whereas Cheek Skin pores enlarged at a low extent with two plateaus at thirties and fifties.

ii) After 60y, a significantly increased severity of Wrinkles/Texture and Sagging was observed in NSP vs. SP women ($p<0.05$). A trend of an increased pigmentation of the eye contour ($p=0.06$) was observed after 50y.

CONCLUSION

This work illustrates specific impacts of aging and sun-exposures on facial signs of South African women, when compared to previous experiments (Europe or East Asia). Results significantly confirm the importance of sun-avoidance coupled with photo-protective measures to avoid long-term skin damages. In inclusive epidemiological studies that aim at investigating large human panels in very different contexts, the A.I.-based system offers a fast, affordable and confidential approach in the detection and quantification of facial signs and their dependency with ages, environments and lifestyles.

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In vitro model combining biological parameters and multi-photon microscopy to assess photo-aging protection by sunscreen and antioxidant

AUTHORS

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INTRODUCTION

Ultraviolet exposure, notably UVA, has profound effect on the dermal connective tissue of human skin, which contributes to skin photoaging and manifests clinically as wrinkling and sagging.

OBJECTIVE

We aimed at developing and validating an evaluation method using a full-thickness reconstructed skin model, to assess the anti-photoaging efficacy of cosmetic ingredients and sunscreen formulas by blending multi relevant biological endpoints including the newly developed dermal collagen quantification method through multi-photon microscopy.

MATERIALS AND METHODS

The response of *ex vivo* human skin to UVA exposure was first characterized with multiphoton microscopy. Reconstructed full-thickness skin models was then used to reproduce the data on the collagen density quantification via multiphoton microscopy and automatic imaging processing. In parallel, histology, fibroblasts number and metalloprotease 1 (MMP1) secretion were assessed after UVA exposure. Pre-treatments of the models with sunscreens possessing different UV absorption spectrum or with systemic Vitamin C were evaluated.

RESULTS

UVA exposure induced pronounced reduction in collagen density and increased MMP1 secretion within both *ex vivo* human skin and reconstructed skin. Histological damage and fibroblast disappearance was observed in the reconstructed skin model. Sunscreen possessing broader UVA filtration gave better protection than the sunscreen with low UVA absorption with regard to preservation of collagen and dermal fibroblasts alterations. Association with vitamin C improved the sunscreens efficacy on these photoaging markers.

CONCLUSION

This study shows that, sunscreen with broader UV absorption could provide better protection on photoaging biomarkers, antioxidant ingredient association could boost the efficacy of sunscreen. The result shows that the method developed can be relevant to assess the efficacy of sunscreens and anti-photoaging ingredients, alone or in association.

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New Anti-Pollution Benefits of a Serum with Ascorbic Acid, Ferulic Acid, and Tocopherol in a Human Clinical Trial

AUTHORS

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INTRODUCTION

Exposure to environmental stressors like particulate matter (PM) and ultraviolet radiation (UV) induces oxidative stress and inflammation in skin and leads to skin barrier dysfunction and premature aging. Metals like iron and/or copper are abundant in PM and are known to contribute to the formation of reactive oxygen species (ROS), which eventually lead to skin damage. Although the use of topical antioxidants has been suggested to help in preventing skin damage, very limited clinical studies have been performed.

OBJECTIVE

Our goal was to evaluate the ability of a topical serum containing 15% ascorbic acid, 0.5% ferulic acid, and 1% tocopherol to prevent oxinflammatory skin damage induced by PM with/without UV in a human clinical model.

MATERIALS AND METHODS

A 4-day double-blinded clinical study was conducted on the back of 15 female subjects aged 18-40 years. During the 4 consecutive days, the back test zones were treated daily with/without the serum, followed by 2 hours of PM with/without 5 minutes of UV daily exposure. The test zone without any treatment served as control. D-squame and biopsy samples were collected for biomarker analysis at the end of study.

RESULTS

After 4 days of daily exposure to PM with/without UV, analysis of D-squame showed significantly greater total iron and copper content, respectively, in the top 3 cutaneous layers compared to control. In addition, application of the serum prevented 45% to 58% of PM- or PM+UV-induced formation of the lipid peroxidation product 4-hydroxynonenal and induction of the inflammatory product cyclooxygenase 2. Furthermore, the application of the serum was able to rescue the loss of involucrin and filaggrin induced by PM or PM+UV ranging from 23% to 38%.

CONCLUSION

The serum demonstrated protective benefits against oxinflammatory markers of skin damage and was able to prevent PM- or PM+UV-induced cutaneous barrier changes.

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Sun exposure and associated risks in 17 countries: Results from Asia

AUTHORS

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INTRODUCTION

Primary and secondary prevention of skin cancer vary considerably from one country to another.

OBJECTIVE

This survey investigates knowledge and behaviors regarding sun exposure in Asia.

MATERIALS AND METHODS

This survey was conducted online between September and October 2021 in China, Indonesia, and Japan (N= 3001) and was part of a worldwide survey (N=17001) conducted in 17 countries (5 continents). Automated selection from the Ipsos Panel ensured samples of 1000 in each country fit the quotas method based on gender, age, employment status, and country regions.

RESULTS

Due to the online method, Chinese and Indonesians were more urban and more educated than the general population. Data covered demographics, phototype, exposure habits, knowledge of risks. The Asian population comprised 50% men; the average age was 43.8±16.1 years, 58% had phototype 2 or 3. 72% of Indonesians perceived tanned skin as attractive, which was the same worldwide, while Chinese and Japanese were less likely to agree, with 55% and 44%, respectively. Although 88% of the worldwide population was aware of sun-related skin-health issues, the awareness in Asians was lower (72%). In terms of photoprotection behaviors 22% of Chinese population systematically/often used all protection measures during exposure, being better compared to the rest of the worldwide population (12%). In Indonesia and Japan, only 13% and 3%, respectively used all protection measures. 60% of Asians regretted not having previously used better a protection vs 57% worldwide. Japanese expressed less regrets (45%) and in China it was 75%. 62% did not understand the difference between UVA and UVB (70% worldwide): 46% in Indonesia, 56% in China, and 86% in Japan.

CONCLUSION

Although risks from sun exposure were recognized, sun-protection practice was inadequate. This survey provides insight into the need for additional photoprotection education in Asia.

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Evaluation of the biological effect of a high broad-spectrum sunscreen containing Nicotinamide and Panthenol in actinic keratosis

AUTHORS

Teresa Torres[1], Gemma Marti-Tell[1], Neus Calbet-Llopart[2], Judit Mateu[2], Javiera Pérez[2], Beatrice Alejo[2], Pablo Iglesias[2], Josep Malvehy[1,2], Delphine Kerob[3], Caroline Le Floc'h[3], Leonor Prieto [4], Susana Puig[1,2]

INTRODUCTION

Nicotinamide is a NAD precursor. Topical application prevents UV-induced immunosuppression and apoptosis and increases the production of ATP, cell cycle activity and DNA repair.

OBJECTIVE

This study determined the effect of a high broad-spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol in actinic keratosis (AK) and perilesional skin (PS).

MATERIALS AND METHODS

16 subjects, all male and >65 yo applied Nicotinamide sunscreen daily on AK lesions and PS for two months. Biopsy samples were obtained before and after treatment. RNA was extracted for sequencing.

Three differential expression analyses were conducted comparing gene expression before and after treatment: one with all the samples, another with AK lesion samples and the last one with PS samples. Analyses were paired for each patient. Genes with a significant differential expression (FDR p-value <0.05) before and after treatment were considered the differential expressed genes (DEG). Pathway analyses of the resultant differential expressed genes of were conducted using hiPATHia tool from Babelomics platform.

RESULTS

Differential gene expression analysis revealed 128 significant genes in all samples. The analysis of AK lesion samples showed 1555 significant genes and 40 genes in PS samples.

Three genes were significantly expressed in the 3 comparisons; 17 genes were common in the analysis of all the samples and the AK samples. Four significant genes were common in the analysis of all samples as well as in the PS samples.

CONCLUSION

This study shows that the tested high broad-spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol produces changes in AK skin and perilesional skin.

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Evaluation of the biological effect in DNA damage repair of a high broad spectrum sunscreen containing Nicotinamide and Panthenol, using 3D Line-field optical coherence tomography

AUTHORS

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INTRODUCTION

Previous studies showed that a topical application of 5% Nicotinamide prevents UV-induced immunosuppression and that oral administration reduces the diagnosis rate of new non-melanoma skin cancers and actinic keratosis (AK) in high-risk patients. One of the mechanisms by which Nicotinamide may protect against photodamage is by increasing ATP production. Additionally, Nicotinamide acts as a PARP1 inhibitor. Extensive DNA damage leads to overactivation of PARP1 which can lead to NAD depletion.

OBJECTIVE

This study was to determine with LC-OCT the biological effect *in vivo* of a specifically designed sunscreen containing Nicotinamide.

MATERIALS AND METHODS

A single-centre study on subjects aged between 50-70 years with actinic keratosis (AK) was performed by selecting 4 four lesions on the scalp of each subject: 2 AK and 2 field cancerization (FC) lesions. Biopsies of one AK and one FC lesion at baseline and 8 week with twice daily use of sunscreen and of the two remaining lesion were performed and compared. As well as keratinocyte analysis (atypia score and keratinocyte metrics).

RESULTS

The epidermis, the stratum corneum and dermo-epidermal junction were significantly thicker in AK than in FC lesions. The average number of keratinocytes layers in AK was 24% greater than in FC zones, and the atypia score was 36% significantly higher for AK than for the FC lesions. AK keratinocyte nuclei had a larger volume (+9%) with a higher variability (+19%) and a larger cytoplasm (+23%).

The epidermis significantly thinned in AK lesions after treatment (-13%).

The mean volume of the FC nuclei and the average number of layers of the FC had slightly decreased (-8.8% and -7.2%, respectively).

CONCLUSION

A high broad spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol produces a positive biological effect in the structure of the epidermis of AK and the keratinocyte nuclei of FC.

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Evaluation of the biological effect of a high broad-spectrum sunscreen containing Nicotinamide and Panthenol in actinic keratosis

AUTHORS

Teresa Torres[1], Gemma Marti-Tell[1], Neus Calbet-Llopart[2], Judit Mateu[2], Javiera Pérez[2], Beatrice Alejo[2], Pablo Iglesias[2], Josep Malvehy[1,2], Delphine Kerob[3], Caroline Le Floc'h[3], Leonor Prieto [4], Susana Puig[1,2]

INTRODUCTION

Nicotinamide is a NAD precursor. Topical application prevents UV-induced immunosuppression and apoptosis and increases the production of ATP, cell cycle activity and DNA repair.

OBJECTIVE

This study determined the effect of a high broad-spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol in actinic keratosis (AK) and perilesional skin (PS).

MATERIALS AND METHODS

16 subjects, all male and >65 yo applied Nicotinamide sunscreen daily on AK lesions and PS for two months. Biopsy samples were obtained before and after treatment. RNA was extracted for sequencing.

Three differential expression analyses were conducted comparing gene expression before and after treatment: one with all the samples, another with AK lesion samples and the last one with PS samples. Analyses were paired for each patient. Genes with a significant differential expression (FDR p-value <0.05) before and after treatment were considered the differential expressed genes (DEG). Pathway analyses of the resultant differential expressed genes of were conducted using hiPATHia tool from Babelomics platform.

RESULTS

Differential gene expression analysis revealed 128 significant genes in all samples. The analysis of AK lesion samples showed 1555 significant genes and 40 genes in PS samples.

Three genes were significantly expressed in the 3 comparisons; 17 genes were common in the analysis of all the samples and the AK samples. Four significant genes were common in the analysis of all samples as well as in the PS samples.

Pathway analysis showed that 30 circuit categories in AK and four in PS after treatment were downexpressed. Circuit categories relate to cell cycle, glucose homeostasis, and pathways in cancer. In AK they also relate to muscle contraction, apoptosis, sphingolipid, and p53 signalling pathways, cell communication, and proteoglycans in cancer.

CONCLUSION

This study shows that the tested high broad-spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol produces changes in AK skin and perilesional skin.

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Protection from UV light-induced telomere shortening by a broad-spectrum sunscreen product

AUTHORS

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INTRODUCTION

UV light produces DNA damage, photoaging, and even carcinogenesis. Telomeres are regions especially sensitive to UV light and their length shortens upon UV irradiation, compromising the regenerative capacity and function of tissues.

OBJECTIVE

To determine if broad-spectrum sunscreen product prevents UV-induced DNA damage and telomeric shortening.

MATERIALS AND METHODS

We used *in-vitro* cultured human keratinocytes and fibroblasts and a 3D skin model under three conditions: control, irradiated, and irradiated in the presence of a broad-spectrum UVB/UVA sunscreen. Irradiation dose was 10J/cm^2 SSUV. Samples were compared 24h post-exposure to determine skin structure, cell viability, DNA damage (gH2AX immunostaining), and telomere length (HT Q-FISH or FISH).

RESULTS

Upon SSUV irradiation, cell viability was decreased, DNA damaged increased (gH2AX staining) and telomeres shortened. However, in the presence of sunscreen, cell viability and DNA damage were comparable to controls and telomere length was partially preserved (reduced shortening rate and % short telomeres). In the 3D skin model, upon SSUV exposure, cellularity was reduced to 77.4% and the skin stratified structure was lost (H&E staining), basal keratinocytes showed no spatial orientation, and apoptotic bodies and immature cells were present in the upper layers. SSUV exposure in the presence of sunscreen showed H&E staining and cellularity indistinguishable from controls. Importantly, there was a dramatic increase in gH2AX positive cells in UV-exposed skin that was completely prevented in the presence of sunscreen. Strikingly, telomere length was similar in both irradiated and control skin, whereas telomere length increased (and % short telomeres was reduced) in skin irradiated in the presence of the broad-spectrum sunscreen product.

CONCLUSION

These results help in the understanding of the mechanisms of photoprotection by a sunscreen product against UV-induced damage and are relevant in the fields of skin biology and carcinogenesis.

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Environmental impact in differently-aged Chinese men: a pilot study sun exposures-induced changes in facial signs

AUTHORS

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INTRODUCTION

Facial skin investigations in Chinese men remain scarce. To better design cosmetic solutions adapted to consumers in their diversity, investigating the impact of environmental factors among genders is essential.

OBJECTIVE

To clinically evaluate the impact of sun exposures on some facial signs of differently aged Chinese men with a distinct behavior regarding sun exposure.

MATERIALS AND METHODS

Two comparable cohorts of Chinese men (aged 18–75 years), from 2 cities (Shanghai, Hong Kong) were composed according to their usual behavior regarding sun exposure and through their use of a photo-protective product, i.e., non-sun-phobic (N = 127) and sun-phobic (N = 134). Standard photographs (full-face and 45 ° lateral) focused on 13 facial signs that were graded by 15 experts and dermatologists, using a referential Skin Aging Atlas. Absolute differences in scores of each sign were used (non-sun-phobic minus sun-phobic) by age-classes to better determine the impact of sun exposure and that of a photo-protecting product, if used.

RESULTS

Most facial signs, particularly wrinkles and skin texture, differentiated the two cohorts. Some subjects showed some erratic changes with age, albeit more pronounced during older age. Contrarywise to previous results obtained in Chinese women, changes observed in men were not only of a less severity but remained also undetected at early ages (< 30 years). Overall, these different behaviors regarding sun exposure led to significant differences in facial signs of Chinese men. The latter can be illustrated by two virtual morphing items that combine the impact of both intrinsic and extrinsic aging processes.

CONCLUSION

This work illustrates for the first time, some specificities of the impact of sun exposure on the facial skin of Chinese men, which is more expressed at an older age, inversely to those observed in Chinese women, occurring at a younger age.

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Characterization of changes with age and sun-exposures in South African women: an algorithm-based automatic grading pilot study

AUTHORS

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INTRODUCTION

With regard to constitutive dark skin tones, the relative impacts of photo-aging and photo-protection remain an open field of research.

OBJECTIVE

To evaluate the capacity of the automatic detection system to accurately grade, from smartphones' selfie pictures, the severity of fifteen facial signs in South African women and their changes related to age and sun-exposure habits.

MATERIALS AND METHODS

A two-steps approach was conducted, based on self-taken selfie images. First, to assess on 306 South African women (20–69y) enrolled in Pretoria area, age changes on fifteen signs measured by an Artificial Intelligence (A.I.)-based grading system validated by experts/dermatologists. Second, as these South African panelists were recruited according to their behavior towards sun-exposure i.e., non-sun-phobic (NSP, N=151) and sun-phobic (SP, N=155) and their regular and early use of a photo-protective product, to characterize the facial photo-damages.

RESULTS

i) Automatic scores showed significant changes with age, by decade, of Sagging and Wrinkles/Texture ($p<0.05$) after 20y and 30y, respectively. Pigmentation cluster scores presented no significant changes with age whereas Cheek Skin pores enlarged at a low extent with two plateaus at thirties and fifties. ii) After 60y, a significantly increased severity of Wrinkles/Texture and Sagging was observed in NSP vs. SP women ($p<0.05$). A trend of an increased pigmentation of the eye contour ($p=0.06$) was observed after 50y.

CONCLUSION

This work illustrates specific impacts of aging and sun-exposures on facial signs of South African women, when compared to previous experiments (Europe or East Asia). Results significantly confirm the importance of sun-avoidance coupled with photo-protective measures to avoid long-term skin damages. In inclusive epidemiological studies that aim at investigating large human panels in very different contexts, the A.I.-based system offers a fast, affordable and confidential approach in the detection and quantification of facial signs and their dependency with ages, environments and lifestyles.

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Evaluation of the biological effect in DNA damage repair of a high broad spectrum sunscreen containing Nicotinamide and Panthenol in actinic keratoses and field of cancerization

AUTHORS

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INTRODUCTION

It has been shown that topical application of nicotinamide prevents immunosuppression caused by UV radiation and that oral nicotinamide reduces the diagnosis rate of new non-melanoma skin cancers and actinic keratoses in high-risk patients. It has been suggested that one of the mechanisms by which nicotinamide may protect against photodamage is by increasing ATP production which enhances DNA repair. Using a high broad spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol may help to reverse chronic sun damage to the DNA of skin cells.

OBJECTIVE

To determine the biological effect of a high broad spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol on DNA damage repair by measuring the presence of 6-4 PD by immunohistochemistry in skin biopsies and indirectly by measuring the expression of p53, p21, PCNA and DIMTIM.

MATERIALS AND METHODS

A single-centre study on subjects aged between 50-70 years with actinic keratosis (AK) was performed by selecting 4 four lesions on the scalp of each subject: 2 AK and 2 field cancerization (FC) lesions. Biopsies of one AK and one FC lesion at baseline and 8 week with twice daily use of sunscreen and of the two remaining lesion were performed and the direct comparison of the lesions pre- and post-treatment was evaluated by IHC, the number of high positive nuclei and positive nuclei in a region of 50 nuclei was measured.

RESULTS

A significant difference comparing p21 and DIMTIM high positive nuclei per 50 nuclei in AK and FC lesions at pre- and post-treatment and comparing p21 positive nuclei per 50 nuclei was observed. Other IHC markers (p53, 6-4PPS and PCNA) did not show a nuclear improvement pre- and post- treatment.

CONCLUSION

Regular application of a high broad spectrum UVB-UVA sunscreen containing Nicotinamide and Panthenol results in a nuclear cell improvement using p21 and DIMTIM IHC techniques.

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Development of inflammatory dermatosis models using *ex vivo* human skin

AUTHORS

Eddy Hsi Chun Wang, Rebecca Barresi, I-Chien Liao, Qian Zheng, Charbel Bouez [1]

ABSTRACT

An estimate of 25% of adults in the U.S. are affected by inflammatory dermatoses, such as eczema and psoriasis. Animal models and reconstructed human epidermis have been the primary research tools for skin diseases.

While these models have provided important knowledge on the efficacy and the mechanism of action of many novel treatments, they don't fully recapitulate human skin as they lack the complete architecture of real skin and therefore, may not capture complex changes in skin barrier protein or lipidomic profiles in dermatoses.

For that reason, experimental models that can mimic different human inflammatory skin phenotypes could be a valuable tool. To fill this scientific and ethical gap, human ex vivo skin models were developed with the characteristics of rosacea, eczema and T-cell-mediated inflammation via different stimulants. Healthy skin biopsies were stimulated for 1-week in culture and changes in skin morphology, cellular infiltrates, cytokine production and epidermal lipidomic profiles were evaluated. An increase in mast cell degranulation and a significant increase of multiple angiogenesis growth factors (i.e.. FGF2, ANGPT1, EGF) were found in the rosacea-like model.

In both the eczema-like and proinflammatory T-cell-mediated models, a severe epidermal disruption was observed with CD68+ macrophages influx (eczema-like model), CD45+ exocytosis, and increased cytokines (ie. IL1a, IL1b, IFNg). Lipidomic analysis revealed minor changes in the rosacea-like model, but the T-cell-mediated and the eczema-like model showed significant decrease in barrier-essential ceramide subclasses (Cer1, 3, 7, 4) and a shift toward shorter acyl chain lengths (C16) indicating skin barrier instability.

Finally, we demonstrated the degree of inflammation is reproducible between donors, is adjustable, and can be inhibited by immunosuppressant. It is believed that these models could contribute to scientific discoveries of the therapeutic options and skincare routines of patients suffering from compromised skin diseases.

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ABSTRACT

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