EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 697

An open label non-randomized preliminary study comparing two targeted phototherapy devices i.e. daily use of home-based hand-held narrow band UVB comb device versus biweekly hospital-based Excimer light therapy in treatment of localized vitiligo

Iftekhar Khan*[1], Sujay Khandpur[1], Shivam Pandey[1]

[1]AIIMS Hospital, Delhi, New Delhi, India

Introduction:

Targeted phototherapy, a type of phototherapy delivering ultraviolet light to the affected sites without exposing the entire body has emerged as a viable alternative to whole chamber NBUVB in patients with localised vitiligo. The monochromatic excimer laser/light (MEL) and hand-held NB UVB equipment are two such devices. The monochromatic excimer light is an effective hospital-based therapy while hand-held NB-UVB comb device can be used on domiciliary basis.

Objective: To compare the clinical efficacy of daily home-based hand-held NB-UVB comb device with bi-weekly hospital based monochromatic excimer light therapy in localized vitiligo.

Materials & Methods:

An open-label non-randomized prospective non-inferiority study was conducted on 28 adult patients of localized vitiligo (≤2% BSA or ≤ 10 vitiligo macules). Based on patient's preference, they were allocated to either daily therapy with handheld NB UVB comb device (group A, n=15) or twice weekly monochromatic excimer light therapy (group B, n=13) for 16 weeks. Patients were assessed for percentage re-pigmentation in the representative patch, global reduction in size of vitiligo macules, changes in investigator (IGA= -1 to 5) and patient global assessment (PGA using VAS on scale 0 to10) scores, quality of life, colour match with surrounding normal skin and compliance to therapy.

Results:

Twenty five patients (group A/B: 12/13) out of the 28 enrolled patients completed the study. In groups A and B, the male to female ratio was 4:11 and 8:5 respectively. Rest of the demographic and clinical profiles were comparable in the 2 groups.

The median percentage re-pigmentation of the representative patch [groups A/B= 42.8%/46.8 % (p=0.369)] was not statistically significant at each follow-up visit and at the end of therapy. The mean difference in percentage re-pigmentation of representative patch was 1.07(95% CI: -0.53, 2.68) as 'per protocol analysis' and 0.17(95% CI:-1.62,1.95) as 'intention to treat analysis'. Considering a non-inferior margin of 5%, group A was non-inferior to group B. Non inferiority was established according to both "intention to treat" and "as per protocol," analysis.

The mean±SD** of percentage reduction in** Lund and Browder score (group A=29.37±35.06; group B= 37.71±21.07; p=0.369), PGA score (group A=5.03±2.90; group B 5.15±1.46 p=0.89), IGA score (group A=1.57±1.46; group B=1.65±0.77; p=0.92) did not show significant differences between the two groups after 4 months of treatment. MEL group(2.923±1.97) showed significantly greater number of missed sessions than hand-held comb device group(5.307±2.78), suggesting that compliance was better in the latter.

The change in QoL in the two groups using Tjioe et al questionnaire (group A= 5.47±6.44; group B= 4.15±4.89; p=0.58) and VIS-22 (group A= 4.133±8.22; group B= 1.85±5.84; p=0.50) were comparable.

The commonest side effects were erythema (group A/B=7/6) followed by itching (group A/B=5/5). The number of side effects were more in group A (n=14) than group B (n=13), but they were comparable (p=0.638).

Conclusion:

Handheld NB-UVB comb device was non-inferior to the MEL therapy in stable localized vitiligo with significantly better compliance and no serious side effects. Hence it can be used by patients safely at home with fewer hospital visits. Disadvantages of handheld NB-UVB therapy are the need for periodic recalibration of equipment every 3 months due to decay in irradiance and its daily use for good re-pigmentation.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 714

Sustained clearance of acquired perforating dermatosis after narrowband UVB phototherapy: a retrospective cohort study on 7 patients

Verena Schremser*[1], Sonja Radakovic[1], Julia Tittes[1], Adrian Tanew[1]

[1]Medical University of Vienna, Dermatology, Vienna

Introduction & Objectives:

Acquired perforating dermatosis (APD) belongs to a group of skin disorders termed perforating dermatoses. APD is a rare disease presenting with characteristic umbilicated papules and plaques with a central keratotic plug. It is often associated with systemic diseases such as chronic renal failure or diabetes mellitus. Diagnosis is based on typical histological findings. There is no evidence-based treatment algorithm for patients with APD since treatment is based solely on individual case reports or small case series

The aim of this study was to retrospectively evaluate the effectiveness and safety of narrowband ultraviolet B (NB UVB) phototherapy in the treatment of APD.

Materials & Methods:

The following clinical data were gathered from the patients' files: sex, age, disease duration until diagnosis, clinical features, localization of the skin lesions, subjective symptoms, associated systemic diseases, concomitant medications and laboratory results. APD treatment with NB UVB, initial NB UVB dosage, mean cumulative NB UVB dosage, mean number of NB UVB exposures, adverse events, time to healing and follow-up

Seven patients with APD were enrolled in this study. The diagnosis was based on the typical clinical and histological findings. NB UVB treatment was performed three times per week until clearance. The initial NB UVB dose was chosen according to the patients' skin phototype and ranged between 0.3 and 0.6 J/cm. In the absence of treatment-induced UV erythema the NB UVB dose was increased by 10 – 20% at each visit up to a maximum exposure dose of 5.0 J/cm2. No maintenance treatment was performed. All patients had regular follow-up examinations for six to twelve months.

Results:

Complete clearance was achieved in all patients after a mean number of 29 NB-UVB exposures and a mean cumulative exposure dose of 63 Joule/cm2. Treatment was well tolerated without any adverse events. Follow up examinations at 6 and 12 months after cessation of treatment showed maintained response in all patients.

Conclusion:

APD is a rare and probably underrecognized chronic skin disease affecting older patients with multiple comorbidities. APD is frequently associated with severe pruritus which may play a central role in the chronification of this difficult-to-treat condition. NB UVB with its pronounced antipruritic effects is a particularly useful treatment option for patients with APD and should be considered as a safe and well tolerated treatment option with a high potential to induce complete and sustained clearing in patients with APD as shown in our study.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 960

Sun exposure and associated risks: Insight from a survey in 17 countries with a focus on the population treated with immunosuppressive anti-graft rejection drugs due to organ transplantation

Brigitte Dréno[1], Thierry Passeron[2], Suzana Puig[3], Chee-Leok Goh[4], Henry W. Lim[5], Fatimata Ly[6], Hee Young Kang[7], Akimichi Morita[8], Jorge Ocampo-Candiani[9], Sérgio Schalka[10], Liu Wei[11], Caroline Lefloch[12], Anne-Laure Demessant-Flavigny[12], Delphine Kerob*[12], Jean Krutmann[13]

[1]Nantes University, Nantes, France, [2]CHU Nice, Nice, France, [3]University Hospital Clinic, Barcelona, Barcelona, Spain, [4]National Skin Centre, Singapore, Singapore, [5]Henry Ford Health, Detr, United States, [6]Cheikh Anta Diop Dakar University, EPS Institute of Social Hygiene, Dakar, Senegal, [7]Ajou University School of Medicine, Suwon, Korea, Rep. of South, [8]University Graduate School of Medical Sciences, Nagoya, Japan, [9]University Hospital of Nuevo Leon, Monterey, Mexico, [10]Chemistry Institute of Sao Paulo University, Sao Paulo, Brazil, [11]The General Hospital of Air Force PLA, Beijing, China, [12]La Roche-Posay Laboratoire Dermatologique, Levallois-Perret, France, [13]IUF Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany

Introduction & Objectives:

This survey investigates the knowledge and behaviors regarding sun exposure among individuals treated with immunosuppressive anti-graft rejection drugs due to organ transplantation.

Materials & Methods:

The survey (N= 17001) was conducted online in 17 countries (5 continents) between 28 September and18 October 2021. Automated selection from the Ipsos online Panel ensured samples of 1000 individuals in each country to fit the quotas method based on gender, age, employment status, and country regions. Data collected included demographics, phototype, exposure routine and practices, knowledge and understanding of risks.

Results:

This sub population represents 3% (n=434) of the surveyed population, 65% were men, the average age was 39.7±14.6 years and 57% were had phototype I or II. 85% = were aware of sun-related skin-health issues, a similar awareness among general population (88%). 79% did know that sun protection is useful if the weather is overcast, a compared to 61% in the general population (61%). 75% understoodd the difference between UVA and UVB vs 30% in the general population. But, 69% indicated that it was safe to expose themselves without protection when already tanned compared to 23% in the general population.

Only 46% systematically/often used all protective means during exposure compared to 12% in the general population. 63% stated that they protected from the sun all over the year compared to 23% in the general population . However, during sun exposure, among the 93% who declared using sunscreen, 85% applied sunscreen only once or twice a day compared to 74% in the general population. When tanned, 37% decreased frequency the application and/or used lower protection compared to 44% in the general population. 89% regretted not having previously used a better protection, a much stronger regret compared to the general population (57%).

Conclusion:

Although individuals who have been treated with immunosuppressive anti-graft rejection drugs because of an

organ transplantation had a better knowledge and behavioral attitudes compared to the general population, this survey provides evidence for the need for additional photoprotection education among this specific population.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 996

Optimal illumination interval of methyl aminolevulinate PDT for the prevention of non-melanoma skin cancer in patients with field changes: a two-armed, randomized, intraindividual comparison study.

Aikaterini Bakirtzi*[1], Ilias Papadimitriou[1], Foteini Vrani[1], Efstratios Vakirlis[1], Eleni Sotiriou[1]

[1]Aristotle University of Thessaloniki, School of Medicine, First Department of Dermatology and Venereology, Thessaloniki

Introduction & Objectives: Actinic damage is responsible for developing multiple recurrent non-melanoma skin cancers (NMSCs), including actinic keratoses (AKs). Photodynamic therapy (PDT) is a recommended field-directed treatment option. A cycle of PDT (two illuminations one week apart) effectively prevents new AKs. Yet, there is a gradual, time-related decline in this prophylaxis: 6 months post-treatment, there is an increased rate of new AKs in the treated field, and the preventive effect of the method ceases entirely about a year after its application. This observation suggests that treatment cycles at certain time intervals may contribute to maintaining the preventive effect of PDT.

In a randomized, open-label, intraindividual, right-left comparison trial, we aimed to determine the optimal therapeutic protocol of conventional PDT for preventing NMSCs. Thus, we assessed the inhibition of new NMSCs with fixed PDT parameters but different intervals between the treatment cycles in patients with field changes.

Materials & Methods: Patients with histologically-confirmed field cancerization (AK grade I-III) of the face or scalp initially received one illumination of methyl aminolevulinate (MAL) PDT in both mirrored fields. Then, based on randomization, a repeat cycle of PDT was performed after 6 months in one field and 12 months in the mirrored field. Following two cycles of PDT, patients were evaluated at 3, 6, 9, and 12 months. No additional treatment was allowed in the study areas during the follow-up. The clinical assessment was masked.

The number of new AKs in each treatment arm, adverse events (AEs) during treatment and follow-up time of patients were recorded. The two-sided Wilcoxon paired samples test was used for the statistical analysis. The level of significance was $p<0.05$.

Results: Overall, 26 patients participated (Table 1). There was no statistically significant difference regarding the total number of new lesions between the intraindividual mirrored fields from baseline to each follow-up time point (3, 6, 9 and 12 months after the second treatment cycle). The mean time for the onset of new lesions was 10.125 ± 2.66 months [95% confidence interval (CI) 8.71–11.54] in the 6-month arm and 10.105 ± 2.49 months (95% CI 8.90–11.31) in the 12-month arm (Table 2).

No severe AEs occurred. No patient withdrew or was lost to follow-up. All patients experienced burning and pain during sessions in both treatment cycles. Phototoxic reactions localized to the treatment fields, including erythema and edema, were reported. All reactions were mild or moderate in severity and resolved entirely in 7-10 days without any required treatment.

Conclusion: Repeat PDT sessions 6 and 12 months after the initial treatment cycle are equally effective in preventing the formation of new AKs in field-cancerized sites. Given the significant financial burden of the management of AKs, 12 months between repeat cycles may be preferable to 6 months as it offers the same efficacy at a reduced cost.

Table 1. Demographics at baseline.

	Number of patients (%)
Sex	
• Male	20 (76.92%)
• Female	6 (23.07%)
Mean age in years (±Standard Deviation)	67.15 ± 4.64
Fitzpatrick skin type	
• Type II	6 (23.07%)
• Type III	18 (69.23%)
• Type IV	2 (7.69%)
Field-cancerized areas	
• Scalp	16 (61.53%)
• Face	10 (38.46%)

Table 2. Results of the two study arms at follow-up time points.

Follow-up (months)	Total number of new lesions in 6-month arm	Total number of new lesions in 12-month arm	p value, z
3	1	1	1.0, 0
6	1	1	1.0, 0
9	5	7	0.317, 1
12	9	10	0.317, 1

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 1351

From Occasional to Daily: Ultra-Light Texture to Start a Daily Sun Protection Routine

Anne-Christin Worthmann[1], Pitta Paula[1], Cristina Vendruscolo[1], Anette Bürger[1], Dorsch Sabrina[1], Dippe Rixa[1], Philip Drescher[1], Katja Warnke[1]

[1]Beiersdorf AG

Introduction & Objectives:

Consistent sun protection is crucial for preventing skin damage from UV radiation, blue light, and environmental pollutants. However, adherence to sun protection routines is often hindered by heavy, greasy textures. A product offering high protection with a lightweight, moisturizing formula could significantly improve user adherence and satisfaction.

In this abstract we determine an everyday sun protection product that provides extensive protection with an ultra-light texture, featuring Licochalcone A and a moisture complex. The product offers UVA/UVB/HEVIS protection, anti-oxidant efficacy, increased moisture, and a pleasant sensory experience.

Materials & Methods:

Sensory study: A two-week product-in-use test was conducted with 162 volunteers (18-40 years old).

Moisture levels were measured on 35 female volunteers' inner forearms using a corneometer 2 hours after a single application.

Anti-Oxidative measurement: ex vivo method evaluated antioxidant efficacy using skin fragments from elective plastic surgery of a 35-year-old male participant. Skin fragments were treated with the investigational product (2mg/cm2) for four days and exposed to daily UV (10J/cm2), infrared (360J/cm2), and visible light (100J/cm2) radiation. Culture medium was replaced daily, and irradiation occurred for three consecutive days. Oxidative species were detected using DCFH-DA fluorogenic dye. A similar protocol was followed using cigarette smoke to simulate pollution, with fragments exposed to two cigarettes' total burning. Negative control was DMEM High Glucose.

Results:

The product demonstrated excellent galenic properties with 0% residue, stickiness, and greasiness. 89% of participants confirmed immediate moisture provision, and 100% found the product easy to spread. Reapplication was favored by 90% of users.

Product presented a very high UVA and UVB protection and exhibited significant antioxidative and anti-pollution action, reducing oxidative species formation by 27% under UV, IR, and visible light exposure, and by 29% when exposed to cigarette smoke. Moisture levels increased by 25%.

Conclusion:

The introduced sun protection product represents a promising option for improving adherence to daily sun protection routines, owing to its ultra-light galenic properties and high protection levels. By addressing common barriers such as texture and user experience, this innovative formula encourages consistent use, promoting healthier skin and better protection against environmental stressors.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 1362

Skin bioadhesive UV filters: a radical innovation in sun protection

Juliette Bertrand[1], Lise Ainié[1], Nina Séjourné[1], Mehdi Makrerougras[1], Denis Carniato[2], Isabelle Rault[1]

[1]Skinosive, Marseille, France, [2]DC2A Consulting, France

Introduction & Objectives:

During the last decades protection against solar UV radiation has become a global public health issue due to the increasing incidence of skin cancer. Dermatologists and health authorities support the use of highly protective sunscreens and recommend renewing their application every two hours. However, questions have been raised by consumers and health authorities such as the FDA, about safety of UV filters due to systemic penetration and ecotoxicity. Sunscreen improvements focused mainly on formulations and eco sustainability and a couple of new UV filters have been marketed. We propose new organic ecofriendly UV filters that provide broad UV protection, a long-lasting effect, and limited skin permeation. We are developing skin bioadhesive UV filters by functionalizing commercial UV filters with an adhesive moiety that binds to stratum corneum.

Materials & Methods:

Both UVA and UVB commercial filters have been chemically modified into bioadhesive diethylamino hydroxybenzoyl hexyl benzoate and octocrylene and tested in sunscreen formulations. Bioadhesive filters have been evaluated on *ex vivo* pig skin explants by analyzing photoprotection through UV-induced DNA damage assay and skin autofluorescence measurement.

Results:

Bioadhesive sunscreens enable a water resistance of the photoprotection compared to control formulations for at least 4 hours after application on pig skin. Our data suggest that bioadhesive UV filters: 1. maintain the UV protection efficacy of the former UV filters, 2. are maintained on the skin over time, and 3. provide a long-lasting UV protection.

Conclusion:

Clinical trials will be conducted in 2023 to demonstrate SPF performance over time of a sunscreen formulated with our proprietary bioadhesive UV filters. Our technology is a long-awaited innovation in the field of UV filters and has the potential to become a breakthrough in sun protection.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 1379

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

Daiane G Mercurio[1], Frederic Flament*[2], Caroline Tricaud[2], Françoise Bernerd[3], Anne-Laure Demessant-Flavigny[4], Caroline Lefloch[4], Nathalie Jager-Lezer[5], Benoit Muller[2], Caroline Delaunay[5]

[1]L'Oréal Research and Innovation, Rio de Janeiro, Brazil, [2]L'Oréal Research and Innovation, Clichy, France, [3]L'Oréal Research and Innovation, Aulnay-sous-Bois, France, [4]La Roche Posay Laboratoire Dermatologique, Levallois-Perret, France, [5]L'Oréal Research and Innovation, Chevilly-Larue, France

Introduction & Objectives:

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.

The objective of this study was 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 & 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.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 1678

Sun Exposure and Associated Risks

Delphine Kerob*[1, 2], Thierry Passeron[3], Brigitte Dréno[4], Suzana Puig[5], Chee-Leok Goh[6], Henry W. Lim[7], Fatimata Ly[8], Hee Young Kang[7], Akimichi Morita[9], Jorge Ocampo-Candiani[10], Sérgio Schalka[11], Liu Wei[12], Caroline Lefloch[13], Anne-Laure Demessant-Flavigny[14], Jean Krutmann[15]

[1]La Roche-Posay, [2]Scientific Director, La Roche-Posay International, [3]Department of Dermatology, Côte d'Azur University, Nice University Hospital Centre, France, [4]Department of Dermato-Oncology, CIC 1413, CRCINA, Nantes University Hospital Center, Nantes, France, [5]Melanoma Unit, Dermatology Department, Barcelona University Hospital Clinic, Barcelona, Spain, [6]National Skin Centre, Singapore, Singapore, [7]Department of Dermatology, Henry Ford Health System, Detroit, MI, USA, [8]Department of Dermatology, Cheikh Anta Diop Dakar University, EPS Institute of Social Hygiene, Dakar, Senegal, [9]Department of Geriatric and Environmental Dermatology, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan, [10]Department of Dermatology, Medical Faculty University Hospital of Nuevo Leon, Monterrey, Mexico, [11]Medcin Skin Research Center and Biochemistry Department, Chemistry Institute of Sao Paulo University, Sao Paulo, Brazil, [12]Department of Dermatology, The General Hospital of Air Force PLA, Beijing, China, [13]Head of Clinical Studies, La Roche-Posay International, [14]Scientific Communication Director, La Roche-Posay International, [15]IUF Leibniz Research Institute for Environmental Medicine, Dusseldorf, Germany Medical Faculty, Heinrich-Heine-University, Dusseldorf, German

Introduction & Objectives:

Primary and secondary prevention of skin cancer vary considerably from one country to another. This survey investigates knowledge and behaviours regarding sun exposure in the United Kingdom.

Materials & Methods:

This survey in the United Kingdom (N= 1,000) was conducted online from 28 September-18 October 2021 and was part of a worldwide survey (N=17,001) conducted in 17 countries (5 continents). Automated selection from the Ipsos online Panel ensured samples of 1,000 individuals in each country fit the quotas method based on gender, age, employment status, and country regions. Data covered demographics, phototype, exposure habits and practices, knowledge and understanding of risks. "At-risk" sub-population was defined as individuals with a history of melanoma/non melanoma skin cancer, pre-cancerous lesions, photo dermatoses, or currently on photosensitive or immunosuppressive drugs.

Results:

The population comprised 49% men, average age was 46.6 years (SD:15.7) and 61% were of phototype 1-2.

76% of Britons stated that a tanned skin looks attractive vs 72% worldwide. And 70% of Britons indicated that a tan makes a healthy look, a different perception compared to worldwide (64%). Most of Britons were aware of sun-related skin-health issues, a better awareness compared to worldwide (94% vs 88%). 61% did know that sun protection is useful when the weather is overcast, a similar knowledge compared to worldwide (61%). Furthermore, 15% indicated it was safe to expose themselves without protection when already tanned, a better knowledge compared to worldwide (23%). In terms of photoprotection, 15% said they protected from the sun all year round, a lower score compared to worldwide (23%). Only 13% systematically/often used all protections measures during exposure; a similar practice compared to the worldwide average (12%). In detail, Britons were

more likely to systematically/often put sunscreen on their face (71% vs 60%), on their hands, neck, décolleté, ears (64% vs 52%) and on their arms, legs and chest (69% vs 55%) compared to the global population. But on the other hand, Britons were less likely to systematically/ often try to stay in the shade (73% vs 77% worldwide) or avoid sun exposure during zenithal exposure (53% vs 66%). Among those who applied sunscreen, 69% applied it only once or twice a day a slightly better practice compared to worldwide average (74%).

When already tanned 36% decreased frequency of application and/or used lower protection, this frequency habit reached 44% globally. 52% regretted not having previously used better protection, a weaker regret compared to worldwide (57%).

In terms of knowledge, 71% did not understand the difference between UVA and UVB vs 70% worldwide.

At-risk individuals (10%, n=100) had better knowledge and photoprotection habits than the overall population; but only 27% systematically/often used all the protection measures during sun exposure and still 54% felt they did not understand the difference between UVA and UVB.

Conclusion:

Although risks from sun exposure are widely recognized, sun-protection practice is inadequate. At-risk individuals had better knowledge and behavioural attitudes. This survey provides insight into the need for additional photoprotection education in the United Kingdom.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 1929

Protective efficiency of an emollient SPF50+ sunscreen on irritative factors discomforts on atopic subjects

Rodeghiero Marine[1], Florence Florence[1], Noizet Maite[1], Priscilla Lapalud[1], Fabienne Carballido[2], Philippe Armony*[1], Nathalie Castex-Rizzi[1], Ribet Virginie[1]

[1]Pierre Fabre Dermo-Cosmétique et Personal care, R&D Department, Toulouse, France, [2]A-DERMA, Medical Department, Lavaur, France

Introduction & Objectives: Atopic dermatitis (AD) is a chronic inflammatory disease related to skin barrier function deficiency. Causing severe symptoms as intense itching, redness or dryness, AD has significant impacts on the quality of life. Exposure to irritative factors such as chlorine or salt worsen these discomforts. Therefore, the use of sunscreen adapted to AD skins is crucial for patients, especially when exposed to irritants in summer but few are currently available on the market. We present here the benefits of a broad-spectrum SPF50+ sunscreen formulated for AD skins (containing Rhealba®Oat Plantlets Oil and emollient complexes) on cutaneous barrier protection and on discomforts caused by irritative factors (chlorine, salt, sweat and sand).

Materials & Methods: First, *in vitro* studies were performed to evaluate the ability of the sunscreen to reinforce skin barrier and to restore altered skin barrier. Then, sunscreen protective and soothing effects were assessed *in vivo* through clinical and subjects' evaluations on 56 atopic-prone skin subjects (33 adults/adolescents (a/a); 23 children) with a known sensitivity to irritants. The study was performed under sun exposure conditions and subjects were asked to swim both in the sea and in swimming pool.

Results: *In vitro*, after sunscreen topical application, lipid neosynthesis (especially barrier function essential ceramides) on human reconstructed epidermis and a restoration of barrier function on SDS altered human skin explants were observed. These results were correlated with the perceived efficacy of the product during the clinical study. Among the subjects, more than 87% of the whole population were not users of sunscreen formulated for AD skins. After** 21 days of use, the protective effect of the sunscreen was deemed very efficient against discomforts related to chlorine (whole panel: 100%), sand (a/a: 100%, children: 90%), salt (a/a: 97%, children: 95%) and sweat (a/a: 97%, children: 96%). The soothing effect of the product also achieved a very good level of satisfaction especially against salt (a/a: 97%, children: 95%) and chlorine (a/a: 93%, children: 95%) discomforts. Subjects declared the product suitable for AD skins (a/a: 97%, children: 100%) with more than 85% of them able to space their usual emollient application. Efficacy perceived was correlated with a significant decrease of SCORAD index ($p<0,0001$, improvement in 94% of the subjects) especially in erythema ($p<0,0001$, improvement in 63% of the subjects) and pruritus ($p<0,0001$, improvement in 97% of the subjects) scores.

Conclusion: This broad-spectrum SPF50+ sunscreen, formulated for AD skins, efficiently protects from solar exposure but also reinforces skin barrier function and protects atopic patients from discomforts caused by irritants in summer.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2197

Synergic effect of blue light and terbinafine in reactive oxygen species production on human keratinocytes

Luis Alfonso Pérez-González[1, 2], Montserrat Fernanadez Guarino[2], Maria Antonia Martinez-Pascual[1], Elena Toledano Macias[2], Jorge Naharro Rodriguez[2], Maria González Ramos[2], Francisco Javier Pérez Bootello[2], Maria Luisa Hernández Bule[1]

[1]Instituto Ramón y Cajal de Investigación Salitaria (IRYCIS), Biolectromagnetism Laboratoy, [2]Hospital Universitario Ramón y Cajal

Introduction & Objectives:

Topical and oral antifungal drugs are the main treatment for skin mycoses, but they are often ineffective owing to the long duration of the treatments and the poor adherence. Terbinafine is an inhibitor of scualene epoxidase but also can induce reactive oxygen species (ROS) accumulation in human keratinocytes, this effect may contribute to antifungal effect.

Photodynamic therapy (PDT) and other light-based therapies have antimicrobial properties, so the combination with PDT or other light-based therapies could have synergistic antifungal effect.

Materials & Methods:

Human keratinocytes (HaCaT) were seeded in medium composed of high-glucose D-MEM, supplemented with fetal bovine serum and maintained in a 5% CO2 atmosphere at a temperature of 37 ºC.

Light exposition was performed with an original specific device that emits 450nm blue light and 645nm red light. Terbinafine was added to a half of the wells. The dosage of terbinafine was the same used in other publications.

The cell culture was exposed twice to light. Each exposition duration was 20 minutes and were performed with a separation of 24 hours. The intensity of irradiation was 52 mW/cm2. The experiment was controlled by a non-exposed multi well plate cultured in identical conditions including the addition of terbinafine.

To determinate the effects of terbinafine and light exposition in HaCaT proliferation and viability XTT essays were performed. The exposition was also performed in a second experiment with a restriction of fetal bovine serum.

To determinate the increasement in ROS due to terbinafine and light exposition in HaCaT we performed an immunofluorescence essay to quantify the ROS accumulation in the cultures

Results:

Cell proliferation essay.

The addition of terbinafine to non-exposed cultures induced an 44% reduction in cell viability. Exposure to blue light also triggered a reduction of 31% in cell viability without terbinafine. Also, the addition of terbinafine to blue light exposed cultures induced a 56% reduction in cell viability in the XTT essay.

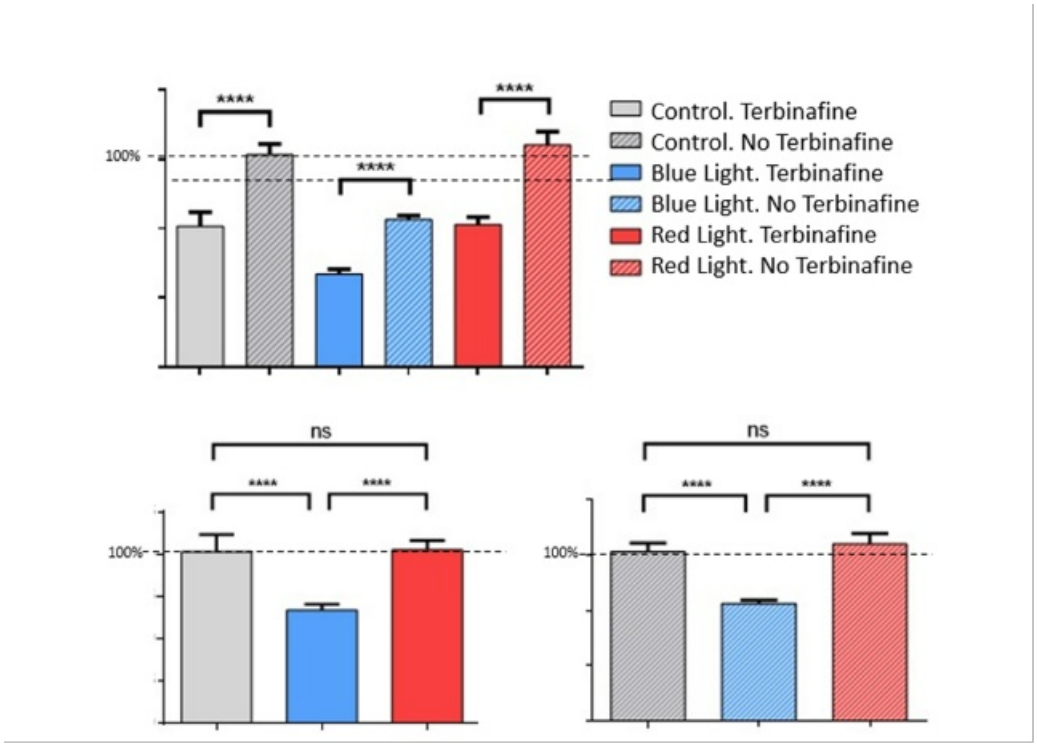


Figure 1: Statistical analysis of XTT essay results.

Cell proliferation essay with fetal bovine serum restriction.

The addition of terbinafine to non-exposed cultures induced an 80% reduction in cell viability in the XTT essay. The exposure to blue light in nutrient-restricted conditions also triggered a reduction of 66% in cell viability without terbinafine. Also, the addition of terbinafine to blue light exposed cultures induced an 88% reduction in cell viability in the XTT essay.

In absence of terbinafine red light seems to reduce cell viability in 14%.

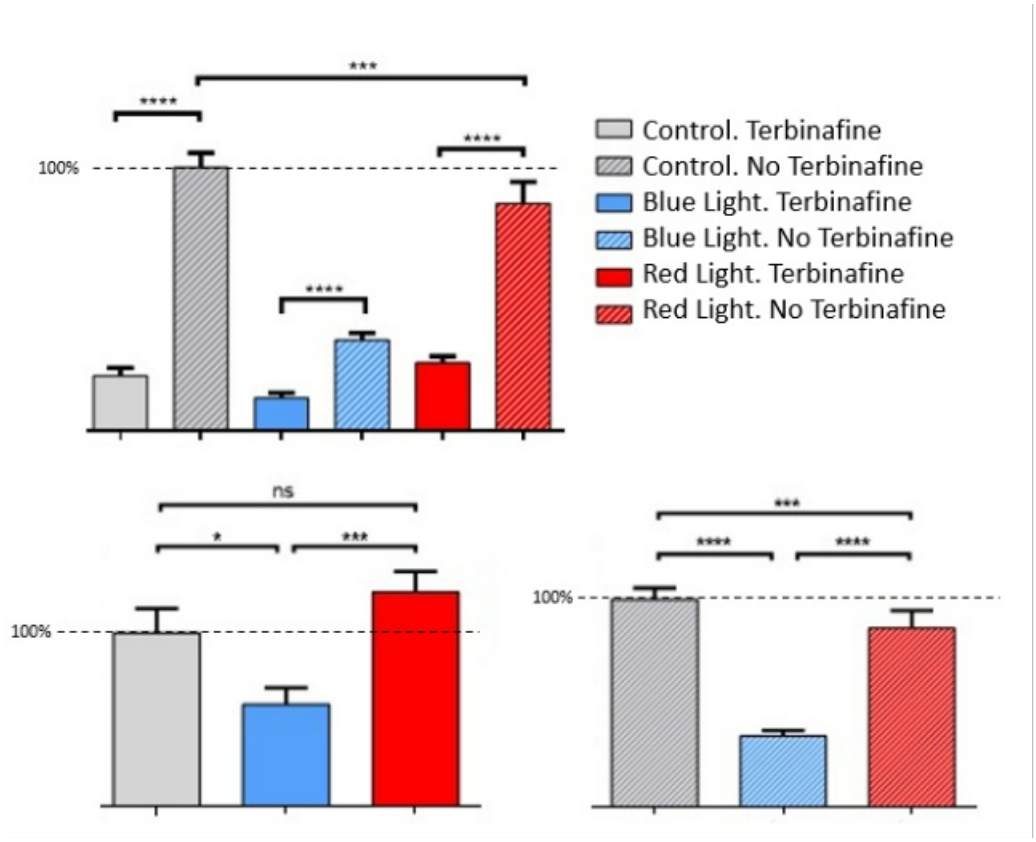


Figure 2: Statistical analysis of XTT essay results in nutrient-restricted conditions.

Reactive oxygen species (ROS) essay:

The quantification of ROS showed a 30% increasement with addition of terbinafine to non-exposed cultures (SD 9,2% p<0.001). Cultures exposed to blue light showed an increment of 23% in ROS production in absence of terbinafine (DS 12,5% p<0.001) and an intense increasement of 108% (SD 13,4% p<0.001) combining blue light and terbinafine.

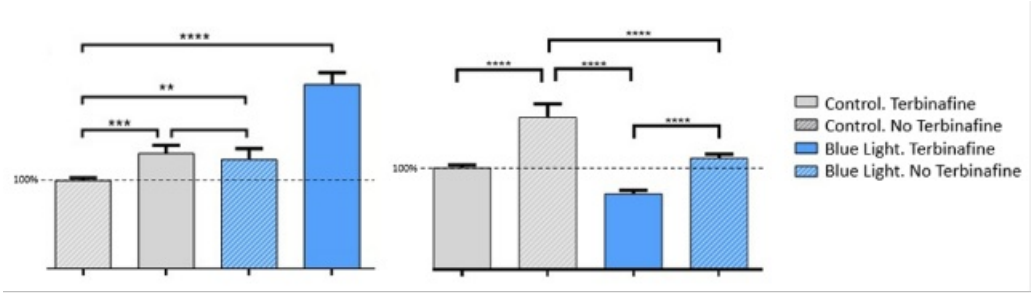


Figure 3: Statistical analysis of XTT essay (left) and quantitative immunofluorescence for ROS (right).

Conclusion:

The result of our study shows a synergistic effect of terbinafine and blue light exposition that leads to a statistically significant increasement in ROS production. This synergy could be applied to improve the cutaneous mycoses in real clinical practice.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2243

Onset of vitiligo in a patient after phototoxicity induced by hydrochlorothiazide

Nour Ouni[1], Sana Mokni[1], Jacem Rouatbi[1], Maha Lahouel[1], Marouen Belkahla[1], Nedia Fetoui[1], Sarra Saad[1], Mohamed Ben Rjeb[1], Amina Aounallah[1], Najet Ghariani[1], Mohamed Denguezli[1]

[1]Hospital Farhat Hached, سوسة, Tunisia

Introduction & Objectives:

Vitiligo is an acquired skin disorder that affects approximately 1% of the general population. Its occurrence after drug-induced photosensitivity has been rarely reported. Herein, we describe a case of new-onset vitiligo after phototoxicity induced by hydrocholorthiazide (HCTZ).

Case presentation:

A 64-year-old woman presented with a 1-month history of a persistent photosensitive dermatitis in sun-exposed area appearing on July. She has a history of hypertension treated with HCTZ introduced 3 months earlier. Physical examination revealed a photodistributed erythematosquamous rash of the face, neck and 2 forearms. Routine blood tests, immunological tests and viral serologies were negative. A skin biopsy specimen concluded to a phototoxic reaction. A pharmacovigilance opinion was obtained and the diagnosis of photosensitivity induced by HCTZ was retained in view of a compatible chronology, the clinical aspect and a suggestive histology. The patient was treated with topical steroids and sun protection measures with discontinuation of HCTZ after taking his cardiologist's opinion. The evolution was marked by clinical improvement. The patient presented 2months later with vitiligo-like depigmentations, which had gradually developed in the preceding 6-weeks, only in the areas previously affected by photosensitive dermatitis. On dermatological examination, we noted achromic well-defined macules accentuated under Wood's lamp. Histopathological examination of skin biopsy confirmed the absence of melanocytes in the epidermis.

Discussion:

The first thiazide-induced photosensitivity reactions were reported shortly after their introduction in 1950. HCTZ has an aromatic chlorine substituent in its molecular structure. This characteristic has been suggested to be responsible for this drug's photosensitizing properties, Infact, photosensitivity is linked to an intermediate photoionization process and bond dissociation that occurs during irradiation, which in turn is responsible for the production of free radicals and reactive oxygen species (ROS) followed then by cell damage. Thiazide-induced photosensitivity reactions can have different clinical patterns: eczematous reactions, lichenoid reactions , subacute cutaneous lupus erythematosus -like eruptions and pseudoporphyria. Vitiligoid leukoderma (photoleukomelanoderma) after photosensitization with thiazides has been rarely reported. Repigmentation was rapid and spontaneous and the presence of melanocytes on biopsy in the depigmented area suggested for the photoleukomelanoderma. In our patient, the appearance under Wood's light and the skin biopsy suggest true vitiligo (melanocytopenic) rather than melanopenic leukoderma. To our knowledge, a few rare cases of vitiligo following drug phototoxicity have been reported in the literature.However; no case of vitiligo induced by HCTZ phototoxicity has been described.

Conclusion:

In conclusion, our case illustrates an uncommon phototoxixity to HCTZ inducing vitiligo. Further studies should be carried out to provide greater insight into this complex association.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2363

A new generation of water-phased facial sunscreen SPF50 with Mediterranean algae extract protects against exposome-induced skin damage

Alessandro De Luca[1], Adrià Ribes[1], Anthony Brown[1], Antonio R. Fernández de Henestrosa[1], Eric Jourdan[1]

[1]ISDIN, Innovation and Development, Barcelona, Spain

Introduction & Objectives:

Solar radiation is one of the most known causes of skin premature photoaging and DNA damage, mainly induced by UVB radiation, which favours the formation of cyclobutane pyrimidine dimers (CPDs). Not only does UV radiation has effects on our skin, extrinsic factors such as urban pollution or blue sunlight (BL) also cause skin damage and oxidative stress. A new generation of water-phased facial sunscreen SPF50 with Mediterranean algae extract (WPFSMA), a new antioxidant ingredient of Mediterranean origins, a new combination of filters, and an ultralight texture, was formulated to provide high protection against UV-radiation and also against extrinsic factors. As a means to examine the efficacy of WPFSMA against CPD induction caused by UVB radiation, and oxidative stress induced by BL and pollution, a series of *ex vivo* studies were performed.

Materials & Methods:

In order to evaluate the efficacy against the formation of CPDs induced by UVB, WPFSMA (2 mg/cm2) was applied to human skin explants. 1h later the skin was irradiated with UVB and incubated for a further 30 minutes in the dark, before CPDs were detected by immunohistochemistry .

The BL protective capacity of WPFSMA, was determined by measuring ROS production in human skin explants following exposure of WPFSMA-treated skin to 120 J/cm2 of BL (420 nm), using Dichlorofluorescein diacetate (DCFH-DA).

The capacity of WPFSMA to limit ROS induction by urban pollution was assessed in human skin explants. WPFMA-treated skin was exposed to diesel particulates (DPs) (10 µg/cm2) for 4 hours. 24h later, ROS levels were assessed using DCFH-DA.

Results:

WPFSMA significantly prevented the induction of CPDs by UVB irradiation by 92% ($p<0.001$). WPFSMA also demonstrated a very strong and statistically significant capacity to counteract oxidative stress induced by Blue light (-56% ; $p<0.001$) and particulate matter (-98%; $p<0.01$).

Conclusion:

WPFSMA has demonstrated a significant capacity to prevent skin damage induced by UVB, BL and pollution.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2485

In vivo evaluation of sunscreen application by multispectral imaging: A new tool for educating sunscreen users

Jimmy Le Digabel[1], Emmanuel Questel[1], Christophe Lauze[1], Fabienne Carballido*[2], Gwendal Josse[1]

[1]Pierre Fabre Dermo-Cosmétique et Personal Care, R&D, Toulouse, France,[2]Laboratoire Dermatologique Végétal A-DERMA, Medical Direction, Lavaur, France

Introduction & Objectives:

Photoprotection is essential for preventing skin damage in the event of sun exposition. Sunscreen products containing solar filters are an important form of photoprotection and, when used as recommended, these products are particularly effective in protecting against erythema. The sun protection factor (SPF) of sunscreens is evaluated using standardized protocols based on the application of 2 mg/cm² of product. However, the amount of product applied by sunscreen users in real life is likely to be much lower, with reported application doses varying between 0.39 and 0.96 mg/cm².

A new method based on a multispectral imaging approach was proposed for determining the actual quantity of sunscreen applied by users on the face and to assess the benefits of an application guide for the use of an SPF 50+ sunscreen.

Materials & Methods:

A clinical study was performed on 26 healthy volunteers who applied sunscreen on their face following 3 application modalities. First, they did a single application following their daily routine. A second application (reapplication) was done 30 min after the first one. During a second visit, volunteers were given an instruction guide for applying the sunscreen (guided application). Multispectral images were acquired before and after each application and reflectance spectra obtained from those acquisitions were used to determine the actual dose of sunscreen applied and the homogeneity of the sunscreen spreading.

Results:

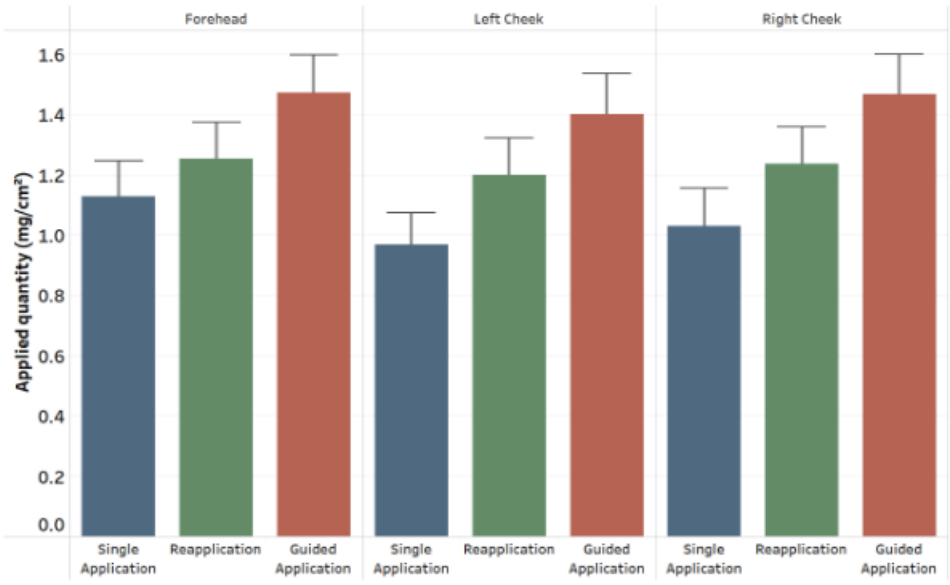
Without the application guide, volunteers applied an average of 1.04 mg/cm² of sunscreen during the single application and 1.23 mg/cm² during the repeated application. With the application guide, the amount of sunscreen applied was 1.45 mg/cm²: around 40% higher than during the single application (cf. Figure 1). Spreading of the sunscreen was also less uniform with the unguided single application than with the other application modalities.

Conclusion:

This study showed that the multispectral imaging approach can be used to measure the amount of sunscreen applied *in vivo*. Our findings confirmed that the standard dose used for SPF measurements and other sunscreen tests is far higher than that applied by users in practice. Providing users with precise guidelines could increase the amount of sunscreen applied, resulting in more adequate photoprotection but did not lead to application of the standard recommended dose of 2 mg/cm². This shows that it is crucial to ensure that sunscreen users are aware that adequate photoprotection can only be achieved through the application of large amounts of the product, and that sunscreens need to be reapplied frequently in case of prolonged solar exposure.

Figure 1: Doses of sunscreen applied to the different areas of the face, for each application modality (mean ±

standard error).



EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2691

Protective effect of an extract of Polypodium leucotomos against oxidative stress and melanogenesis induced by ultraviolet A radiation and air pollutants

Jimena Nicolás Morala[1, 2], María Gallego Rentero[1, 2], Irma Dias de Almeida[1, 2], Andrea Barahona[1], Yoshifumi Ikeyama[3], Yoichi Honda[3], Toshiaki Kume[3], Ángeles Juarranz[1, 2], Salvador González Rodriguez*[2, 4]

[1]Universidad Autónoma of Madrid, Biologý, Madrid,[2]Instituto Ramón y Cajal de Investigación Sanitaria, Madrid, Spain, [3]Rohto Pharmaceutical, Basic Research development division, Tokyo, Japan,[4]Alcalá University, Medicine, Alcalá de Henares, Spain

Introduction & Objectives:

The skin is most large organ in the human body, being constantly exposed to environmental factors detrimental to epidermal cells. This cell damage is promoted by ultraviolet radiation (UVR) and air pollutants such as particulated materia below 2.5 um (PM2.5) - dust, soot and metals - and Benzo[a]pyrene (BaP), found in air pollution and tar and tobacco smoke, respectively. UVR can act as a carcinogen itself, inducing DNA alterations and formation of photoproducts. In addition, PM2.5 and BaP metabolites can induce cellular oxidative stress. The metabolism of BaP is accelerated by UVR radiation, forming higher quantities of toxic metabolites. Those ones are capable to increase reactive oxygen species (ROS) levels and promote melanin production. Therefore, there is a need to develop suitable photoprotectors against UVR and atmospheric pollutants, with the objective to prevent cell damage and melanogenesis. Therefore, the main objective is to evaluate consequences of PM2.5 and UVR in combination with BaP on different subtypes of skin cells, keratinocytes, fibroblasts, and melanocytes. Primarily, oxidative stress and melanogenesis are analysed as indicators of cellular stress. It has also been evaluated the capacity of an extract of *Polypodium leucotomos* to prevent oxidative stress induced by UVR and pollutants.

Materials & Methods:

Established cell lines of keratinocytes and melanocytes were treated with PM2.5 and BaP in combination with UVR at different concentrations. Viability after treatments was evaluated by MTT assay. Cellular stress was measured by oxidative stress markers, particularly NRF2 pathway and its downstream antioxidant targets in those ones treated with PM2.5 and through a comparison of cellular ROS levels for those who where administered BaP and UVR. It was also evaluated pollutant-promoted melanogenesis, measuring changes in NFR2 pathway protein levels or OPSIN-3 levels by RT-PCR.

Results:

The main results of these studies reveals that PM2.5 as well as UVR and BaP could raise oxidative stress levels in the studied cell lines. At the same time, it could be observed an increase in ROS production and NFR2 pathway activation. Additionally, UVR and BaP in combination are capable to increase levels of Opsin-3. An extract of *Polypodium leucotomos* could partially prevent this created oxidative stress and melanogenesis.

Conclusion:

We have concluded that air pollutants, alone and combined with UVR, are capable to produce oxidative stress and melanogenesis in different skin cell typeskeratinocytes and melanocytes. We also have demonstrated that a cell pre-treatment with an extract of *Polypodium leucotomos* prevents detrimental effects induced by PM2,5 and the combination of BaP and UVA radiation.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2723

A randomized comparative study on melasma during summer with a visible light-protected tinted sunscreen versus a standard non-tinted sunscreen

Helena Polena[1], Catherine Queille-Roussel[2], Marlene Chavagnac[1, 3], Christelle Graizeau[1, 3], Luc Duteil[2], Thierry Passeron[4, 5], Michèle Sayag[1]

[1]NAOS Group, Research and Development Department, Aix-en-Provence, France, [2]Center of Clinical Pharmacology Applied to Dermatology (CPCAD), Nice, France, [3]NAOS ILS, Aix-en-Provence, France, [4]Centre Hospitalier Universitaire de Nice, University Côte d'Azur, Department of Dermatology, Nice, France, [5]University Côte d'Azur, C3M, INSERM U1065, Nice, France

Introduction & Objectives:

Melasma is a common hyperpigmentation skin disorder, characterized by relapse due to sun exposure. Ultraviolet (UV) radiation is the main cause of skin pigmentation, but more recently visible light has been shown to be an important contributor. Therefore, sunscreens against UVA, UVB and visible light are key in melasma prevention, but few comparative studies have been conducted. The aim of the study is to compare a sunscreen containing photoprotection against visible light (tinted product) to a non-tinted sunscreen in the prevention of melasma relapse, using instrumental and clinical.

Materials & Methods:

In a single-center, randomized, investigator-blinded clinical study, 42 melasma women (mean age 39.5 years old) were included during summer with type III (93%) and IV (7%) phototypes. Divided into two groups, they applied on the whole face at least twice daily either the tinted sunscreen (SPF50+, UVA index 38, visible-light protection factor 66%) or the same sunscreen but non-tinted. At 3 visits (day [D]1, T2.5 months and T5 months), melasma was assessed by colorimetric measurements using the ITA° angle (which includes the L* and b* parameters) to evaluate skin pigmentation, L parameter for lightness and ΔE calculation (which includes the L*, b* and a* values) for the color homogeneity, in comparison with the uninvolved area. Moreover, melasma was clinically evaluated using the mMASI (modified Melasma Area and Severity Index). The tolerance evaluation of the two sunscreens and the subjective efficacy were also performed at the end of the study.

Results:

The difference between melasma ITA° and the uninvolved area ITA° (ΔITA°) was significantly better of 18.1% ($p<0.05$) in the tinted sunscreen group compared to the non-tinted group, confirming an improvement of skin pigmentation with the tinted sunscreen, after 5 months of use. Similarly, the ΔL between areas, and ΔE, were better than the non-tinted sunscreen of 16.3% ($p<0.05$) and 4.3% ($p<0.05$), respectively. A significant improvement was also observed in the tinted sunscreen group regarding skin pigmentation of 35.7% ($p<0.001$), skin lightness of 32.6% ($p<0.001$), and color homogeneity of 25% ($p<0.001$) at T5 months, when compared to baseline. Furthermore, the women who applied the tinted sunscreen had a significant decrease of the mMASI score of 12.5% ($p<0.001$) after 5 months, but not statistically significant when compared to the non-tinted sunscreen, and 90% of the subjects reported that their melasma had less worsened compared to previous summers. Finally, both sunscreens showed very good tolerance.**

Conclusion:

This study showed that even in summer, the use of a sunscreen with very high UVB and UVA photoprotection

reduces melasma severity, and more interestingly, the addition of visible light protection via an adapted tinted in sunscreen significantly reduces the melasma relapse.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 2737

Thirty years of promoting sun safety in France : The messages are heard but not followed!

Thierry Passeron[1], Henry W. Lim[2], Comte Christelle[3], Chee-Leok Goh[4], Hee Young Kang[5], Anne-Laure Demessant-Flavigny[6], Caroline Lefloch[6], Delphine Kerob[6], Charles Ribeyre[6], Jean Krutmann[7], Brigitte Dréno[8], Marie-Thérèse Leccia*[8]

[1]Nice, [2]USA, [3]Cabinet de Dermatologie, [4]Singapore, [5]South Korea, [6]La Roche Posay, [7]Germany, [8]France

Introduction & Objectives:

For over 30 years [date of the creation of the association Sécurité Solaire 1], annual sun safety campaigns have been run by the authorities and healthcare professionals, with dermatologists on the front line. France is no stranger to the distribution of those messages or the involvement of all public health stakeholders.

Materials & Methods:

Following the quota method, 1,000 respondent's representatives of the French population were surveyed in autumn 2021. The same study was simultaneously conducted in 16 other countries. The digital questionnaire examined not only sun exposure habits and practices, but also awareness, preconceptions and understanding of the risks.

Results

Although a tanned skin is considered "more attractive" for 79% [95% CI:76.5%, 81.5%] of the French and 68% [95% CI:65.1%, 70.9%] associate a tan with good health, it is interesting to note that 93% [95% CI:91.4%, 94.6%] of respondents were aware of the skin problems caused by too much sun and 87% [95% CI:84.9%, 89.1%] that sun exposure accelerates skin ageing. Women and seniors were the most informed [p<0.001]. Interestingly, 59% [95% CI:56.0%, 62.0%] know that it is advisable to protect the skin against the sun on cloudy days, but 20% [95% CI:17.5%, 22.5%] think that sunbathing when the skin is already tanned presents no risk, including nearly one in three people aged 18 to 24! 71.4% of the French claim not to sunbath regularly in the hottest part of the day [12 noon–4 pm] (significantly more women (75.8% vs 66.5%, p<0.001)). The use of at least one of the following; headgear, clothing, sunglasses, shade, sunscreen, is reported by 95.4% (with a significant difference in favour of women; 96.8% vs 93.9%, p<0.001). The use of sunscreens is reported by only 68.3% (with a significant difference in favour of women; 76.8% vs 58.9%, p<0.001). They represent 76.4% of respondents who claim not to sunbath regularly in the hottest part of the day. Only 23% of those who use sunscreen report following the recommendation to apply it every two hours (with a significant difference in favour of women; 35.5% vs 19.6%, p<0.001). However, 40.6% of the French population regret not protecting themselves better against the sun in the past, with a higher rate in women (45.0% vs 35.8%, p=0.003) but no difference according to age range. Although 93% of the French report knowing the skin health risks of unlimited sun exposure but, only 40% are fearful of the risk of developing cancer and 48.3% premature skin ageing

Discussion

Prevention messages explaining the dangers of sun exposure have multiplied in the last 30 years. Our study shows that although the French population has been exposed to these awareness campains, not everyone follows the photoprotection recommendations. It is indeed difficult to change attitudes when, up

to 79% find tanned skin more attractive and 68% see it as a sign of good health. On top, whilst sunscreen is widely used, it is not always used correctly and recommendations are not always followed! Prevention and public health messages as they have been conducted to date are clear/undersrtood but the recommendation not followed! Together, we need to concentrate on the key messages to be delivered — sun exposure and risk of skin cancers, of premature ageing, education on the differences between UVA and UVB, on sunscreen packaging information such as SPF and UVA logo, and repeat the behaviors to adapt towards sun exposure (avoiding hottest times, seeking shade, wearing hats, protecting clothes, sun glasses).

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 3475

Suberythemic doses of 308 nm excimer light may be sufficient for Vitiligo Treatment: novel in vitro and in vivo findings on melanocyte recruitment

Yasutaka Kuroda*[1, 2], Lingli Yang[1], Sylvia Lai[1], Tetsuya Sayo[1, 2], Yoshito Takahashi[1, 2], Daisuke Tsuruta[3], Ichiro Katayama[1]

[1]Osaka Metropolitan University Graduate school of medicine, Department of Pigmentation Research and Therapeutics, Japan, [2]Kao Corporation, R&D – Biological Science Research, Japan, [3]Osaka Metropolitan University Graduate school of medicine, Department of Dermatology, Japan

Introduction & Objectives:

Excimer light (EL) device is widely used to treat patients with vitiligo. Although excessive UV exposure can cause severe adverse effects, the optimal dose has yet to be determined. Recently, repigmentation was reported to be comparable between conventional erythema-inducing and suberythema-inducing UV doses in a small sample size study. Here, we aimed to obtain objective evidence regarding various doses of EL irradiation on melanocyte recruiting and related factors.

Materials & Methods:

Various doses of EL were used to irradiate cultured human keratinocytes, as well as the back skin of guinea pigs, guinea pigs with leukoderma induced by rhododenodrol, and mice. After irradiation, toxic dosages or minimal erythemal doses was determined. In addition, epidermal melanin, epidermal melanocytes, and factors related to melanogenesis were quantified.

Results:

Stem cell factor and endothelin-1, which promote melanocyte migration, were found to be significantly elevated in a dose-dependent manner in cultured keratinocytes. However, at subtoxic doses, their expression reached its peak. After irradiation at the minimal erythemal dose or less in guinea pigs and mice, an increase in epidermal melanin and epidermal melanocytes was confirmed.** In the guinea pig model of rhododendrol-induced leukoderma, a much lower dose of EL irradiation was effective compared to the effective dose for control guinea pigs.

Conclusion:

Our findings suggest that a lower dose of EL irradiation may be sufficient and more appropriate for melanocyte recruitment and repigmentation in the treatment of vitiligo.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 3521

Knowledge, attitude and practice about sun protection and usage of sunscreen among undergraduate students

Soundarya Jagadeesh*[1], Nagesh T.S[1], Savitha Somaiah[1]

[1]Sapthagiri Institute of Medical Sciences and Research Centre, Dermatology, Bengaluru, India

Introduction & Objectives: Sun exposure is related to deleterious effects like tanning, sunburn, early aging, aggravation of various photo dermatoses and development of skin cancers. India is a tropical country with less awareness about self-care despite an increase in outdoor work and lower literacy in the countryside. In this era of increasing cosmetic elegance and the high influence of social media, the benefits of sunscreen usage needs to be encouraged and the harmful intrinsic extrinsic effects to be prevented. We conducted the present study to assess knowledge, attitude and practice about sun protection and usage of sunscreen among undergraduate students.

Materials & Methods: This cross-sectional study was conducted among several universities for a period of two months. Questionnaire containing 30 questions were administered.

Results: 800 volunteers filled the questionnaire. The participants comprised of undergraduate students in the age group of 18-25 years, majority were females. 88% of the volunteers used sunscreen out of which 58% used it routinely and 35% used it only during a sunny day. The majority 71% applied sunscreen once a day and only 2% applied every 2 hours. The correct application 15-20 mins prior to exposure was followed in 62%. Most of them used only few dots of sunscreen to cover the face and is chosen mainly based on SPF value. 17% chose sunscreen based on price. 86% knew about the abbreviation of SPF. 41% used SPF 50 followed by SPF 30. The most commonly used formulation was lotion and gel based. 35% used broad spectrum sunscreen. 87% did not experience allergic reaction to sunscreen. Majority were aware about oral sunscreen. Prevention of tanning was the most common reason for usage followed by to prevent sunburns, skin cancers and control premature aging. 33.5% experienced allergic reaction on sun exposure. Oiliness and whitish hue were the common limitations. 80% felt sunscreen does not cause skin lightening. 59% agreed prolonged exposure to UVB rays causes cancers. 53% agreed sun screen is not a causative for vitamin D deficiency. Sunscreen was preferred prior to swimming in 68%, on a cloudy day in 48%, while staying indoors in 37%. Health care professionals advised 47% to use sunscreen and the rest were influenced by family, friends and social media. Majority answered that sunscreen is meant only for adults. 74% answered that maximum tanning happened at the dessert followed by water sport activity, 11% felt that exposure in the snow causes tanning. Half the study population were not aware of signs of aging caused by visible light from gadgets and the need for reapplication with increased screen time. 37% preferred to use a sunscreen prior to application of makeup products labelled with SPF.

Conclusion: Our study showed that majority used sunscreen and were well aware with regard to benefits of usage but the knowledge about correct method of application is lacking in the study population. The most common reason that deterred the usage was oiliness and whitish hue that lead to cosmetical nonacceptance of sunscreens and remains the major constrains which should be modified. The routine application even when indoors or on cloudy day, the frequency of application should be highlighted. Although the deleterious effects of sun damage such as skin cancers are commonly seen in the western world, pigmentary and aging changes are commoner in our country and can be prevented with adequate photo protective measures.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 3903

Efficacy of Antimicrobial Photodynamic Therapy Using Chlorophyll Based Photosensitiser Against Drug-resistant Cutibacterium acnes Isolated From Patients With Acne Vulgaris, an In Vitro Study

Buraya Mahajindawong*[1], Chanat Kumtornrut[2], Pravit Asawanonda[3], Tanittha Chatsuwan[4, 5], Einapak Boontaveeyuwat[1]

[1]King Chulalongkorn Memorial Hospital and Faculty of Medicine Chulalongkorn University, Photodermatology Unit, Division of Dermatolgy, Department of Medicine, Bangkok, Thailand, [2]King Chulalongkorn Memorial Hospital and Faculty of Medicine Chulalongkorn University, Division of Dermatology, Department of Medicine, Thailand, [3]Chulalongkorn University, Division of Dermatology, Department of Medicine, Bangkok, Thailand, [4]Chulalongkorn University, Microbiology, Bangkok, Thailand, [5]Chulalongkorn University, Antimicrobial Resistance and Stewardship Research Unit, Faculty of Medicine, Bangkok, Thailand

Introduction & Objectives: Photodynamic therapy (PDT) with a suitable photosensitizer (PS) and a sufficiently appropriate light dose is known as a powerful treatment for broad-spectrum antimicrobials (aPDT) with minimal risk of drug resistance evolution. Our objective is to study the effect of PDT using a chlorophyll derivative (CH) for the reduction of drug-resistant *Cutibacterium acnes* isolated from patients with acne vulgaris in a university hospital.

Materials & Methods: Ten isolates of *C. acnes* with different antimicrobial susceptibility patterns, drug-resistant (DR-CA), multi- (MDR-CA), extensively (XDR-CA), and pan drug-resistant (PDR-CA) profiles were obtained. Of 10, two were PDR-CA. One, PDA-CA1 was selected for three triplicate experiments using various CH concentrations alone and various red light (RL) fluences alone. Three doses of CH were subsequently selected to combine with the selected three fluences of RL as CH mediated photodynamic therapy (CH-PDT) which were applied on PDA-CA1 and the other PDA-CA isolate, PDA-CA2 to determine a minimum effective concentration-fluence dose. One lethal dose of CH-PDT was selected to apply on the remainder of the isolated *C. acnes*. The lethal treatment dose was defined as a reduction of > 3 log10 in colony-forming units (CFU)/ml compared with untreated bacteria.

Results: The effect of various CH concentrations alone and RL alone on PDR-CA1 showed a slight reduction of viable counts of PDR-CA1 isolate only when treated with the highest CH concentration of 15 mg/dL ($p < 0.05$) compared with the control group and the slightly progressively reduced survival of PDR-CA1 isolate treated with RL of 45 and 60 J/cm2 by 0.15 and 0.25 log10 units, respectively ($p < 0.05$). There were negligible changes in the viable counts of bacterial suspensions in the remainder ($p > 0.05$) (Figure1). None of them demonstrated bactericidal efficacy. We subsequently chose the lowest RL fluence, 15 J/cm2 from the first experiment and applied the two more reduced doses, 7 and 3.5 J/cm2 to define the minimum lethal dose of PDR-CA1. We demonstrated CH-dose/light-fluence-dependent antibacterial effects on the two PDA-CA strains by using the selected CH doses and light fluences set combined (Figure 2). For as low as 7.5mg/dL of CH, the lethal RL fluence was defined from the lowest of 3.5 to 15 J/cm2 leading to viable cell reduction over 3 log10, 3.94 (3.41-4.30), 6.5 (6.38 to 6.8) and 7.8 (7.76 to 7.81) for PDR-CA1 ($p < 0.001$) (Figure2A). Similar result to PDR-CA1, the lethal RL fluence was defined from 3.5 to 15 J/cm2 resulting in viable cell reduction over 3 log10, 3.57 (3.2-5.97), 6.66 (5.11 to 7.83) and 7.72 (7.14 to 8.27) for PDR-CA2 ($p < 0.001$) (Figure2B). One lethal dose of 7.5 mg/dL of CH combined with RL 3.5 J/cm2 was selected to apply on the remainder of the bacterial isolates resulting in viable cell reduction over 3 log10 units ($p < 0.05$) across all the isolates.

Conclusion: We demonstrated the efficacy of the chlorophyll derivative that is based in our hospital in-house formulated photosensitiser as PS for PDT against the selected drug-resistant *C. acnes*, *in vitro*. The suggested lethal

dose of CH-PDT using 7.5 mg/dL of CH coupled with 3.5 J/cm2 of RL may be useful as a starting reference for further development of an optimal PDT for acne vulgaris in a highly drug-resistant crisis era.

Figure 1

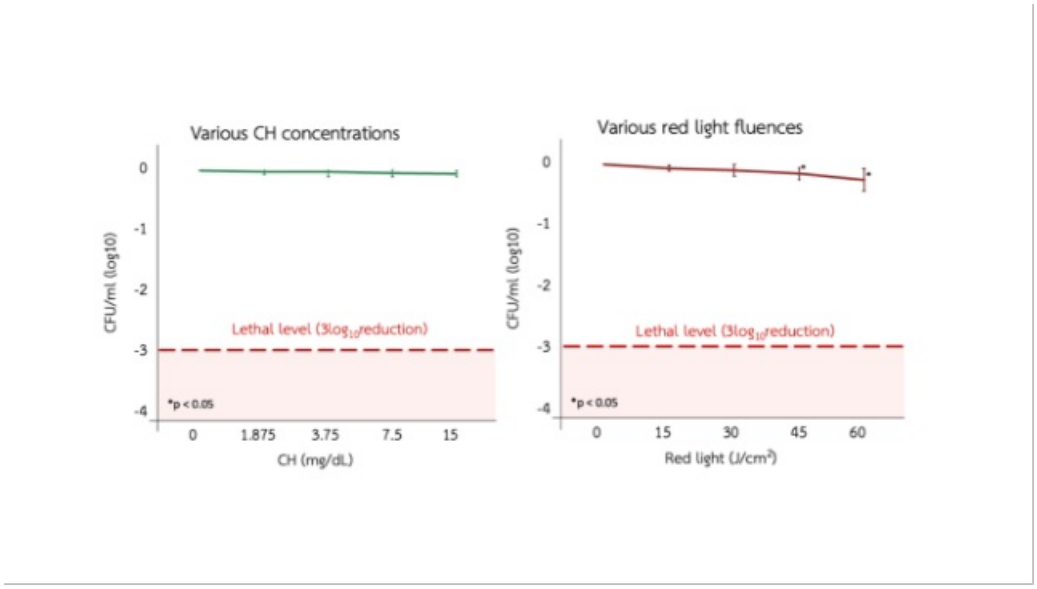
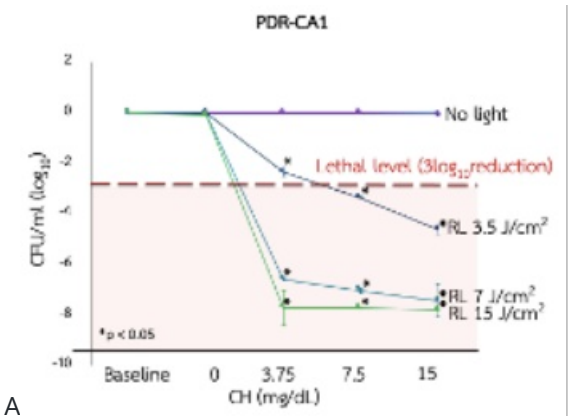
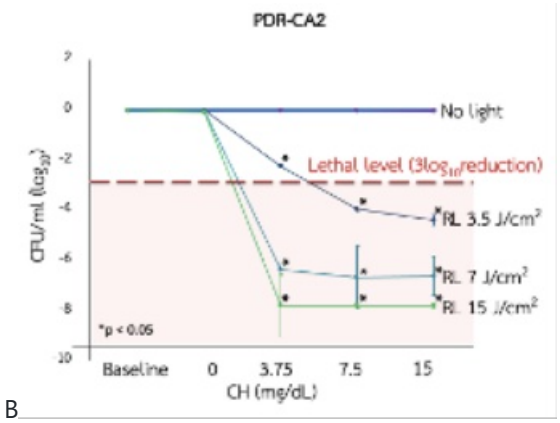


Figure 2

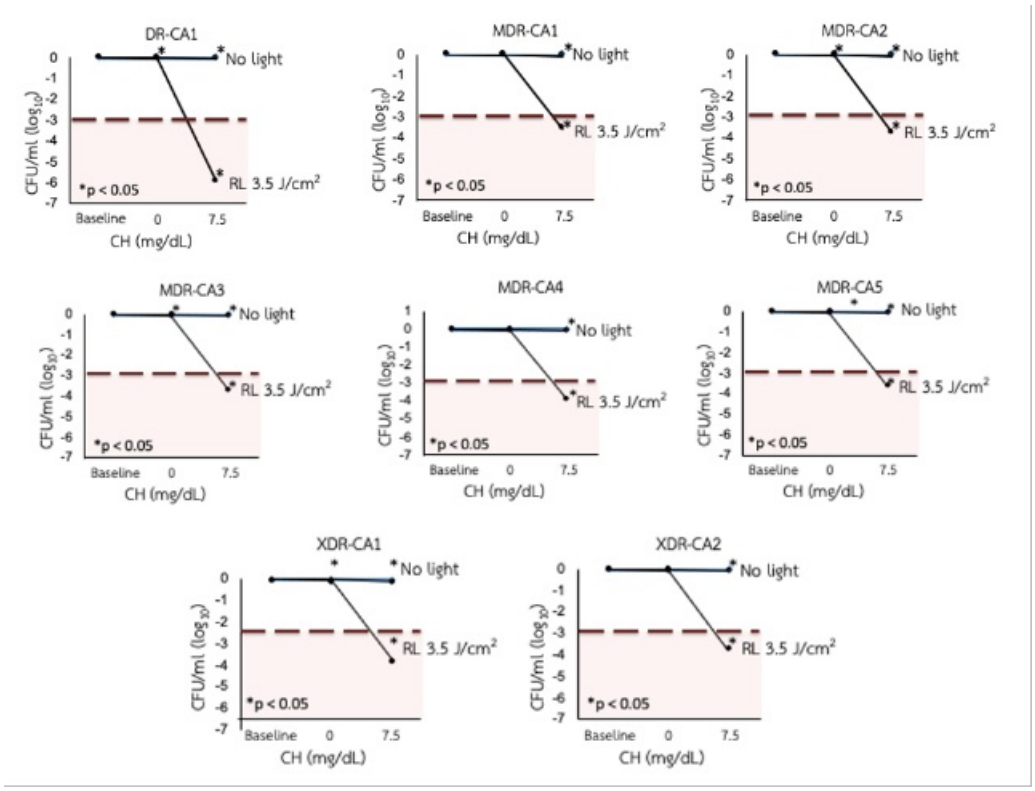


A



B

Figure 3


DR-CA1
MDR-CA1
MDR-CA2
MDR-CA3
MDR-CA4
MDR-CA5
XDR-CA1
XDR-CA2
No light
RL 3.5 J/cm²
*p < 0.05
Baseline
0
7.5
CH (mg/dL)
CFU/ml (log10)

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 4149

Novel treatment of photo-aged skin by topical applying of irradiated amniotic extract

Nashwa Radwan*[1], Alaa Osama[2]

[1]Egyptian Atomic Energy Authority, Dermatology, Cairo, Egypt,[2]Sadat City Univ, Biotechnology, Egypt

Introduction & Objectives:

Amniotic membrane (AM) is placental tissue riches with collagen, fibronectin, and several growth factors and anti-inflammatory cytokines. Therefore, AM was used as an active ingredient in wound healing and cosmetic applications. In this regard, this study aimed to apply AM extract for improving the photo-aging symptoms of the facial skin in volunteers gain different exposure time to sunlight during the summer season of Cairo, EGYPT (Jun-August of 2022, temperature range: 35-44o C).

Materials & Methods:

The investigations of this study were carried out in 20 volunteers using MoreMe DBQ3-3 Smart Skin Detector and Antera camera facilities. The treatment was carried out by daily applying of topical extract of the irradiated AM in a half of the face compared to the other non-treated half. The analysis was carried out before, during (each month) and after treatments.

Results:

There were statistically significant improvement in the treated half face after than before treatment; as resulted by clinical assessment (WSRS and GAIS scales), Skin Detector (pigmentation, wrinkles and pores), and Antera camera (pigmentation and texture).

Conclusion:

The results reflect the good impact of AM extract to improve the quality of the treated facial skin and to reduce the injury effect of the harmful sunlight. Accordingly, further complementary studies are recommended to determine the needed treatment times with irradiated AM extract on a wider range of different exposed patients to sunlight.

Keywords: Amniotic membrane, Photo-aging, gamma irradiation, Cosmetics.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 4257

A multi-omic approach to understand solar exposure impact on skin ecosystem and evaluate a new SPF50+ sunscreen efficacy

Carine Jacques*[1], Daniel Bacqueville[1], Emilien Jamin[2, 3], Martine Maitre[1], Anaïs Noustens[1], Aime Simcic Mori[1], Cécile Delsol[4], Laurent Debrauwer[2, 3], Sandrine Bessou-Touya[1], Helene Duplan[1]

[1]Pierre Fabre Dermo-Cosmetics & Personal Care, Centre R&D Pierre Fabre, TOULOUSE, France, [2]MetaboHUB-MetaToul, National Infrastructure of Metabolomics and Fluxomics, Toulouse, France, [3]Toxalim (Research Centre in Food Toxicology), Université de Toulouse, INRAE, ENVT, INP-Purpan, UPS, Toulouse, France, [4]Laboratoires Avène, Lavaur, France

Introduction & Objectives: Skin is the primary interface with the external environment, the skin ecosystem consisting of our microbiota, a collection of micro-organisms such as bacteria, viruses, and fungi reflect the state of the surrounding skin ecosystem. To evaluate the impact of external factors like sun exposure, the cutaneous ecosystem, that are skin, hydrolipidic film and microbiome, need to be studied as a whole to understand how they interact with each other and contribute to reply to external stress like sun exposure.

Materials & Methods: We developed a reconstructed human epidermal model (RHE) colonized with human microbiota and sebum to reproduce the complexity of the skin ecosystem. The RHE model was exposed to simulated solar radiation (SSR) with or without SPF50+ sunscreen (with UVB, UVA, long-UVA and visible light protection). A new SPF50+ photoprotective system containing a specific combination of four sun filters (TriAsorB, Tinosorb S, Uvinul T150 and Uvinul A+) and affording a broad spectrum UVB+A photoprotection, was evaluated on this *in vitro* model. Metabolomic profiles were performed by NMR and UHPLC-HRMS and lipidomic profiles by UHPLC-HRMS. In order to grant spatial information, mass spectrometry imaging (MSI) was used on the skin ecosystem model to investigate both composition and spatial distribution of diverse molecular species. Metagenomic analyses were performed from genomic DNA extract samples. ITS1 of the ribosomal RNA gene, and of the V1-V3 region of 16S gene were sequenced by high-speed sequencing.

Results: Over 50 metabolites were significantly altered by SSR ($p<0.05$, log 2 values) with 8 main pathways affected, showing high skin oxidative stress and altered skin microbiota (branched-chain amino acid cycle and tryptophan pathway). Indeed, metabolomic analyses revealed high skin oxidative stress with modification of glutathione and purine pathway but also urea cycle. Other pathways have been highlighted linked to skin microbiota, like BCAAs cycle, lipid metabolism and tryptophan pathway. 16S and ITS rRNA sequencing showed the relative abundance of various bacteria and fungi were altered after SSR exposure. Major lipids pathways were modulated by SSR and correlate to MSI image giving spatial localization of the bioactive lipid molecules. Application of SPF50+ sunscreen to the *in vitro* model before exposure to SSR preserved the physiological interactions within the skin ecosystem and protected from sun exposure deleterious effects. These interactions are key parameters to avoid DNA damage, inflammation and immune suppression which play crucial roles in skin carcinogenesis.

Conclusion: This study identified a highly accurate metabolomic signature of sun exposed skin using an*in vitro* model representative of the complete skin ecosystem. Global metabolomic signature was correlated to metagenomic analysis of skin microbiota and explain interactions between skin and microbiota.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 4424

Actinic cheilitis and photodynamic therapy

Ana Julia Garcia Malinis*[1], Dolores Planas Linares[1], Yolanda Gilaberte[2]

[1]Hospital General San Jorge, Huesca, Spain, [2]Miguel Servet University Hospital, Zaragoza, Spain

Introduction & Objectives:

Actinic cheilitis is a premalignant condition that may progress to squamous cell carcinoma. This disorder of the lips is associated with higher propensity for metastasis. Optimal treatment for actinic cheilitis has not been well established. In systematic reviews, multiple treatments have been described, from the most invasive such as surgery to less invasive treatments such as laser or imiquimod. We present our experience with PDT and actinic cheilitis.

Materials & Methods:

A retrospective observational study was performed including all patients diagnosed with Actinic cheilitis and treated with PDT between 2008 and 2019.

Continuous variables were described using means and standard deviations. Statistical analyses were carried out using SPSS software (version 20.0, Armonk, NY: IBM Corp).

Results:

Twelve patients were included in the study. Ten patients (80%) were men and 2 women (20%), with an average of 76.5 years old. All patients responded initially to PDT; only one patient, during follow-up, progressed to squamous cell carcinoma

Conclusion:

The efficacy of PDT in the Actinic cheilitis is high. Conventional photodynamic therapy (PDT) and daylight PDT may offer a noninvasive effective treatment option for actinic cheilitis.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 4826

Field validation of a satellite-based personal solar exposure dosimeter

Marina Venturini*[1], Rowan Temple[2], Marco Morelli[2], Piergiacomo Calzavara-Pinton[3]

[1]University of Brescia, Dermatology, Brescia, Italy, [2]siHealth Ltd, Harwell Campus, Didcot, Oxfordshire, United Kingdom, [3]University of Brescia, Italy, Dermatology, Brescia, Italy

Introduction & Objectives:

A novel satellite-based system has been developed that provides up-to-date personal solar dosimetry data for any action spectra (e.g., erythema, vitamin D synthesis, DNA damage) and different body sites. A smartphone app is used to track the participant's location and indoor/outdoor status, the exposure data are delivered to the investigator via a dedicated web portal. The app is autonomous and requires no external sensors to the smartphone. It is intended to replace the need for costly and time-consuming physical dosimeters in multi-participatory longitudinal solar exposure monitoring studies. The results of an ongoing study into the accuracy and practical use of the system will be presented.

The real-time worldwide satellite-based solar dosimetry system has previously been validated [1, 2]. Automatic outdoor position detection is based on AI models applied to smartphone sensor data. These two technologies combined allow the remote monitoring of solar dose with 1 minute resolution for any number of users, multiple action spectra and multiple body sites simultaneously.

Materials & Methods:

Data collected with the ExpoDose sytem were compared to 10 high-quality wearable UV electronic dosimeters (Scienterra Ltd, New Zealand) measuring irradiance on 10 measurement planes oriented over a range of 4 different zenith angles and 8 compass points. The wearable dosimeters were calibrated with a research standard UV-erythemal radiometer (Kipp & Zonen, Netherlands) installed horizontally. Data were collected during spring and summer in Harwell Campus (Oxfordshire, UK) and in Brescia (Italy).

Results:

Preliminary results show a high accuracy of the satellite-based solar dosimetry system, yielding an R2 correlation coefficient of 0.90 and a mean absolute error of 21% on the horizontal plane. Moreover, the automatic outdoor detection component has been tested in a broad range of scenarios on smartphones running both Android and iOS operating systems. Using cross-validation techniques over multiple smartphone models, detection accuracies resulted over 92% on Android and 84% on iOS.

Conclusion:

A remote personal solar monitoring system has great promise for use in multi-participatory studies that need to account for personal solar exposure levels of study subjects. Carefully calibrated and maintained high-quality solar dosimeters have been demonstrated to have an estimated error of 12%. Compared to remote personal dosimetry, they are costly, require expertise to maintain and calibrate and require high levels of attention and compliancy from experiment subjects.

The satellite-based remote app system has a high accuracy and can be effectively used for research and clinical studies, replacing the need for costly and time-consuming physical dosimeters in multi-participatory longitudinal solar exposure studies.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 4964

Effectiveness and patient-reported outcomes of low doses UVA1 phototherapy: a Spanish experience from a single centre

Marta Cebolla Verdugo[1], Francisco Javier De La Torre Gomar[1], Juan Pablo Velasco-Amador[1], Carlos Llamas-Segura[1], Ricardo Ruiz-Villaverde[1]

[1]Hospital Universitario Clínico San Cecilio, Granada, Spain

Introduction & Objectives: UVA1 phototherapy is a treatment used for multiple dermatoses. Therapeutic regimens in published studies vary widely and there are no evidence-based protocols that indicate the dose, duration, or maintenance therapy to be used. The purpose of this study is to evaluate the experience in our hospital in patients treated with UVA1 at low doses, making an assessment using scales of the clinical response, as well as the degree of satisfaction of the patients with said therapeutic modality for each one of the diseases treated.

Materials & Methods: We present a retrospective study with evaluation of results, treatment tolerance and satisfaction in patients of legal age treated with low doses of UVA-1 phototherapy, administered in our hospital between 2019 and 2022.

Results: Of a total of 78 patients treated with UVA-1, of which 46 patients (59%) were of legal age, completed the treatment and gave their consent. The overall rate of therapeutic response was 91,3% (42/46), obtaining a complete response in 17 (36,96%) patients, partial response in 25 (54,34%), and no response in 4 (8,70%).

The complete therapeutic response was high in morphea, scleredema and chronic hand eczema. Regarding satisfaction objectively measured using the TSQM-9 version 1.4 scale, a high score was obtained in patients with mastocytosis, systemic sclerosis, morphea, scleredema, chronic hand eczema and nodular prurigo (around 65 points).

Conclusion: We suggest that low-dose UVA1 phototherapy is a safe and effective treatment in the management of skin diseases, mainly scleroderma, morphea and atopic dermatitis.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 5473

Usefulness of a digital medical device to optimize the effectiveness and safety of natural daylight PDT (NDL-PDT): a clinical study in Spain

Tamara Gracia-Cazaña*[1], Alba Navarro Bielsa[1], Manuel Almenara Blasco[1], Oriol Yelamos[2], Pablo Fonda[3], Ana Julia Garcia Malinis[4], Isabel Martínez-Pallas[1], Rowan Temple[5], Marco Morelli[5], Emilio Simeone[5], Yolanda Gilaberte[1]

[1]Miguel Servet University Hospital, Zaragoza, Spain, [2]Hospital de la Santa Creu i Sant Pau, Nou Hospital, Barcelona, Spain, [3]Hospital Central de La Defensa Gómez Ulla, Madrid, Spain,[4]Hospital General San Jorge, Huesca, Spain, [5]Didcot, Didcot, United Kingdom

Introduction & Objectives:

Natural Daylight Photodynamic Therapy (NDL-PDT) is an efficacious treatment of actinic keratosis (AK). However, the use of daylight introduces uncontrolled variability that may influence the effectiveness, such as time of year, cloudiness, sunscreen application and patient behaviour. An innovative satellite-based system (SmartPDT) is the first scientifically validated digital medical device (CE-marked Class 1) solving this. The dermatologist can accurately plan and then monitor in real-time the effective (PpIX-effective) and safe (erythemal) solar radiation doses.

The objective of the study was to evaluate the effectiveness of NDL-PDT when assisted by the digital system in the clearance of AK in clinical practice.

Materials & Methods:

An observational, multicentre, prospective study of clinical practice is being performed in Spain from June 2022 to June 2023. Clinical teams use a web-portal for monitoring either a hospital-based NDL-PDT or a home-based DL-PDT performed by the patient using a mobile app. The modification in the number of AK and AKASI is recorded at 3, 6 and 12 months of follow-up. Side effects and patient's photos are also digitally recorded.

Results:

So far 24 patients have been included, 4 females and 20 males, with ages ranging from 42 to 87 years old. Eleven DL-PDT sessions have been performed so far, all successfully completed. PpIX-effective solar doses ranged from 8.4 J/cm2 to 23.8 J/cm2 (mean 13.1 J/cm2), while erythemal doses ranged from 2% to 270% of patient's MED (average 41%). Session lengths ranged from 1 hour and 51 minutes to 3 hours and 10 minutes, with an ambient air temperature ranging from 11.6 °C to 22.1 °C.

Conclusion:

A satellite-based digital system can help dermatologists to optimise the overall management and effectiveness of NDL-PDT, planning and monitoring the real PpIX-effective and erythemal solar doses received by each patient as well as giving support for a more comfortable treatment with higher therapy adherence.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 6010

An Opel Label Randomised Controlled Study: The Efficacy of Bath Puva- Salt Water UVA- Tap Water Uva Therapies in palmoplantar psoriasis

Hilayda Karakok Kisla[1], Mustafa Gundogdu[2], Ayşenur Botsali[3], Cengizhan Erdem[4], Nihal Kundakçı[4]

[1]Şifa Okulu, Türkiye, [2]Uzm. Dr. Mustafa Gündoğdu - Dermatoloji (Cildiye) Kliniği, Türkiye, [3]Gülhane Eğitim ve Araştırma Hastanesi, Türkiye, [4]Ibn Sina University Hospital, Türkiye

Introduction & Objectives:

Palmoplantar psoriasis is a chronic condition which responds to treatments poorly. This study investigates the efficacy of different balneotherapy protocols. Standard treatment protocol for phototherapy is bath psoralen, this study compares if tap water or salt water therapy have any beneficial effect above or different than bath PUVa.

Materials & Methods:

Patients who had the indication for phototherapy were included in this study. The treatment was used as a monotherapy protocol. Only moisturizer was allowed to be used. To be included in this study patients needed to receive last systemic treatment at least 2 months prior to the study and last topical treatment at least 4 weeks prior to this study.

Patients were randomized with a computer assisted programme. They were evaluated at the beginning of the therapy and after 12 sessions, 24 sessions and 36 sessions of therapy. Standard protocol for bath- PUVA was application of 0.01 % of bath psoralen for 15 minutes whereas the group of tap water received only tap water bath for 15 minutes and salt water group received %3 pf salted (NaCL) water before UVA.

The dosage of UVA was 0.25 J/cm2 at the beginning and the dosage was increased incrementally to a maximum dose of 5 J/cm2. In each control the patients were evaluated with modified psoriasis severity scale, dermatology quality of life tool, palmoplantar psoriasis quality of life tool and with photographs.

After the pilot study with 5 patients in each group the G power analyses indicated a total of 54 patients to reach a power of %80.

Results:

The total number of patients received 37 in this study. Mean age of patients was 45.504 (±10,23687 SD) mean 48 (min=25, max=67) 33 of them were women, 4 of them 4 were men. There were a total of 9 patients in the tap water group, 11 patients in the salt water group and 17 patients in the Bath-PUVA group. Twenty eight of them had a history of resistance to multiple treatments. Nine of them had the indication of side effects of contradiction. Mean differences in m-PPSS scores after 36 sessions of therapy were 9 in Bath-PUVa group, 10.5 in the salt water PUVA group and 17.25 in the tap water UVA group. There was no statistically significant difference between groups. There were no statistically differences in either of the QoL scores between groups.

Conclusion:

This study could not reach efficient patient numbers during the research time period. On the other hand with this number of patients and as a monotherapy, there were no statistically different changes in treatment groups in terms of efficacy. This finding could indicate salt water or tap water before UVA treatment can be a choice of therapy in patients who can not tolerate psoralen.

EA DV CONGRESS
BERLIN 11-14 OCTOBER 2023
EUROPEAN ACADEMY OF DERMATOLOGY AND VENEREOLOGY

Abstract N°: 6257

Spatial Biology – Next Generation of Life Science. Regenerative Medication, Leveraging Single-Cell Transcriptomics Analysis and its Potential Reapplication to characterize aging the skin

Kukizo Miyamoto*[1], Hiroki Danno[2], Masakazu Fukuda[2], Nao Ikemoto[2]

[1]P&G Innovation GK, R&D S&PC SK-II, Kobe, Japan, [2]Knowledge Palette, Inc., CEO, Tokyo, Japan

Title: Spatial Biology – Next Generation of Life Science, Regnerative Medication, Leveraging Single-Cell Transcriptomics Analysis and its Potential Reapplication to characterize aging the skin

Introduction & Objectives:

Spatial Biology is a game-changer, breakthrough biotechnology to characterize every cellular level gene expression comprehensively in 2D/3D spatial mapping to discover new mechanism of action in life science and lead new therapy especially in regenerative medication and healthy life expectancy. In Spatial Biology, single cell RNA sequencing (scRNAseq) has merged as invaluable method for discrimination of thousands of cell types or layers in extremely complex biological arrangements, as found in tumors, immunities and/or inflammations.

Materials & Methods:

A new and unique single cell RNA sequencing method called *Quartz-Seq2* has been developed with significant improvements of precision of analysis in 2D/3D mapping, volume of gene sequencing and simplification of gene data implementation leveraging transcriptomics big data based deep-learning algorithms. Bench-marking assessments were carried out in 2020, as a part of 'Human Cell Atlas -HCA project, to quantitively assess the precision and efficacy describing cell types and states among over 13 globally recognized scRNAseq methods with the standardized Poly(A) tagging protocol.

Results:

As a result, Qurats-Seq2 single cell RNA sequence method demonstrated excellent performance of 1: Significant increase of gene detection, Unique Molecular Identifier (UMI) up to 30 to 50% versus benchmark standard, and 2: approximately 10,000 transcriptomes from in vitro embryonic stem cells and an in vivo stromal vascular fraction with a limited number of reads, and 3: ranked 1st position by comprehensive comparison in objectively manner. Notably, Qurats-Seq2 method is superior to newly identify rare and unique cells that only exists in a particular locality, but play important role of bioavailability maintaining human homeostasis in health condition, that were hardly detected by conventional or other methods.

Conclusion:

This advanced Spatial Biology with the single cell sequencing methodology accelerates understanding of the global picture of cellular dynamics in entire human body such as regeneration medication. Moreover, there are various reapplication potentials such as dermatology for various types of skin diseases and therapies, and understanding of skin health and care, e.g. identifying unique keratinocytes by its genetic dynamics in 2D/3D location in epidermis layer to influence on chronic skin aging.