EURO PDT

16TH ANNUAL CONGRESS

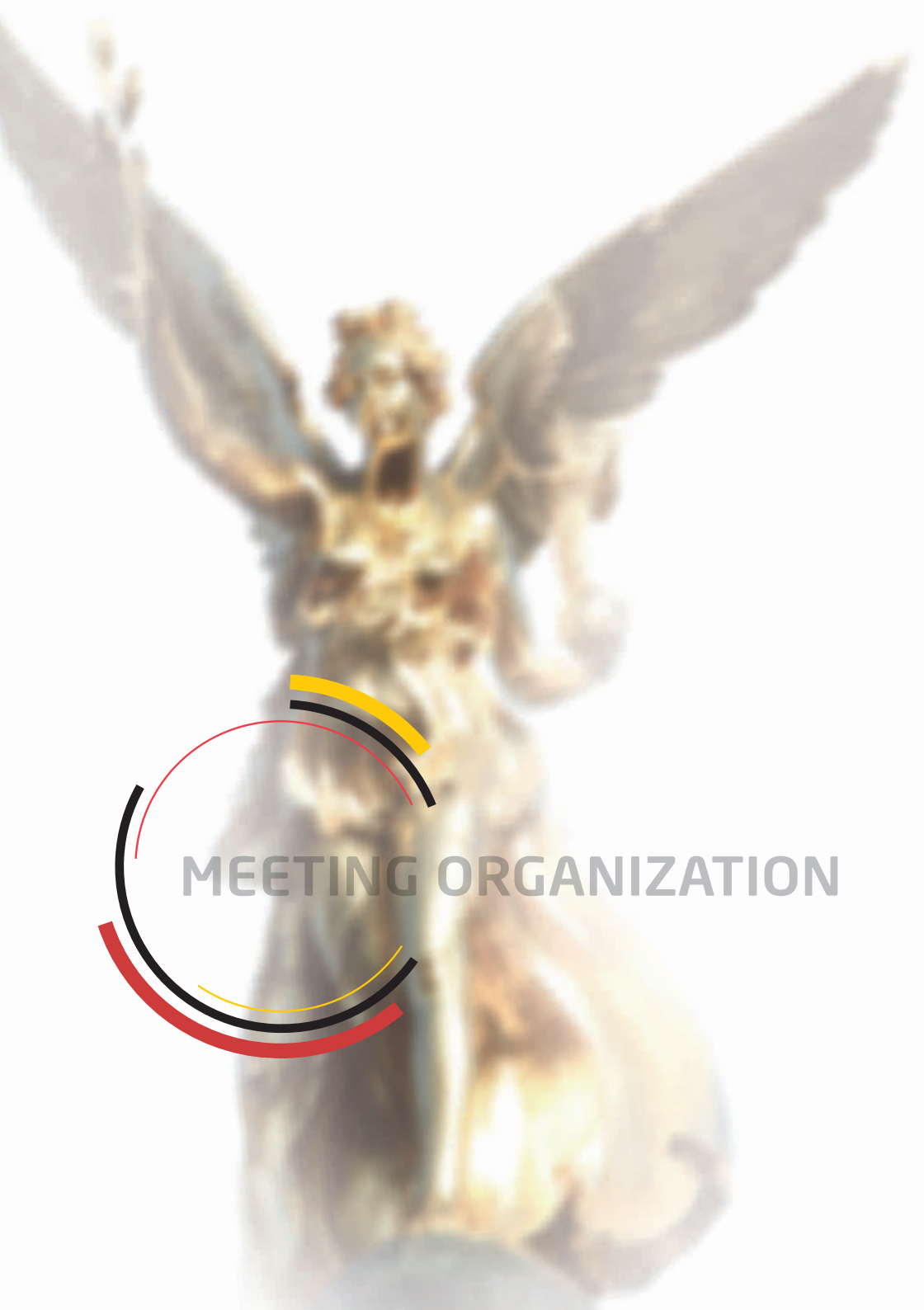
THE EUROPEAN SOCIETY FOR PHOTODYNAMIC THERAPY

Friday, February 10th
Saturday, February 11th, 2017
Hilton Munich Park
Am Tucherpark 7
Munich, Germany

PROGRAM

Munich

www.euro-pdt.org



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Dear Colleagues.

It is a pleasure for me to wish you welcome to this Annual EURO-PDT Congress. This congress is the largest PDT for Dermatology congress in the world. Most of the participants are Europeans, but we also have participants from other parts of the world. We have put together a program with PDT experts presenting their latest hottest news in scientific and clinical PDT. We hope that you will like the program and that you will profit from it, scientifically and/or clinically. It also offers an excellent opportunity to discuss with colleagues, exchange views and share experience; and to enjoy company at the congress dinner.

We want to thank Galderma for its generous support to EURO-PDT and this congress. Without that support we could not have organized it. On behalf of us all, a great thank you to Galderma.

Prof. Lasse R. Braathen
President of EURO-PDT

Dear Colleagues,

It is a great pleasure to welcome you to the 16th Annual Congress of the European Society for Dermatology here in Munich.

More than 114 years ago, Oscar Raab, a young medical student detected the influence of light on cell killing of paramecia, when incubated with a dye, and his Professor, Hermann von Tappeiner coined the term "photodynamic" reaction for this process.

It took not long, that the first patients then were treated with topical dyes and sunlight exposure for different dermatological diseases, and the success story of PDT in Dermatology begun.

However, now over 100 years later, we have registered drugs and light sources for the treatment of skin cancer and precancerous conditions and we are still optimizing PDT for our patients and their diseases.

Daylight-PDT, reintroduced recently, is one of those milestones in dermatological PDT. During our meeting, you will hear the latest research, new developments and best opportunities to apply this in clinical practice.
Welcome to Munich.

Rolf-Markus Szeimies
Congress President

14:00 Welcome and Introduction
Lasse R. Braathen, Switzerland / Rolf-Markus Szeimies, Germany

Plenary session 1: Epidemiology, Biomarkers and Diagnostic tools for AK and NMSC

Chair Lasse Braathen, Switzerland / Rolf-Markus Szeimies, Germany

14:10 Epidemiology of skin cancers worldwide C1
Nicole Basset-Seguin, France

14:20 Skin cancer risk in outdoor workers: a European multicenter case-control study C2
Myrto Trakatelli, Greece

14:30 AK and NMSC prevalence in mountain guides and farmers C3
Alexander Zink, Germany

14:40 Current Guidelines for Treatment of AK C4
Colin Morton, Scotland

14:50 Light emitting textiles: Flexitheralight clinical trial C5
Claire Vicentini, France

Chair Carola Berking, Germany / Hans Christian Wulf, Denmark

15:00 Therapeutic options to prevent AK and NMSC in OTR (sunscreen, mTOR inhibitors, nicotinamide) C6
Claas Ulrich, Germany

15:10 Quality of Life in AK and NMSC patients C7
Rick Waalboer-Spuij, The Netherlands

15:20 Quality of Life in PDT Research C8
Michael Koller, Germany

15:30 Newest biomarkers for AK and SCC C9
Thomas Dirschka, Germany

15:40 KNSTRN mutation in AK C10
Lutz Schmitz, Germany

15:50 Debate: Clinical and histological concordance for AK severity
Thomas Dirschka, Germany /Hans Christian Wulf, Denmark

Chair Robert Hunger, Switzerland / Stefano Piaserico, Italy

16:00 In vivo confocal microscopy to quantify the efficacy of DL-PDT C11
Robert Hunger, Switzerland

16:10 A new proposed algorithm for discriminating AK, Bowen's disease and squamous cell carcinoma based on in vivo microvascular imaging by Dynamic optical coherence tomography C12
Lotte Themstrup, Denmark

16:20 Dermoscopy and MAL: a study for detection and evaluation of field cancerization C13
Valentina Garelli, Italy

16:30 Diagnostic Tools for AK & field cancerization C14
Giovanni Pellacani, Italy

16:40 Debate: diagnostic tools for AK and field cancerization: is this needed?
Lotte Themstrup, Denmark / Giovanni Pellacani, Italy

16:50 Debate: From the concept of field cancerisation to practical recommendation: how large to treat patients?
Thomas Dirschka, Germany / Nicole Basset-Seguin, France

17:00 Break and poster session

Plenary session 2: PDT for AK: evidence for efficacy

Chair Elena Sotiriou, Greece / Maria Concetta Fargnoli, Italy

17:20 History of PDT C15
Carola Berking, Germany

17:30 Daylight PDT versus Ingenol Mebutate for AK treatment C16
Dario Fai, Italy

17:40 Conventional PDT versus imiquimod for AK in OTR C17
Katrine Togsverd-Bo, Denmark

17:50 cPDT with MAL vs ALA nanoemulsion for AK treatment C18
Bernardo Bancalari Simon, Spain

18:00 Any potential to relieve PDT induced erythema with low level light? A RCT C19
Catharina Lerche, Denmark

18:10 Histology of AK and field cancerisation before and after DL PDT C20
Beni Grinblat, Brazil

18:20 Long term efficacy of DL PDT in AK C21
Elena Sotiriou, Greece

Plenary session 3: DL PDT cost effectiveness and patient preference

Chair Colin Morton, Scotland / Nicole Basset-Seguin, France

18:30 AK treatment response outcome: value of lesion response rate C22
Rolf-Markus Szeimies, Germany

18:40 Real life cost effectiveness study for DL PDT versus other AK treatments C23
Piergiacomo Calzavara-Pinton, Italy

18:50 DL PDT patient preference among AK treatments C24
Ana Julia García-Malinis, Spain

19:00 Sesame Australian Observational study to evaluate clinical practice and satisfaction with Metvix® DL PDT in face and scalp AK C25
Rajeev Chavda, France

Plenary session 4: PDT and biomarkers

Chair Piergiacomo Calzavara-Pinton, Italy / Yolanda Gilaberte, Spain

09:00 Impact of PDT on AK and skin remodelling biomarkers in OTR C26
Francesca Zolezzi, France

09:10 Is PPIX accumulation and fluorescence a biomarker for efficacy? C27
Hans.Christian Wulf, Denmark

09:20 Is vitamin D blood level a marker for PDT efficacy? C28
R Moreno, Spain

09:30 Immune and vascular effects of PDT C29
Peter Wolf, Austria

09:40 Optimising PDT outcomes C30
P O'Mahoney, UK

09:50 Physical preteatments in large fields of AK: efficacy and safety from a randomized controlled trial C31
Merete Haedersdal, Denmark

Chair Peter Wolf, Austria / Rianne Gerritsen, The Netherlands

10:00 Lesion-Intensified Field Therapy (LIFT) a new concept in the treatment of actinic field cancerization C32
Peter Arne Gerber, Germany

10:10 Intensified PDT with sandpaper C33
Muriel Creusot, Belgium

10:20 Topical vitamin D combined with cPDT C34
Luis A. Torezan, Brazil

10:30 Efficacy and tolerability of 1 versus 2 sessions of DL PDT for thicker AKs C35
Maria-Concetta Fargnoli, Italy

10:40 PDT treatment of penile diseases C36
Stefano Piaserico, Italy

Plenary session 5: Practical tips with DL PDT

Chair Serge Mordon, France / Thomas Dirschka, Germany

10:50 Break and poster session

11:10 French protocol for DL PDT and experience C37
Jean-Michel Amici, France

11:20 Indoor lightning requirements to perform indoor DL PDT C38
Serge Mordon, France

11:30 How much light is needed to activate all PPIX in different situations? C39
Ida-Marie Heerfordt, Denmark

11:40 DL PDT versus Artificial White Light for AK treatment C40
Susan M. O'Gorman, Ireland

11:50 PDT without pain and erythema - Pulse- steroid-daylight-PDT and Brimonidine Tartrate (Mirvaso) C41
Stine R. Wiegell, Denmark

Plenary session 6: Conventional PDT for NMSC and other indication

Chair Merete Haedersdal, Denmark / Ann-Marie Wennberg, Sweden

12:00 Treatment failures in superficial basal cell carcinoma following treatment with PDT: is this a result of underdiagnosis? C42
Rianne Gerritsen, The Netherlands

12:10 Three year follow up of MAL vs Imiquimod versus 5FU in superficial BCC C43
Nicole Kelleners-Smith, The Netherlands

12:20 Bowen's Disease: Five-year results of treatment with 5-Fluorouracil cream, PDT and surgical excision C44
Maud Jansen, The Netherlands

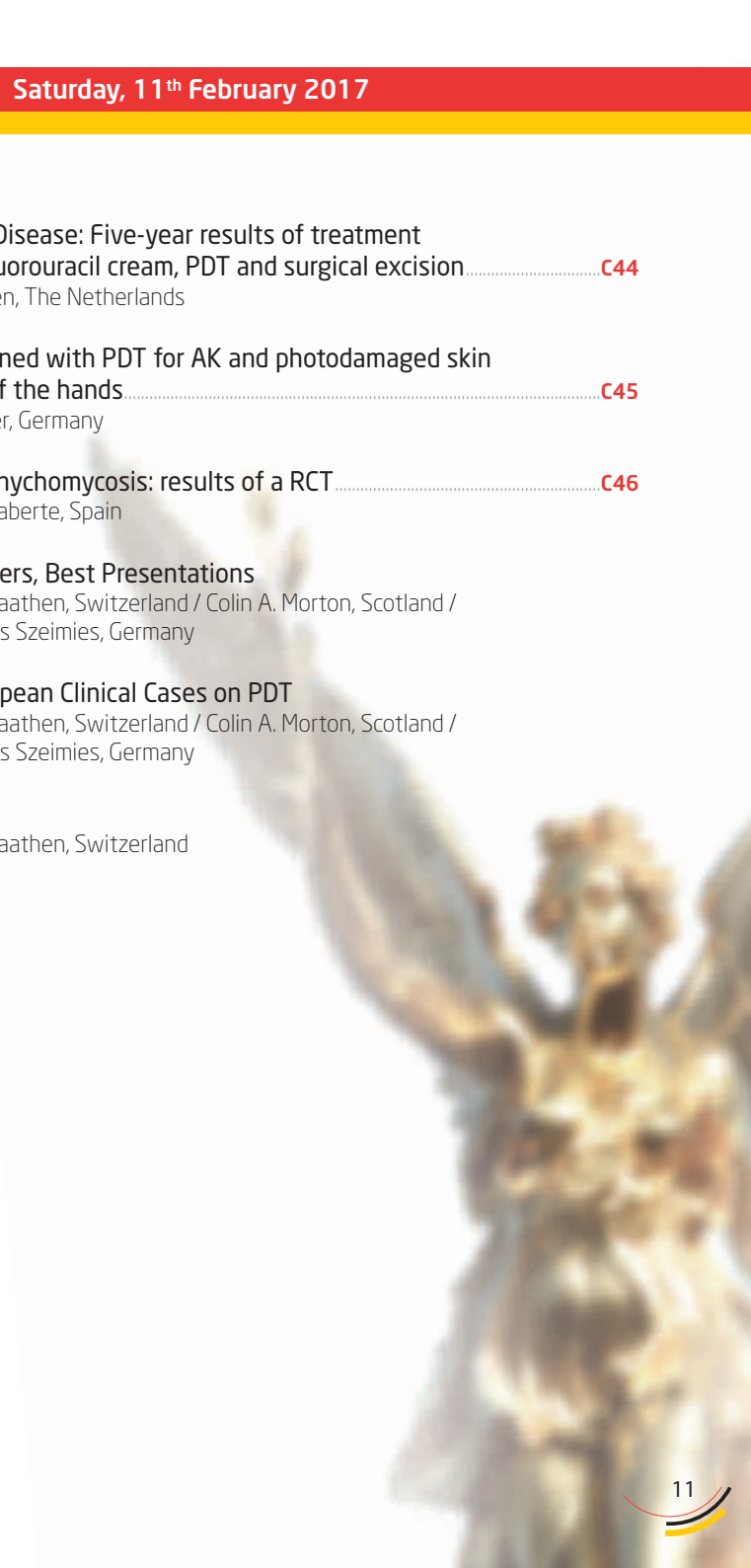
12:30 IPL combined with PDT for AK and photodamaged skin on back of the hands C45
Sigrid Karrer, Germany

12:40 cPDT in onychomycosis: results of a RCT C46
Yolanda Gilaberte, Spain

12:50 Best Posters, Best Presentations
Lasse R. Braathen, Switzerland / Colin A. Morton, Scotland / Rolf-Markus Szeimies, Germany

13:10 Best European Clinical Cases on PDT
Lasse R. Braathen, Switzerland / Colin A. Morton, Scotland / Rolf-Markus Szeimies, Germany

13:20 Closure
Lasse R. Braathen, Switzerland



Glossary

AK ..... Actinic Keratosis
ALA ..... Aminolevulinic Acid
BCC ..... Basal Cell Carcinoma
nBCC ..... Nodular BCC
sBCC ..... Superficial BCC
CR ..... Complete response
Fx ..... Fractional
DL-PDT ..... Daylight PDT
LED ..... Light-Emitting Diode
MAL ..... Methyl Aminolevulinate
NMSC ..... Non-Melanoma Skin Cancer
PDT ..... Photodynamic Therapy
PpIX ..... Protoporphyrin IX
SCC ..... Squamous Cell Carcinoma
SD ..... Standard Deviation
VAS ..... Visual Analogic Scale

ABSTRACTS

C1 Epidemiology of non melanoma skin cancer (NMSC) worldwide

Nicole Basset-Seguin
Paris, France

NMSC are the most frequent cancers in adult patients. Their incidence is increasing worldwide both in men and in women but their mortality is stable or decreasing. The rising incidence is due to various factors such as UV or sun light exposure, increased outdoors activities, change in clothing style, increased longevity etc.

Fair skin people and immunosuppressed patients are more at risk to develop NMSC. Some genetic disease also predispose to NMSC. UV is the major carcinogen involved in NMSC development. Whereas BCC is classically more related to intermittent sun exposure in childhood and SCC to chronic sun exposure, recently the increased risk of BCC in outdoor workers has been reported. Socio economical status seems to be strongly associated with a higher risk of BCC but not SCC. The use of statin in post menopausal women has also recently been suggested. The suvimax study reported an association between dietary folate intake and erythrocyte folate concentration and increased risk of overall skin cancer, NMSC, and BCC. If UV is the best carcinogen identified for NMSC development, more additional risk factors are raised.

Key Words:
NMSC, BCC, SCC, UV

C2 Outdoor workers and skin cancer risk

Myrto Trakatelli
Thessaloniki, Greece

De Vries Esther, the EPIDERM Group

The most important external risk factor for skin cancer is exposure to ultraviolet radiation (UVR). Outdoor workers are exposed to high ambient UVR. The objectives of this study were to compare outdoor with indoor workers in terms of: (1) skin cancer risk factors, and (2) risks of skin cancer. Using a large European case-control study, we described risk factor patterns between outdoor (N=1416) and indoor workers (N=1863) using descriptive methods. Risk for skin cancer (basal cell carcinoma (BCC), squamous cell carcinoma (SCC) and melanoma) and actinic keratosis (AK) were analysed by type of work using logistic regression models, using 3 categories of type of worker: indoor; farming/construction; other outdoor work. AIthough skin phototype was equally distributed by type of work, significantly less outdoor than indoor workers used sunscreen in their own country (44.3% vs 60.2%), but had more outdoor hobbies (66.2% vs 58.2%). Outdoor workers had lower educational levels, and felt less confident in understanding medical information and filling medical forms (all $p<0.001$). Outdoor workers had more signs of photodamage (78.1% vs 65.5%), and among the skin cancer patients, 37.7% of outdoor workers versus 28.6% of indoor workers had ≥2 skin cancers diagnosed during their lifetime. Multivariate logistic regression models showed significantly increased risk of outdoor versus indoor work for AK ($OR_{other\ outdoor}=1.55$, $OR_{farming/construction}=2.58$), SCC ($OR_{other\ outdoor}=1.32$, $OR_{farming/construction}=2.77$) and BCC ($OR_{other\ outdoor}=1.53$, $OR_{farming/construction}=1.83$). No significant associations were found for cutaneous melanoma. The risk of all types of skin cancer and AK was significantly increased for workers with ≥5 years of outdoor work.In conclusion outdoor workers had similar constitutional risk factors for skin cancer, but have a higher risk behavior, with more UV exposure (both occupational and leisure) and less sunscreen use. Combined with lower health literacy this results in higher exposure, and probably therefore more photodamage and higher risks of AK, BCC and SCC.

C3 Nonmelanoma skin cancer in mountain and ski guides

Linda Tizek
München, Germany

Elisabeth Koch, Maximilian Schielein, Julia Krause, Elisabeth Scheler, Florian Seifert, Tilo Biedermann, Alexander Zink

Background: Nonmelanoma skin cancer (NMSC) is the most common cancer in Europe. The main causative factor is exposure to ultraviolet radiation, which puts mountain and ski guides, who spend most of their time at high altitudes at a higher risk of developing NMSC.

Methods: Cross-sectional study including mountain and ski guides to investigate the prevalence of NMSC and associated risk behavior using a self-completed questionnaire followed by a full body skin examination.

Results: Of the 104 mountain and ski guides (93 men, 11 women; mean age 51.5 ± 13.5 years) included in this study, 47 (45.2%) were diagnosed with NMSC or its premalignant stages. Regular sun screen use was reported by 69 (66.3%) and 42.3 % had never undergone a skin cancer screening before.

Conclusion: Mountain and ski guides are a high risk group for NMSC.

Key Words:
Mountain guides, NMSC, Outdoor workers, Sun protection, UV radiation

C4 Current Guidelines for Treatment of AK

Colin Morton
Stirling, Scotland

Several evidence-based guidelines help practitioners navigate the increasing number of treatment options for AK. Most evidence supports individual procedural or topical therapies, but protocols can require prolonged home application, with real world efficacy probably lower due to reduced complaince. Therapy choice should be influenced not only by efficacy, but tolerability and cosmesis, re-imbursement, as well as patient/physician preference. Selecting the most appropriate treatment should take into account clinical presentation: the type, distribution, and location of lesions, and whether the intention is for field or lesional treatment. Recent additions to the list of available treatments include daylight PDT, topical ingenol and topical 5-fluorouracil 0.5% plus 10% salicylic acid. Field therapies including PDT have been combined or used sequentially, or with lesion-targeted therapies in an effort to improve results by presumed synergy of the individual mechanisms of action. More robust evidence is required before clear recommendations for combination therapy can be made.

Key Words:
AK, Combination treatment, Field therapy, PDT

C5 Efficacy and tolerance of the device Flexitheralight® compared to conventional PDT in AK

Claire Vicentini
Lille, France

E. Thecua, C. Maire, F. Lecomte, S. Mordon, L. Mortier

PDT is an effective and simple treatment for multiple AK of the face and scalp. However, the management of pain during the illumination remains to improve.

Flexitheralight® is a light emitting fabric which has been evaluated in a phase II study in the Department of Dermatology in Lille. The main objectives were to show the non-inferiority and better tolerance of the Flexitheralight® device compared to the LED lamp. Patients with at least 10 actinic keratosis of the scalp and forehead were treated with Flexitheralight® on one side and with conventional phototherapy on the other side after MAL incubation. Flexitheralight® outputs a low irradiance illumination until 37J/cm2. 29 patients have been included. At 3 months, we observed a complete response rate of 67% for the lesions treated with Flexitheralight versus 61% for the lesions treated with the conventionnel device.

Flexitheralight® could offer an effective and well tolerated alternative to LEDs or Daylight for the treatment of actinic keratosis by PDT.

Key Words:
AK, Light emitting fabric, LED lamp, PDT, Tolerance

C6 Therapeutic options to prevent AK and NMSC in OTR (sunscreen, mTOR inhibitors, nicotinamide)

Claas Ulrich
Berlin, Germany

The increasing use of immunomodifying drugs for the treatment of autoimmune and autoinflammatory diseases significantly adds to the induction and, even more often, to the promotion of skin cancer.

Both effects have been thoroughly studied in the well established peer-group of chronic immunosuppression - solid organs. Paralleling decreasing rates of graft loss due to acute rejections and overall improving graft and patients survival rates, malignancies have become one of the greatest limitations of many transplantation programs. Skin cancers, and especially invasive squamous cell carcinomas dominating skin cancer statistics in organ transplant recipients, are frequently more aggressive, than in immunocompetent patients.

However, primary (information campaigns, sun protective measures, chemoprophylaxis with nicotinamide or a switch to mTOR-inhibitor based immunosuppression) as well as secondary prophylaxis (centre based dermatological screening programs, self examination techniques, modern field therapy measures for actinic keratoses) have shown a significantly protective impact on the develoment of skin cancer.

Dermatologists are invited to contribute their knowledge, innovations, and skills to aid transplant medicine in the rewarding struggle against malignancies in organ transplant patients. The joined efforts of scientists and interdisciplinary acting physicians striving together to developing answers and concepts for this delicate group of patients may also be translated into effective skin cancer control in the general population.

Key Words:
Skin cancer, Immunosuppression, Carcinogenesis, Primary and secondary prevention

C7 Quality of Life in AK and NMSC patients

Rick Waalboer-Spuij
Rotterdam, The Netherlands

Health-related quality of life (HRQoL) is important in the management of basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) patients. Disease-specific questionnaires exist, but with important shortcomings.

Design: In a population-based sample from the Netherlands Cancer Registry (1173 patients), mostly following European Organisation for Research and Treatment of Cancer (EORTC) recommendations, a questionnaire was developed and reduced using exploratory factor analysis and item response theory.

Results: The questionnaire was completed by 721 patients. The questionnaire was reduced, covering five scales: "Worries", "Appearance", "Behaviour", "Diagnosis & Treatment" and "Other People". Confirmatory factor analysis showed a good fit. Cronbach's α demonstrated good internal consistency.

Conclusion: The Basal and Squamous cell carcinoma Quality of Life (BaSQoL) questionnaire has good face, content and construct validity. It is representative for use in BCC and SCC patients and captures HRQoL impact. Therefore we consider the BaSQoL as a useful tool for future studies.

Key Words:
Health-related quality of life (HRQoL), BCC, SCC

C8 Quality of Life in PDT research

Michael Koller
Regensburg, Germany

Elisabeth Kohl, Karolina Müller, Sigrid Karrer, Rolf-Markus Szeimies

Quality of life (QoL) is acknowledged as an important patient-reported outcome (PRO) measure in patient care. QoL has been defined as an evaluation criterion for therapies in the German Code of Social Law as well as in the guidelines of the Food and Drug Administration (FDA) and of the European Medicines Agency (EMA). QoL can be measured in a standardised manner. Validated questionnaires are available for recording specific problems of patients with skin diseases. QoL assessment has rarely been implemented into daily dermatological routine, although randomized studies in patients with other diseases (e.g., breast and colorectal cancer) showed promising results. The implementation of systematic QoL assessment requires a certain logistic and technical resources (e.g., automated measurement devices), but will pay off in the long resulting in more patient-centred as well as more cost-effective health care. Research examples including patients undergoing PDT will be presented.

Key Words:
Dermatological diseases, Guidelines, Patient care, PDT, Quality of life, Patient-reported outcome (PRO)

C9 Newest biomarkers for AK and SCC

Thomas Dirschka
Wuppertal, Germany

Background: Actinic keratoses represent (early) in-situ SCC of the skin. They may progress into invasive SCC via progressive and sequential stages of keratinocyte intraepidermal neoplasia. Until now it cannot be predicted when and where progression into SCC will occur.

Objective: To characterize biomarkers that play a role in the cancerous transformation process from AK to SCC.

Methods: Review of recent peer-reviewed publications and examples from our clinic.

Results: Mutations in key genes, including TP53, BRM, PTCH1, HRAS, and KNSTRN contribute to skin carcinogenesis. However, not a single mutation has shown to be only predictive for AK progression into SCC.

Conclusions: Different biomarkers characterize AK and SCC. To understand the process of photocarcinogenesis a more holistic view including photodamaged dendritic cells, activation of T and B regulatory cells and characterization of tumor micro environment has to be taken.

Key Words:
AK, SCC, Biomarker

C10 KNSTRN gene mutation in AK as a possible marker for progression? Preliminary results prior and after PDT

Lutz Schmitz
Bochum, Germany

Ann-Kathrin Hoeh, Katharina Händschke, Eggert Stockfleth, Thomas Dirschka

Background: Actinic keratosis (AK) are regarded as early in situ squamous cell carcinomas (SCC) which have the potential to progress into invasive tumours. Thus far, it is not possible to predict which lesions may progress into invasive SCC. Recently, Kinetochore gene KNSTRN was identified as oncogene playing a substantial role in SCCs as well as AKs.

Objectives: To investigate KNSTRN gene mutation as a predictive marker in AK lesions according to their histological classification (AKI-III) resembling different progression steps.

Material & Methods: We performed a mutational analysis according to KNSTRN gene mutation in 50 AK lesions graded as AKI, II and III, respectively. Moreover, we investigated AK prior and after photodynamic treatment.

Results: Of the 61 lesions preliminary included, 16.6% and 26.8% presented a recurrent mutation (p.Ala40Glu) in AKI and AKIII, respectively. No mutation was found in AKII.

Conclusion: KNSTRN gene mutations seem to be meaningless as a predictive marker for AK progression.

Key Words:
AK, KNSTRN gene, Mutation, PDT, Prognostic marker, SCC

C11 In vivo confocal microscopy to quantify the efficacy of DL-PDT

Robert Hunger
Bern, Switzerland

Morteza Jafari, Tatyana Timchik

Reflectance confocal microscopy (RCM) is a non-invasive diagnostic technique for actinic keratosis (AK). We evaluated efficacy of the DL-PDT in AK patients(Grade I-II), using a new RCM atypia scoring system. After DL-PDT, complete resolution and partial response was detected in 80% and 17.5% of lesions, respectively. Interestingly, RCM atypia score also decreased significantly in the follow-up RCM images.($p < 0.001$) Moreover, a significant reduction of mean cell size in RCM images was observed after treatment with DL-PDT.($p=0.001$) Additionally, the Spearman correlation coefficient showed a significant positive correlation between clinical response and atypia score ($p = 0.006$, $r = 0.619$) and a significant positive correlation between atypia score and cell size ($p = 0.019$, $r = 0.39$). Results of the study show that confocal microscopy and clinical assessment of AK lesions are well correlated; therefore in vivo RCM technology might be an additional technique to monitor the treatment efficacy of DL-PDT, using the atypia scoring system.

Key Words:
AK, Daylight-PDT, Non-invasive follow-up, RCM atypia scoring system, Reflectance confocal microscopy

C12 A new proposed algorithm for discriminating AK, Bowen's disease and SCC based on in vivo microvascular imaging by Dynamic optical coherence tomography

Lotte Themstrup
Roskilde, Denmark

Giovanni Pellacani, Jon Holmes, Julia Welzel, Gregor B.E. Jemec, Martina Ulrich

Actinic keratosis (AK), Bowen's disease (BD) and squamous cell carcinoma (SCC), cannot reliably be distinguished by clinical/dermoscopic evaluation alone. Dynamic optical coherence tomography (D-OCT) is a novel angiographic variant of OCT that allows for in vivo evaluation of the cutaneous microvascular morphology. An explorative study including 47 patients with a total of 54 lesions (18 AK, 12 BD and 24 SCC) was performed to gain insights into the microvascular morphology. D-OCT still-images of the AK, BD, SCC lesions were randomized and three observers performed blinded evaluations of the study-set, assessing multiple vascular parameters. The results showed that two specific vascular shapes presented significantly differently across the lesion types. Vascular blobs were strongly present in BD cases, while vascular curves predominated AK lesions. The findings show that non-invasive imaging of vascular features may aid in differentiating skin cancer subtypes and refine our understanding of the biological principles underpinning skin cancer development.

Key Words:
AK, Bowen's disease, Dynamic optical coherence tomography, Microvasculature, Non-invasive imaging, SCC

C13 Dermoscopy and methyl aminolevulinate: A study for detection and evaluation of field cancerization

Valentina Garelli
Roma, Italy

G. Pranteda, M. Cardone, A. Anzalone, M.C. Fortuna, D. Di Nunno, E.Mari,
G. De Vita, M. Carlesimo

One of the main principles in the management of actinic keratosis (AK) is the evaluation and the treatment of field cancerization. In this view, in order to detect and quantify field cancerization, we employed a method based on the topical application of methyl aminolevulinate (MAL) and the detection of the fluorescence emitted by its metabolite Protoporphyrin IX (PpIX); then, considering the extension and the intensity of measured fluorescence, we created a score of field cancerization (range from 2 to 88). The results show that our patients (n=10) who underwent daylight PDT had a reduction of the total score of 19%. This value represents a significant b|ΔScore/Score(T0)|N = 48% variation relative to score T0, and a nontrivial factor 40 in units of standard deviation σ = 0.5. Whereas in the group untreated we observed a stability of the total score or a slight worsening. So, the method and the score used allow to evaluate with a good approximation the dimension of field cancerization and show the modification of it after treatment.

Key Words:
Dermoscopy, AK, Field cancerization, MAL, Fluorescence, Score

C14 Diagnostic Tools for AK & field cancerization

Giovanni Pellacani
Modena, Italy

Most cases of non-melanoma skin cancer are easily diagnosed by means of clinical examination integrated with dermoscopy. However, some cases may be challenging. Moreover, it is relevant to assess the skin damage in sunexposed skin.

Reflectance confocal microscopy (RCM) and Optical Coherence Tomography are new imaging technologies enabling a completely non invasive, painless and rapid skin examination and providing an “optical” biopsy in few minutes with a nearly histologic resolution.

Upon RCM, AK can be readily diagnosed. The most striking features include the presence of irregular keratinocytes. OCT shows thickened epidermis, with junctional profile alterations.

Altogether, these technologies allow an in vivo characterization of lesions and of the sun-damaged landscape, identifying profiles with predominant dyskeratosis, thus corresponding to the “cancerization field”, and others with predominant epidermal hyperplasia, usually not associated with AK and squamous cancer development.

In conclusion, RCM and OCT enable histologic in-vivo characterization of lesions and sun-damaged.

Key Words:
AK, Dermoscopy, Confocal microscopy

C15 History of PDT

Carola Berking
Munich, Germany

The first description of the so-called “photodynamic effect” dates back to 1899, when medical student Oscar Raab discovered in the laboratory that protozoons got inactivated through the dye acridine when exposed to visible light and oxygen. His teacher Prof. Hermann von Tappeiner, who was director of the Pharmacologic Institute of the Ludwig-Maximilian University of Munich, recognized the potential of PDT against skin diseases. In 1905, he published together with Albert Jesionek first-in-patient studies. They topically used eosin and other dyes to treat pityriasis, psoriasis, lues, tuberculosis cutis, and skin cancer.

It was also in Munich when Dr. Friedrich Meyer-Betz did a spectacular self-experiment in 1913. He injected himself iv hematoporphyrin and exposed himself to sunlight, which led to severe phototoxic reactions.

5-ALA was introduced in the 1990s for the application of topical PDT. Since then the number of studies increased exponentially and led to the first approvals of 5-ALA and MAL in 1999 and 2001, respectively.

Key Words:
Acridine, 5-ALA, Eosin, Hemtoporphyrin, Photodynamic effect, Protozoon

C16 Daylight MAL PDT versus ingenol mebutate for the treatment of AK: an intraindividual comparative analysis

Dario Fai
Gagliano del Capo, Italy

C. Fai

Daylight-photodynamic therapy (D-PDT) and ingenol mebutate (IM) are novel therapies directed to AK. The purpose of our study was to compare effectiveness, tolerability, cosmetic outcome and patient preference of D-PDT versus IM in the treatment of grade I and II AK. Thirty-two patients with AK on the face or scalp were enrolled. Each patient received, in a 25 cm^2 target area, D-PDT on right side and IM on left side. Overall 348 AK were treated. Both target areas achieved complete response in 40.47% of the cases and average AK clearance rate was similar for D-PDT and IM (p=0.74). In D-PDT areas mean grade II AK clearance rate was lower compared with that of grade I AK (p50.015). In IM areas grade I and II AK average clearance rates were similar (p50.28). At week 1 and month 1, mean local skin responses (LSR) score were higher in areas treated with IM. IM areas showed more severe pain and cosmetic sequelae. D-PDT had similar effectiveness to IM, even if IM demonstrated higher grade II AK clearance rate. Tolerability profile was superior for D-PDT in terms of LSR and pain. D-PDT was more cosmetically acceptable. Patients preferred D-PDT.

Statistics

Categorical variables were showed as mean and standard deviation (SD) and continue variables as absolute and relative frequencies. Statistics were performed by using Mann-Whitney unpaired samples test for effectiveness, tolerability, cos- metic outcome and patient preference compara- tive analysis and Spearman’s rank coefficient for correlation between LSR score at week 1 and AK clearance rate.

The study was conducted at the Dermatology Service, AUSL Lecce, Gagliano del Capo, Southern Italy. Recruitment of patients and demographic data registration occurred, eligibility criteria were as follows: (i) age over 18 years and (ii) presence of more than 5 clinical grade I and/or II AK located on two symmetrical 25 cm^2 target areas either of the face or scalp.

Conclusion: our study suggests that the two examined therapies are targeted to different patient categories: D-PDT would be recommended for patients with numerous grade I AK, wide field cancerization and low pain threshold, whereas IM would be preferable for patient with grade II AK in limited areas.

Additional studies with larger population and longer follow-up are required to further validate our findings.

Key Words:
AK, Daylight-PDT, Field cancerization, Ingenol mebutate, MAL

C17 Conventional PDT vs. imiquimod for AK in organ transplant recipients

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Background: Comparison of topical therapies for actinic keratoses (AKs) in organ transplant recipients (OTRs) are warranted. In this split-side study we compared efficacy and safety of methyl aminolevulinate photodynamic therapy (MAL-PDT) and imiquimod (IMIQ).

Methods: 35 OTRs with 572 grade I-III AKs in the face, scalp, dorsal hands or forearms were included. All patient received one MAL-PDT and one IMIQ session in each study area according to randomization. Treatments were repeated after 2 months (IMIQ) and 3 months (PDT) if AKs remained.

Results: Three months after two treatments, CR was higher by PDT (AK I-III, median 78%) compared to IMIQ (median 61%, $p < 0.001$). Inflammatory skin reactions were more severe following PDT (PDT 2.8, IMIQ 1.7, $p<0.01$) but resolved faster compared to IMIQ (median 10 vs. 18 days, $p<0.01$). Patient preference ($p= 0.47$) and cosmesis ($p=0.37$) were similar.

Conclusion: PDT-treatment resulted in higher AK clearance and shorter-lasting, but more intense skin reactions.

Key Words:
Conventional MAL PDT, Imiquimod, Organ transplant recipients

C18 cPDT with MAL vs ALA nanoemulsion for AK treatment

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Introduction: With the apparition of ALA Nanoemulsion, an intense debate has been made comparing efficacy and side effects between the cPDT with this photosensitizer and MAL.

Objective: To compare cPDT between MAL and BF-200 ALA in terms of efficacy and tolerability in patients with AK.

Material and methods: We performed a prospective, randomized, intraindividual, investigator-masked study, comparing treatment with cPDT for actinic keratosis between MAL and BF-200 ALA. We selected patients of our center with similar and comparable areas of actinic keratosis in head or scalp, between March of 2014 and November of 2016. Each area was treated with one photosensitizer: MAL or BF-200 ALA, and we compared the local skin reaction, fluorescence, efficacy, and patient satisfaction.

Results: We included 53 patients. The efficacy between cPDT with MAL and BF-200 ALA was similar: 62% of complete response for BF-200 ALA (31/50), versus 56% of complete response in MAL (28/50). If we consider the reduction of total AK count, we got an 89,6% of reduction in BF-200 ALA versus an 88% in ALA. The local reaction was higher in BF-200 ALA (7,0) versus MAL (5,42).

Conclusion: Both treatments have similar efficacy for the treatment of AK, but the BF-200 ALA produces a stronger local reaction than MAL.

Key Words:
PDT, MAL, ALA, AK

C19 Low-Level Light Therapy does not reduce PDT induced erythema

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Low level light (or laser) therapy (LLLT) is a rapidly growing modality used to increase wound healing and tissue regeneration and to relieve pain and inflammation. 200+ clinical trials using LLLT have been conducted for conditions ranging from physical therapy to neurological disorders and heart diseases. The use of LLLT in animals and patients almost exclusively involves red and near-infrared light (600 - 950 nm). We investigated the effect of 830 nm to reduce local skin reactions after PDT treatment. The buttocks of 20 healthy volunteers were randomized to receive 5 treatments with LLLT (65 J/cm2) or placebo after one PDT treatment. Statistical analysis : Wilcoxon signed ranks test (significance level $p<0.05$). No significant effects of the LLLT treatments were found using blinded observer assessed erythema and edema scores, objective reflectance measurements of erythema percentages or skin temperature. LLLT did not show potential to reduce local skin reactions after PDT.

Key Words:
Erythema, Inflammation, Low-level light therapy, PDT

C20 Histology of AK and field cancerization before and after DL - PDT

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Objective: Evaluate the histological impact of Daylight-PDT in the treatment of Actinic Keratosis (AK) and Field Cancerization.

Materials and Methods: Seventeen patients with multiple AK on the face were treated with Daylight-PDT. They were submitted to skin biopsies in two different areas (AK lesion and Field Cancerization region) before and 02 months after treatment.

Two histological parameters of keratinocytes atypia were analyzed: intensity (mild, moderate or intense) and extension (1/3 to 3/3 of epidermis).

Results:

- AK: 14 patients (82%) showed decrease of atypia intensity (p=0,016) and in 08 patients (47%) the atypia extension reduced after treatment (p=0,046)
- Field cancerization: 06 patients (35%) presented atypia reduction (p=0,262) and 09 patients (52%) had improvement of the atypia extension (p=0,323)

Statistical method: McNemar test

Conclusions: Most of the AK (lesion base) improved with treatment. The histological improvement in the Field Cancerization was lower when compared to the AK lesions and not statistically significant.

Key Words:
Daylight-pdt, AK, Field cancerization

C21 Long-term efficacy of DLPDT in AK

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Objective: To compare the efficacy, safety and tolerability of DL-PDT with that of CPDT in face and scalp AKs.

Methods: The study was designed as an intraindividual right-left comparison study and was conducted in 3 centers in North, Center and South Greece. Eligible patients received either DL PDT or C PDT randomly allocated to alternate sides of face or scalp. Patients were evaluated at baseline, 3 and 12 months after treatment. Efficacy end point included the individual AK lesion clearance rate.

Results: A total of 46 patients completed the study. Three months after treatment the overall lesion complete response rate was 78% for DL PDT and 80.6% for C PDT. At the 12-months follow-up response rate decreased to 71.8% and 73.7% for DL PDT and C PDT accordingly. DL PDT was associated with significantly lower pain and reduced severity of local skin reactions. Results for patients' preference favored DL PDT.

Key Words:
AK, Conventional PDT, Daylight PDT, Long-term efficacy, Tolerability, Patients' preference

C22 AK treatment response outcome: Value of lesion response rate

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Complete patient clearance (CPC) is often required by regulatory agencies for the approval of treatments for actinic keratosis (AK). However, an increasing number of clinicians have challenged the use of this measure in clinical practice and its interpretation.

It has been argued that CPC often underestimates the clinical benefit of a drug and is influenced by a number of key confounding factors, such as distribution and number of lesions, at baseline.

Lesion response rate (LRR) is one alternative which has been suggested as more relevant due to its applicability to clinical practice and closer reflection of the clinical value of a drug. This presentation provides an updated perspective on the topic and details the current thinking on the role of CPC and LRR in the context of AK.

Key Words:
AK, Complete clearance, Lesions response rate

C23 Real-life cost effectiveness for DI-PDT versus other AK treatments

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Zane Cristina

AK has a high prevalence among caucasian peoples and, due to the aging of the population, the prevalence will grow in the next years with a growing burden for the national health expenditure.

Five treatment options have been approved by the EMA for patients with >4 AKs [diclofenac, 5-fluorouracil, methylaminolevulinate (with both conventional and daylight treatment modalities), imiquimod, and ingenol mebutate]. However, the approval status is different regarding the thickness of treatable lesions and the maximum treatment area per treatment session. In addition, adverse events, time to repair, cost and cost/ effectiveness ratio are different. We have created a theoretical model to better understand these treatments variables with each of the above mentioned treatment options in a "real life" setting of 100 consecutive patients with multiple lesions and a cancerization field.

Key Words:
AK, Cancerization field, Daylight PDT, Cost, Cost-effectiveness, Treatment duration

C24 DL-PDT patient preference among AK treatments

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Yolanda Gilaberte

Background: Adherence to treatment is one of the most relevant factors for treatment success. Overall patient satisfaction improves adherence.

Objective: to obtain patient insights and opinions of available AK treatment options

Methods: 50 AK patients, recruited by 20 Spanish dermatologists, completed a 15 minute internet survey on their AK treatment preferences. Inclusion criteria included the use of up to 3 different topical drugs for AK including DL-PDT administered within at least the 3 months prior to the survey.

Results: treatment efficacy was the first criterion that patients took into consideration; improvement in skin appearance and length of time without recurrence were also important. Patients were aware of the cost effectiveness of various treatments. 86% of the patients were satisfied overall with DL, especially those with AK on their scalp. Satisfaction was 4 times higher compared to the 2 other frequently used topical treatments including ingenol mebutate and sodium diclofenac

Limitations: the questionnaire was not previously validated, the sample size relatively small and limited to Spain. A memory bias should be considered given that 86% of the patients received DL-PDT as their most recent treatment.

Conclusion: patient opinion is based on efficacy, tolerability and cost-effectiveness. In this sense, the present study shows a clear preference for DL-PDT among patients with multiple AK.

Key Words:
AK, Daylight-PDT, Patient preference

C25 High patient satisfaction with MAL cream activated by daylight in the treatment of multiple AK: Results of a non-interventional study in Australia

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Introduction: The objective was to generate real-life data on the use of MAL DL in treating mild to moderate facial/scalp AK.

Methods: A prospective, non-interventional study in Australia in patients receiving MAL DL for mild to moderate AK. Efficacy was assessed, 3 months after a single treatment, by global improvement and satisfaction questionnaires. Adverse events were recorded.

Results: Overall, 81 patients were enrolled. Most had multiples lesions (82.7% had ≥11 lesions) of predominantly grade I (75.3%). Physician-assessed efficacy was much improved in 88.6% of patients, including 21.5% totally clear. Most patients (79.7%) and physicians (83.3%) were very satisfied/ satisfied with the MAL DL treatment. Related AEs occurred in 48.1% of patients, mainly mild erythema (44.4%); only 1 was serious (SCC).

Conclusions: Use of MAL DL in treating multiple mild non-hyperkeratotic AK of the face and/or scalp results in high patient and physician satisfaction reflecting the good efficacy and safety.

Key Words:
AK, Daylight, MAL, Non-interventional, Prospective, Satisfaction

C26 PDT corrects abnormal cancer-associated gene expression observed in AK lesions and induces a remodeling effect in photodamaged skin

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Actinic keratoses (AK) are proliferations of pre-neoplastic keratinocytes in the epidermis resulting from exposure to ultraviolet radiations which are liable to transform into squamous cell carcinoma (SCC). Organ Transplant Recipients (OTR) have increased risk at developing SCC as a consequence of long-term immunosuppressive therapy. The aim of this study was to determine the molecular signature of AKs from OTRs pre- and post-treatment with methyl aminolevulinate-photodynamic-therapy (MAL-PDT).

Seven patients were subjected to two MAL-PDT cycles and skin biopsies were taken at screening and six weeks after completion of the second MAL-PDT cycle. Whole-genome gene expression analysis was performed on lesional, peri-lesional, and non-sun exposed skin. Data were analyzed by supervised (Limma and Cogena) and unsupervised (NTF) methods. RT-qPCR on key genes confirmed the results.

MAL-PDT corrected abnormal cancer-associated gene expression of AK lesions, (e.g. CRNN, MALAT1, ODC1) and a transcriptional signature of remodeling was identified in photo-damaged skin (e.g COL1A1/A2, ELN).

Key Words:
AK, Gene expression profiling, MAL-PDT, Remodeling, Organ transplant recipients

C27 Is PpIX accumulation and fluorescence a biomarker for efficacy ?

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Too low PpIX concentration during MAL-PDT is believed to be the most important reason for low efficacy in the treatment of AK e.g. on the hands, compared to face and scalp, and for this reason much effort is put into increasing PpIX in PDT.

This study examines the effect on AK by 4 different PpIX concentrations at the time of illumination. The PpIX concentration range is 4-40 arbitrary units with 12 units in the standard PDT treatment.

When treating 533 AK the cure rate was identical (~ 55%) and independent of PpIX when the PpIX concentration was >10 units. Erythema and pain increased with PpIX concentration.

The results indicate that it is not meaningful to perform any research with the intention of increasing PpIX as it only increases the side effects without enhancing the cure rate of AK on the hands.

Key Words:
Protoporphyrin IX, PDT, AK, Cure rate, Side effects, Concentration

C28 Is vitamin D blood level a marker for PDT efficacy?

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Background: Some studies have shown that the addition of oral or topical vitamin D improves the response of squamous cell carcinoma to PDT in animal models.

Objective: to investigate if serum 25(OH)D levels influences the response of actinic keratosis (AK) to MAL-PDT.

Methods: an observational prospective study on 25 subjects with multiple grade I-III AK on the head was performed. They received a single MAL-PDT session and efficacy was assessed after six weeks. 25(OH)D serum levels and lipid profile were determined the treatment day.

Results: Serum 25(OH)D levels did not show significant differences in patients with complete clinical response vs. those with partial or no-response. No significant differences either were found in the lipid profile except for HDL that was lower in complete responders.

Conclusion: serum 25(OH)D levels did not seem to influence the clinical response of AK to MAL-PDT. Whether other serum parameters like HDL might play any role should be explored.

Key Words:
AK, Vitamin D, PDT, MAL-PDT

C29 Immune and vascular effects of PDT

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Pre-clinical and clinical studies have demonstrated that PDT is capable of affecting both the innate and adaptive arms of the immune system. Depending on the circumstances and light delivery PDT may be immune suppressive or stimulatory. The immune suppressive effects are a theoretical concern with the regard to skin carcinogenesis though there is no convincing clinical evidence for it. On the other hand, the immune stimulatory properties of PDT may increase its beneficial therapeutic effects. Besides stimulating tumor-specific cytotoxic T-cells capable to destroy distant untreated tumor cells, PDT leads to development of anti-tumor memory immunity that can potentially prevent the recurrence of cancer. Vascular effects of PDT may crucially contribute not only to direct tumor damage but also to effects on the immune system.

Key Words:
PDT, Immune system, Vascular effects, Skin cancer, Tissue damage

C30 Daylight PDT in the UK: an algortihm for accurate dosimetry, and when and where can we do it?

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Daylight photodynamic therapy (dPDT) is a convenient, virtually pain-free treatment for superficial pre-cancerous lesions. To quantify effective light dose during treatment, a method of conveniently and accurately measuring personal daylight exposure is required. There may then exist a need to convert this measurement to effective dose, if direct measurement of PpIX-effective irradiance is not possible. As most centres who offer dPDT do not undertake daylight dosimetry, there is a need to understand the optimal times of the year and conditions in which to carry out dPDT in order to be able to offer guidance and confidence to dPDT practitioners.

An algorithm, based on spectral irradiance measurements from sites in the UK, can then convert daylight illuminance to PpIX-weighted light dose. This method is verified against true light dose values derived from measured spectral irradiance, and is found to give accurate values with a precision of ±6.8%.

Applying the above analysis to historic illuminance data from several sites across the UK paints a picture of PpIX-weighted light dose, and gives an indication of when viable treatment can be expected. These data can be used as guidance for other clinics considering dPDT as a treatment option.

Key Words:
Daylight PDT, AK, Spectral measurements

C31 Physical pretreatments in large fields of AK: Efficacy and safety from a randomized, controlled trial

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Skin pretreatment has the potential to ensure adequate penetration of photosensitizing agents and improve PDT efficacy. We aimed to compare the relative efficacy and safety of microdermabrasion (MD) versus ablative fractional laser (AFL).

An intra-individual, randomized, controlled trial, approved by Ethics Committee and following Good Clinical Practice guidelines. Patients received one daylight PDT session in two side-by-side skin areas, each larger than 50 cm2. Treatments were initiated by either MD or AFL (2,940nm fractional Erbium:YAG laser), settings individualized to clinical presentation.

18 patients received treatment on the chest, scalp or face. Targeted MD was first applied to AKs to remove hyperkeratosis, followed by field treatment. Similarly, targeted AFL was initially applied to AKs, followed by field treatment (5.5% density, depth of microchannels adjusted to skin thickness). LSRs appeared intensified 1-6 days after AFL compared to MD. 12-week FU data will be presented, including AK clearance, cosmesis and long-term side effects.

Key Words:
PDT, Ablative fractional laser, Microdermabrasion, Tailored pretreatment

C32 Lesion intensified field therapy (LIFT) : A new concept in the treatment of actinic field cancerization

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Background: The efficacy of PDT can be increased by pre-treatment with ablative fractional lasers (AFXL). However, side-effects of AFXL-PDT are more severe, particularly when treating larger areas. To achieve the benefits of AFXL-PDT while limiting side-effects, we propose to combine conventional and AFXL-PDT by means of a lesion intensified field therapy (LIFT), performing AFXL-pre-treatment only on marked AKs, while treating the entire field with conventional PDT.

Data: A 76-year-old man presented with multiple AKs on chronic actinic damaged skin. We performed AFXL-treatment only in areas of marked AKs. Subsequently MAL was applied on the entire field followed by illumination with red light. The patient tolerated the treatment well. After 3 months he presented with persistent clearance of all AKs.

Conclusion: LIFT may enable to reach the efficacy of AFXL-PDT while limiting side-effects. We propose that LIFT can also be applied to daylight-activated PDT and other measures of assisted drug delivery, such as microneedling.

Key Words:
Laser, Power-PDT, Side-effects, Treatment tolerability

C33 Intensified PDT with sandpaper

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Non-melanoma skin cancer is the most common malignancy, and BCC are traditionally treated with surgical excision. However, conventional Photodynamic Therapy (c-PDT), is an alternative and effective therapeutic option for superficial BCC, with acceptable cosmetic outcomes, well tolerated pain being the most common side effect. Nodular BCC can also response well with c-PDT. The more aggressive basosquamous, morphoeic infiltrating subtypes of BCC are not suitable for PDT. To enhance results of c-PDT in BCC, several pretreatments are proposed: curettage, fractional CO2 laser with low density, microneedling, or sandpaper.

Three cases of various types of BCC in the face are reported, treatment was performed with c-PDT following intensification with sandpaper in up to 4 sessions. This procedure enabled avoidance of more aggressive treatments (general anesthesia, cutaneous transplant) to the patients.

c-PDT intensified with sandpaper is an interesting alternative therapeutic option.

The advantages are

- fewer sessions
- outpatient treatment
- excellent cosmetic results
- when surgical procedures are not practicable

Key Words:
BCC, Sandpaper

C34 Topical Vitamine D combined with cPDT

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Topical PDT shows high efficacy rates for actinic keratosis (AK) of the face, however lower rates are seen for AKs of the scalp. Calcipotriol combined with PDT enhances PPIX fluorescence in animal models raising clinical perspectives in field cancerization. A randomized split-scalp study was conducted at Hospital das Clinicas – Universidade de Sao Paulo. An interim analysis is presented and 16 patients were enrolled with multiple Aks to receive conventional MAL-PDT in one side vs Calcipotriol –MAL-PDT on the other. Clinical and histological data were performed (only 5 patients consented skin biopsies before and after). Fluorescence measures were taken in 3 different areas each side with USB 2000+ spectroscopy device (Ocean Optics ® - Dunedin, Fl, USA). The overall AK reduction (lesion base) was 91,48% and 81,49% for Calcipotriol-PDT and Conventional MAL-PDT respectively. However, Aks grade I clearance was 91,8% and 86,62% and Aks grade II clearance was 90,47% and 65,45% respectively for CAL-PDT and Conventional-PDT. More adverse events were seen in the CAL-PDT side. On histology, both sides improved the grades of atypia of keratinocytes. Considering several limitations, CAL-PDT combination may lead to enhanced therapeutic efficacy of “difficult-to treat” Aks.

Key Words:
Calcipotriol, MAL, PDT, Actinic Keratosis

C35 Efficacy and tolerability of 1 versus 2 sessions of DL PDT for thicker AKs

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Response rates of DL-PDT for moderate to thick AKs have been reported to be significantly lower than for thin AKs after a single treatment. We performed a pilot, randomized, intra-patient, prospective, comparison study to investigate the efficacy and tolerability of 1 session vs 2 sessions (1 week apart) of MAL DL-PDT in 31 patients with multiple AKs grade II and III of the face and scalp.

Clinical response rate of AKs per treated side was evaluated at 3 months.

Subject's assessment of maximal pain was recorded immediately after each session and severity of local skin reactions (LSR) (erythema, edema, pustular eruption and crusting) 2 days after each session. Treatment efficacy was assessed by computing rates of complete response per 100 lesions patients.

The efficacy of the 2 treatment regimens was compared with Matched Poisson Regression. VAS and LSR differences across treatment groups were compared by linear mixed effect models with a random intercept.

Key Words:
AK, DL-PDT, Local skin reactions, MAL, Pain VAS

C36 PDT treatment of penile diseases

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During the last years, the off-label use of PDT has been extended to other indications, wether neoplastic, infectious or inflammatory. A few data have been published on the use of PDT in the treatment of penile diseases.

The list of treated diseases encompasses lichen sclerosus, erythroplasia of Queyrat, extramammary Paget's disease, Zoon's balanitis, and genital warts.

These data consists mostly of anecdotic case reports.

In a recent multicenter retrospective study on the off-label use of PDT performed in Italy, we collected data on more than 20 consecutive patients with penile diseases.

The use of PDT might represents a useful option in the treatment of lichen sclerosus (especially in the females), erythroplasia of Queyrat and extramammary Paget's disease (with a successful rate higher than 50% of treated patients).

Efficacy is poor in patients affected by Zoon's balanitis.

Even if PDT use in the treatment of penile disease might be sometimes useful, it is constantly associated with transient local reactions and discomfort, with most patients complaining of severe or very severe symptoms during the session.

C37 French protocol for Daylight PDT and experience

Jean-Michel Amici
Bordeaux, France

The use of DLPDT in France is increasing with a national rate market of Metvixia° that grow from 5.8% in 2015 to 9.1% in 2016.This increase highlights the incorporation of the technique in the therapeutic strategy of AK and confirm that the technique is well accepted and well received by dermatologist and patients.

The first consultation allows the explanation of daylight treatment, giving all the details of the technique and delivering of a fact sheet. It's also the time of the prescription of sunscreen with chemical filters, urea cream and MAL PDT cream. It is especially the time of planning the DLPDT treatment. This time is decisive and depend of the patient, of his schedule, and of his capacity to understand and to apply the treatment recommendation.

In our experience 75 % of DLPDT treatment are realized in the office by the dermatologist during a second appointment and 25% are care of the patient himself . The results are similar and the second option gives more liberty depending of the weather and the occupation and obligation of the patient.

C38 Indoor lightning requirements to perform indoor DL PDT

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Natural DayLight-mediated PhotoDynamic Therapy (NDL-PDT) is an efficacious treatment option for thin actinic keratosis that offers advantages over conventional PDT in terms of tolerability, treatment duration, and cost. However, it is limited to certain times of the year at our latitude. Several solutions are now proposed to carry out indoor illumination.

The greenhouse makes it possible to perform daylight PDT even in harsh weather conditions. However, it is difficult to install a greenhouse everywhere. Illumination sources installed at the ceiling of the treatment room is another option. Several lamp pairs can be combined to illuminate groups of patients simultaneously. A surgical theatre light can be used. The minimum light dose delivered is comparable with the dose routinely prescribed using c-PDT. However, the spectrum of the artificial source must be considered carefully in order to determine the optimal light dose.

In conclusion, Indoor lightning (or simulated daylight: SDL-PDT or Artificial White Light: AWL) could offer an interesting alternative to NDL-PDT.

Key Words:
PDT, AK, LED, PpIX

C39 How much light is needed to activate all PPIX in different situations?

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Christoffer V. Nissen, Hans Christian Wulf

We have examined if all accumulated PpIX are photobleached during both DL-PDT where PpIX amounts are small, C-PDT with standard PpIX quantities, and PDT of very large amounts of PpIX.

Several different methods for PpIX measurements were used: fluorescence spectrometer, fluorescence camera, handheld fluorescence photometer and visualization in black light.

The study showed that very large amounts of PpIX requires more than 37 J/cm^2 red light for complete photobleaching.

Monitoring PpIX during DL-PDT showed that not all fluorescence was photobleached. This fluorescence came from a not identified by-product produced during long-term illumination emitting light with a peak at 608 nm lying on the skin surface.

Most measuring techniques can easily confuse the by-product with PpIX. The easiest way to avoid this is by wiping the skin with a wet cloth to remove the by-product before measuring PpIX fluorescence.

Key Words:
C-PDT, DL-PDT, PpIX fluorescens, PpIX photobleaching

C40 Artificial White Light vs Daylight-PDT for AK: A Randomized Clinical Trial

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Design, setting, and participants: 22 men with significant photodamage were enrolled in this prospective, randomized comparing the effectiveness and adverse effects of daylight photodynamic therapy and artificial white light (AWL) LED photodynamic therapy for the treatment of AKs on the forehead and scalp.

AKs counted, mapped, and photographed at baseline, 1, 3, 6, and 9 months.

Primary end point was reduction in total AK count. Wilcoxon signed rank test to compare paired data.

The median number and percentage of reduction in AKs per field were 12 and 62.3% for DPDT and 14 and 67.7% for AWLPDT at 1 month (P = .21 and P = .13, respectively). At 9 months, the median number and percentage of reduction in AKs per field was 9.0 and 48.4% for DPDT and 12.0 and 64.4% for AWLPDT (P = .13 and P = .05, respectively).

Conclusions: Photodynamic therapy using an AWL source was as effective and well-tolerated as daylight photodynamic therapy.

Key Words:
AK, Artificial white light (AWL), Daylight, PDT, Methyl 5-aminolevulinic acid

C41 PDT without pain and erythema - Pulse- steroid-daylight-PDT and Brimonidine Tartrate (Mirvaso)

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Hans Christian Wulf

The introduction of daylight-mediated photodynamic therapy (d-PDT) has resulted in pain-free field treatment of multiple actinic keratoses of the face and scalp. However, severe erythema after d-PDT enhances the down time associated with the treatment.

In a randomized intraindividual study we evaluated whether pulse-corticosteroid-d-PDT (PS-d-PDT) would reduce treatment-induced erythema compared with d-PDT. The effect of topical brimonidine tartrate (BT) after d-PDT was also evaluated.

Twenty-five patients with multiple mild AK on the face and scalp were treated with methyl aminolevulinate (MAL) d-PDT in two symmetrical areas. One area was incubated with MAL for 30 min and a superpotent corticosteroid was applied before daylight exposure. The other area was incubated with MAL for 2.5 h (including the 2 h daylight exposure) and no corticosteroid was applied. BT gel was applied once 24h after d-PDT. The use of PS-d-PDT did not significantly reduce d-PDT-induced erythema. Topical BT reduced erythema to pre-PDT levels when applied 24h after d-PDT. The complete lesion response rate 3 months after d-PDT did not differ significantly between the treated areas.

Daylight PDT induced less erythema than seen after conventional PDT. Under these circumstances PS-d-PDT did not significantly reduce erythema compared to daylight PDT. Application of BT significantly reduced post-PDT erythema and may be an easy way to make PDT more acceptable in visible areas.

Key Words:
Daylight PDT, MAL, AK, erythema, Brimonidine tartrate

C42 Treatment failure in superficial BCC following treatment with PDT: is this a result of underdiagnosis?

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The treatment response of MAL-PDT in superficial basal cell carcinoma (sBCC) depends, amongst others, on the accuracy of subtype determination by biopsy, since more aggressive subtypes not respond well to MAL-PDT.

The objective of this study was to determine whether a treatment failure or recurrence is based on underdiagnosis of histological examination.

Material and methods: Retrospective analysis of 257 patients with 503 histopathological confirmed sBCC treated with MAL-PDT.

Results: The number of treatment failures underdiagnosed by primary biopsy was 69.2%. Recurrences showed a mixed-type tumor in 48.6% comparing primary biopsy, repeated biopsy and excision specimen. 40.5% of recurrences missed the most aggressive part of the tumor by primary biopsy.

Conclusion: Treatment failures and recurrences showed a substantial percentage of mixed-type tumors and therefore underdiagnosis by primary biopsy. Limitations of this study was the unavailability of all excision specimens of treatment failures and recurrences. Treatment success may increase by more extensive histopathological examination (e.g. deeper step-sections) or by prior non-invasive diagnostics (e.g. reflectance confocal microscopy).

Key Words:
PDT, sBCC, Mixed-type tumors, Treatment failure, Recurrence, Non-invasive

C43 Three-Year Follow-Up Results of PDT vs. Imiquimod vs. Fluorouracil for Treatment of Superficial BCC: A Single-Blind, Noninferiority, Randomized Controlled Trial

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In this single blind, non-inferiority, randomised controlled multicentre trial, we enrolled patients with a histologically proven superficial basal cell carcinoma at seven hospitals in the Netherlands. Patients were randomly assigned to receive treatment with methylaminolevulinate photodynamic therapy (MAL-PDT; two sessions with an interval of 1 week), imiquimod cream (once daily, five times a week for 6 weeks), or fluorouracil cream (twice daily for 4 weeks). 601 patients were randomised: 202 to receive MAL-PDT, 198 to receive imiquimod, and 201 to receive fluorouracil.

We now present the 3-year follow-up results. The probability of tumor-free survival at 3 years post-treatment was 58.0% for MAL-PDT, 79.7% for imiquimod, and 68.2% for fluorouracil.

Subgroup analysis showed a higher probability of treatment success for imiquimod versus MAL-PDT in all subgroups with the exception of elderly patients with superficial basal cell carcinoma on the lower extremities.

In this subgroup, the risk difference in tumor-free survival was 57.6% in favor of MAL-PDT.

In conclusion, according to results at 3 years post-treatment, imiquimod is superior and fluorouracil not inferior to MAL-PDT in treatment of superficial BCC.

Key Words:
BCC, MAL-PDT, Imiquimod, 5-fluorouracil, Treatment failure

C44 Bowen's Disease: Five-year results of Treatment with 5-Fluorouracil cream, PDT and Surgical Excision

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To evaluate the efficacy of 5-fluorouracil (5-FU), photodynamic therapy (PDT) and excision for the treatment of Bowen's Disease (BD) data from histologically proven BD diagnosed between January 2008 until December 2013 were retrospectively collected. Cumulative probability of treatment failure 5-year posttreatment was evaluated.

841 BD lesions in 608 patients were identified, of which 450 lesions (53.5%) were treated with PDT, 288 (34.2%) with excision, 72 (8.6%) with 5-FU and 31 (3.7%) with other treatments. 5-years posttreatment cumulative treatment failure probability was 4.9% (95%CI 2.9-8.1) for excision, 15.5% (95%CI 8.3-27.9) for 5-FU and 22.3% (95%CI 17.9-27.6) for PDT. After correction for confounders, the probability of treatment failure was more than twice as high after treatment with 5-FU (HR 2.22, 95%CI 0.98-5.04) and PDT (HR 2.71, 95%CI 1.52-4.83) when compared to excision. Probability of treatment failure was similar for 5-FU and PDT (adjusted HR 1.22, 95%CI 0.62-2.41).

Thus, excision is associated with the lowest 5-year probability of treatment failure. No significant difference between 5-FU and PDT was found.

Key Words:
Bowen's Disease, PDT, Surgical excision, Treatment, 5-fluorouracil

C45 IPL combined with PDT for AK and photodamaged skin on back of the hands

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There is a need for an effective and well tolerable treatment for photodamaged skin on the back of the hands.

A prospective, randomized, placebo-controlled within-patient trial investigated the effect of MAL (Metvix®) plus IPL (Ellipse Flex PPT, λ ≥ 600 nm, 16.2 J/cm2, 3 passes) versus placebo plus IPL in 37 patients with mild-to moderate AK on the dorsal hands. Patients received three treatments six weeks apart and biopsies were taken.

Lesion complete clearance rate for AK 10 weeks after the last treatment was 69.2% after MAL plus IPL versus 14.7% after placebo plus IPL ($p < 0.0001$). Mottled pigmentation and overall appearance improved significantly better after MAL plus IPL as compared to placebo plus IPL. Skin roughness and wrinkle size improved similarly in both groups. Histological examination demonstrated a significant increase of the subepidermal collagen band in both groups.

MAL-PDT using an IPL showed good efficacy for the treatment of AK on the dorsal hands simultaneoulsy improving the signs of photoaging.

Key Words:
Actinic keratoses, Dorsal hands, Intense pulsed light, Photoaging, Photodynamic rejuvenation

C46 c-PDT in onychomycosis: results of a RCT

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Background: conventional treatments for onychomycosis fail in 30-60% of the cases.

Objective: to investigate the efficacy and safety of MAL-PDT for onychomycosis.

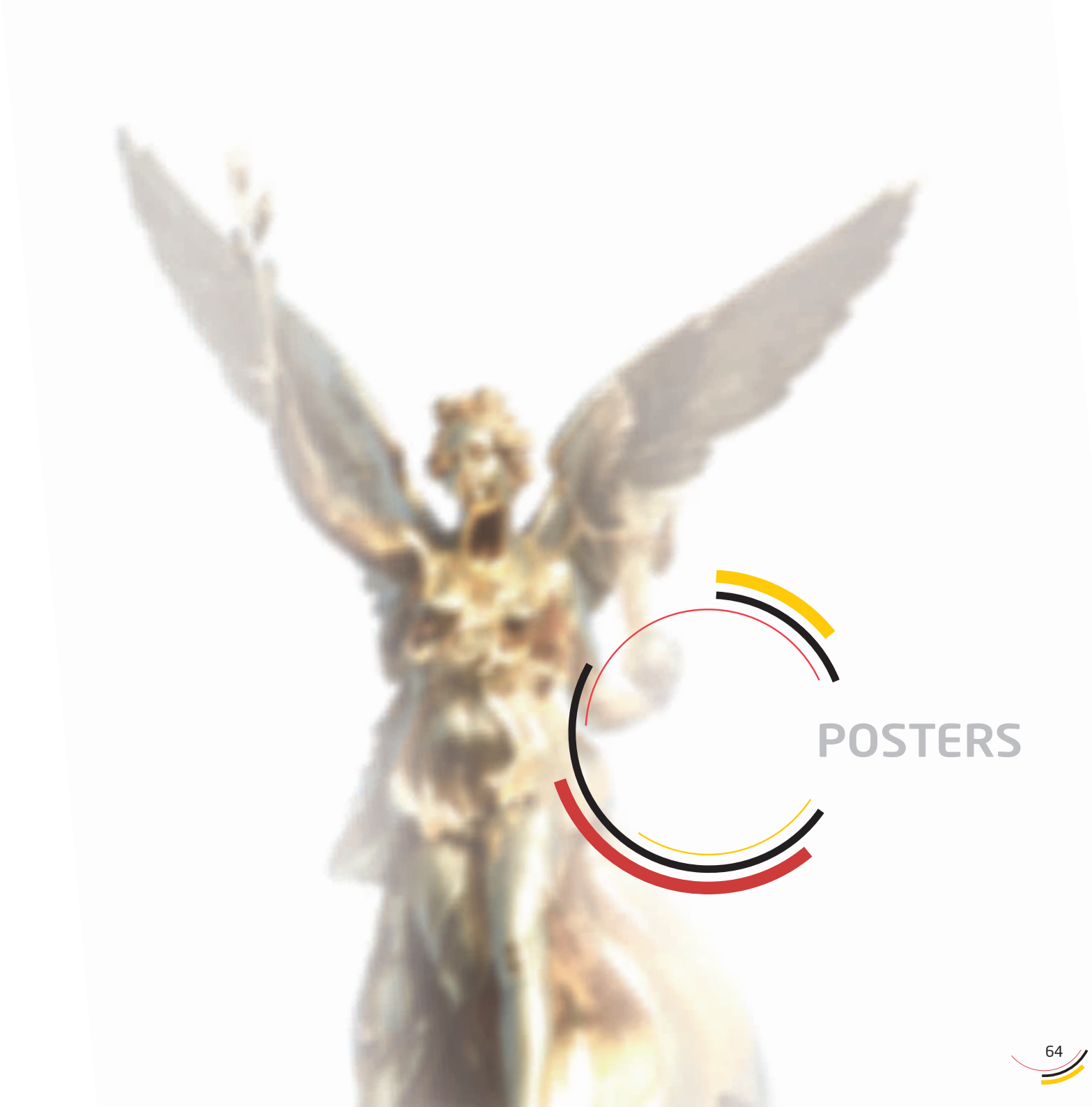
Methods: A multicentre, placebo-controlled RCT comparing 3 sessions of 40% urea plus conventional MAL-PDT with 40% urea plus red light (pPDT) in onychomycosis was performed. Clinical and microbiological efficacy was blindly evaluated after 36 weeks of follow-up.

Results: Twenty-two patients received MAL-PDT and 18 pPDT. Four patients (18.18%) in the former and 1 (5.56%) in the later were clinically cured (NTT 7.92, CI95% 2.98,-9.69, p=0.23). Non-dystrophic onychomycosis showed better clinical response (OSI>75% 53,85% vs 18,75% (p =0,048) and microbiological cure (41.56% vs 7.14%,(p=0.037)) with MAL-PDT than those dystrophic. No significant side effects were reported. 73% of the cases caused by T.rubrum failed to cure at the end of the RCT. In these cases, combining 1 month of oral terbinafine with MAL-PDT significantly improved the effectiveness.

Limitations: the small sample size and high efficacy in the control group could be attributed to application of 40% urea.

Conclusion: although this RCT did not show remarkable differences between MAL-PDT and placebo, PDT could be considered as a good alternative to treat onychomycosis, either alone or combined with antifungals, due to its easy adherence and lack of side effects.

Key Words:
MAL-PDT, Onychomycosis



POSTERS

P1 Use of skin preparation pad abrasion or microneedling pretreatment improves absorption of MAL cream in ex vivo human skin

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Alexandre Gaborit, Karine Sevin, Guy Bouvier, Jean-Michel Linget, Claire E. Wilson

Introduction: In European guidelines, curettage is the recommended pre-treatment procedure to enhance the penetration of photosensitizer before photodynamic therapy. However, alternative procedures are emerging, such as microneedling and derma-sanding using sandpaper. The objective of this work was to evaluate the effect of microneedle and skin preparation pad on dermal absorption of [14C]-methyl aminolevulinate ([14C]-MAL) in ex vivo human skin.

Methods: Ex vivo human skin samples were pretreated with 10 passages of skin preparation pad or 2 passages of microneedle of 0.2 mm needle lengths and then treated with Metvixia® 168 mg/g cream containing [14C]-MAL for 2.5 hours. Concentration of [14C]-MAL penetrated into the skin was measured by liquid scintillation counting.

Results & Conclusion: Use of microneedle and skin preparation pad increased skin penetration of [14C]-MAL by 4 and 100 times, respectively. This indicates that both procedures considerably improve skin penetration, with skin preparation pad being the more efficient tool.

Key Words:
MAL, Microneedle, PDT, Skin preparation pad

P2 Effect of skin preparation pad on transepidermal water loss and absorption of MAL in ex vivo human skin

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Alexandre Gaborit, Karine Sevin, Guy Bouvier, Jean-Michel Linget, Claire E. Wilson

Introduction: Transepidermal water loss (TEWL) is a good indicator of skin integrity. Derma-sanding using skin preparation pad (SP) is an emerging procedure used to enhance the penetration of photosensitizer before photodynamic therapy. The objective of this work was to evaluate the effect of skin preparation pad on skin integrity and on dermal absorption of [14C]-methyl aminolevulinate ([14C]-MAL) in ex vivo human skin.

Methods: Human skin samples were pretreated with one to ten passages of skin preparation pad (SP) and then treated with Metvixia® 168 mg/g cream containing [14C]-MAL for 2.5 hours. Concentration of [14C]-MAL penetrated into the skin was measured by liquid scintillation counting. Skin integrity was evaluated after each SP passage by measuring TEWL and by microscopic examination of skin sections.

Results & Conclusion: Skin preparation pad increased both TEWL and skin penetration of [14C]-MAL proportionally to the number of SP passages with no apparent damage of epidermis. Moreover, there was a good correlation between TEWL and [14C]-MAL penetrated into the skin.

Key Words:
MAL, PDT, Skin preparation pad, TEWL

P3 Study of clinical, histological and immunohistochemical markers of resistance of bowen disease to PDT

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Introduction: MAL-PDT is an excellent option for Bowen´s disease (BD), however there are some resistant cases. The aim was to investigate biomarkers of response of BD to MAL-PDT.

Material and Methods: A retrospective study (2006-2015) of 68 patients with BD treated with MAL-PDT in two spanish hospitals was performed. Epidemiological, clinical, histological and immunohistochemical characteristics (P53, Ki 67, Cyclin D1, COX2, E-cadherin, EGFR) were studied. In vitro PDT response in SCC-13 and A-431 cells was also evaluated.

Results: The response rate was of 82,1%. P53 was positive in 90.5% of responders and in 30% of non-responders (p = 0.01, OR= 11.25; CI95% 11.07-114.46). Cyclin-D1 was positive in 33.3% of responders and in 80% of non-responders (p=0.023). EGFR´s intensity was mild to moderate in 85.7% of responders, and intense in 60% of non-responders (p=0.015, OR=9; CI95% 1.5-52). SCC cells were more resistant to MAL-PDT than A-431 cells (p<0.01) and showed lower expression of P53 and ciclin D1 (evaluated by Western blot and immunofluorescence) (p<0,01).

Conclusion: P53, cyclin D1 and EGFR might be possible biomarkers to select those patients with BD suitable to be treated with MAL-PDT.

Key Words:
PDT, Bowen's Disease, Tumor Suppressor Protein p53, Cyclin D1, EGFR

P4 Cutaneous sporotrichosis treated with methylene blue-daylight PDT

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Ana Milagro, Luis Torres Sopena, Oscar García-Callen, Pilar Puertolas-Villacampa, Yolanda Gilaberte

Sporotrichosis is an infection caused by the dimorphic fungus, Sporothrix schenckii. Acquisition typically occurs via cutaneous inoculation with development of a localized cutaneous and/or lymphocutaneous infection. Antimicrobial photodynamic therapy (aPDT) could be a good option to achieve localized, superficial infections.

Case report: A 41-year-old man with a plaque on his right arm, with one year of evolution, was referred to our service. Physical examination on his right arm, revealed an erythematous nodule, with suppuration and crust on its surface. No lymphadenopathy was found. The patient did not remember previous traumatic inoculation, but he usually goes to the mountain. A microbiological culture was carried out with sporotrichosis result. Daylight-PDT using 1% methylene blue solution by injection and 2 hours of daylight exposure was performed with a complete clinical response after 6 sessions (1 every 2 weeks).

Discussion: Oral Itraconazol is the preferred treatment for cutaneous and lymphocutaneous forms. There is only one previous study describing the use of MB-PDT in a recalcitrant cutaneous sporotrichosis. Here we report the first patient successfully treated with MB-PDT using daylight as the source of light.

Key Words:
Daylight PDT, Methylene blue, Cuanteous sporotrichosis

P5 Inmunohistochemical (IHC) investigation of predictors of response or aggressiveness of Bowen's disease after PDT

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Israel Bernal, J. Barrio Garde, A.I. Sánchez Adrada, Sandra Pierri Ugia

Introduction: Photodynamic therapy (PDT) is a good option for the treatment of Bowen's disease (BD) but in some cases an incomplete response is seen. Rarely, after PDT, BD develops into a squamous cell carcinoma (SCC).

Objective: Find predictors of aggressiveness of BD after PDT.

Material and methods: Biopsies of patients with BD treated with PDT were selected for IHC studies. Conventional PDT was applied. Biopsies of high risk BD were excluded. IHC analysis was performed together with hematoxylin-eosin in the samples previous and after treatment with PDT.

Results: Seven patients with BD treated with PDT were studied. Among the inmunohistochemical markers studied, none of them showed different expressions between the samples pre-treatment and post-treatment except for p53 and HSP70.

Conclusion: The expression of p53 in BD may predict future aggressive behaviour in BD when treated with PDT. Nevertheless the small number of biopsies studied in this study requires further investigations to draw conclusions.

Key Words:
PDT, Bowen disease

P6 Treatment of superficial BCC by topical PDT with fractionated 5-aminolevulinic acid 20% versus two stage topical methylaminolevulinic acid

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We evaluated whether the 2-fold fractionated ALA illumination protocol is superior to the conventional MAL-PDT treatment in superficial basal cell carcinoma (sBCC). With this scheme two light fractions of 20 and 80 J/cm2 are delivered, four and six hours after ALA application. In a single blind, randomized multi-centre trial in the Netherlands 162 sBCC were randomly assigned with follow-up at 3 and 12 months post-treatment.

Kaplan Meier survival analysis was performed to estimate the cumulative probability of recurrence free survival.

After 12 months a total of 6 treatment failures occurred after 2-fold ALA-PDT and 13 after MAL-PDT. The 12 months cumulative probability of tumour free survival was 91.1% (95% CI [82.2-95.7]) and 83.4 (95% CI [73.1-90.0]), p = 0.159, respectively. Despite better efficacy, the 2-fold ALA-PDT scheme resulted in higher pain scores and post-treatment side-effects. Advantages are the one-day treatment and a slightly better cosmetic outcome.

Key Words:
5-aminolevulinic acid, BCC, Fractionated, Methyl-aminolevulinic acid, PDT

P7 Initial experiences of a phase IV, randomized, clinical trial on the clinical effectiveness of the sequential treatment of AK with PDT and diclofenac 3% gel

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Introduction: Photodynamic therapy (PDT) and topical 3% diclofeac gel are effective for the treatment of actinic keratoses (AKs) and field cancerization. The aim of our study is to evaluate the effectiveness of the combination of PDT (1 session) and topical 3% diclofenac gel compared to PDT alone (2 sessions) for the treatment of AKs.

Material and methods : This is a prospective clinical phase IV trial, open and randomized in a 1:1 ratio, including 30 patients in each group of treatment with 5 or more AKs on the face and/or scalp. Our primary endpoint is the reduction of the number of AKs three months after finishing treatment.

Results : Mean reduction of the number of AK is 66% at the PDT group and 61% at the PDT-diclofenac group. Only 9 patients of each group (30%) have achieved a reduction of at least 75% of AKs. No statistical differences have been found between the two treatment groups ($p>0.05$, Chi2 test).

Key Words:
AK, Field cancerization, PDT, Sequential treatment, Topical diclofenac

P8 New device based on light emitting fabric for Photodynamic treatment of AK

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C. Vicentini, P. Deleporte, F. Lecomte, A. Vignion, L. Mortier, R.-M. Szeimies, S. Mordon

The planar shape of current light sources used for photodynamic therapy (PDT) of actinic keratosis lead to inhomogeneous light distribution on lesions located on curved parts, such as the scalp. Moreover, PDT is known to be very painful.

Resulting from a European project, PHOSISTOS, based on light emitting fabrics (LEF) was developed to overcome those drawbacks. The device delivers a low irradiance (4mW/cm²) during 2h30, for a total fluence of 12J/cm², instead of a 37J/cm² for the conventional treatment.

PHOSISTOS device is being assessed in a comparative (split face intraindividual comparison), randomized, bi-centric, phase II study. The main objective is to show the non-inferiority of PHOSISTOS device compared to the conventional PDT. One of the secondary objectives is to show a significant pain
reduction on the PHOSISTOS side.

The pain score for the PHOSISTOS is very low (>1). At 7 days, a similar typical PDT reaction is observed on both sides. At 3 months, preliminary results show a similar efficacy on both sides.

Key Words:
PDT, Optical fiber, Light emitting fabric, AK, Clinical evaluation, Comparative study

P9 A software for analyzing and comparing the light sources available for PDT in dermatology

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Gregory Baert, Elise Thecua, Claire Vicentini, Laurent Mortier, Serge Mordon

PDT is a well-established treatment for actinic keratoses. Although the clinically approved protocols in Europe require irradiation with red light or daylight, there is a growing interest in other lights particularly in white lights... In photodynamic therapy, light is most often characterized by either the illuminance (lux), the irradiance (mW/cm^2), the effective irradiance (mW/cm^2)... Unfortunately some advanced calculations may be required to switch from one property to another.

We have therefore developed a computer software that, from any spectral irradiance (mW/cm^2/nm), automatically and instantly displays the values of several properties. Among these, the illuminance (respectively, effective irradiance) is computed by integrating over wavelength the spectral irradiance weighted by the luminous efficiency function (respectively, normalized PpIX absorption spectrum). This software that is a valuable tool for analyzing and comparing lights will be accessible through our research unit's website (www.onco-thai.fr) and will be freely available to any registered user (dermatologist).

Key Words:
Computer software, Effective irradiance, Illuminance, Irradiance, Light-source properties

P10 Satisfaction evaluation of daylight PDT in the treatment of AK in oculocutaneous albinism in comparison with 5-FU and cryotherapy

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Heitor Gonçalves, Juliana Caldas, Natasha Xenofonte, Renata Tomaz

Oculocutaneous albinism(OCA) is common in northern Brazil. Twelve patients with OCA and at least 4 facial AKs and a history of cryotherapy and use of 5-FU cream, performed one session of DL-PDT. One month later they answered a questionnaire (0-60), whose result would classify the treatment as bad(0-20), regular(21-40) and good(41-60). The six questions were: how much discomfort did the patient feel during the treatment? What was the intensity of local skin reactions immediately after the treatment? What did the patient perceive regarding the clinical and aesthetic results? Which treatment would he/she prefer to be submitted to again and to what extent had the procedure contributed to the improvement of photoprotection measures. DL-PDT and cryotherapy attained good satisfaction in 10 of 12 patients, both over 5-FU(2 of 12 patients), p:0,03. DL-PDT can be safely used in OCA with high satisfaction and efficacy, compared to standard AK treatments.

Key Words:
Daylight-mediated PDT, Keratosis, Oculocutaneous albinism, Rejuvenation, Treatment outcome, Therapeutic

P11 Evaluating Hypericin mediated PDT in two- and three- dimensional models of colorectal cancer

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Sarah L. Perry, David G. Jayne

Introduction: Three dimensional (3D) in vitro cultures offer an advantage over monolayered cultures (2D); better representing clinically relevant tumour growth and response to treatment. Colorectal cancer (CRC) is a major cause of worldwide mortality, due to the lack of advancement in oncological medicine and inadequate pre-clinical evaluation of novel treatment. Here we investigate the potential role of Hypericin mediated photodynamic therapy (HYP-PDT) in treating CRC using 2D and 3D tumour models.

Materials and Methods: 2D and 3D models of CRC cell lines were treated with Hypericin and 1J/cm^2 (Max emis : 590nm). Viabililty was assessed using trypan blue exclusion and propidium iodide fluorescence. Fluorescence microscopy was used to visualise spheroids. Paired t-test and Two-way ANOVA were used to analyse results.

Results and Discussion: Hypericin portrayed light and photosensitiser-dose dependent cytotoxicity. Spheroids were more resistant to treatment than their monolayered counterparts. HYP-PDT is an attractive method for treating CRC.

Key Words:
Anti-Cancer Therapy, Colorectal Cancer, Hypericin, PDT, Pre-Clinical Tumour Models, Spheroids

P12 PDT of eyelid BCC

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Carlos Serra-Guillén, Beatriz Llombart, Celia Requena, Onofre Sanmartín, Eduardo Nagore, Laura Calomarde, Carlos Guillén

Introduction: Treatment of eyelid basal cell carcinomas (BCC) is a therapeutic challenge, especially in the cases were surgery is contraindicated. For these selected cases, an alternative could be photodynamic therapy (PDT).

Objective: A series of 10 patients was used to describe the efficacy and tolerability of PDT in the treatment of eyelid BCC.

Material and Methods: Observational and retrospective study of a series of 10 patients diagnosed BCC, treated with cPDT with MAL during 2010 and 2014 in our center. The cases were histologically confirmed, and several variables were studied.

Results: Six patients were superficial BCC, 4 nodular BCC, who received between 1 and 3 sessions of TFD with MAL. Four patients presented complete response and four patients presented partial response, while two of them presented doubtful answer.

Conclusion: PDT could be a valid alternative in the treatment of eyelid BCC, because treatment duration is short, well tolerated, and it can be used as isolated treatment, or well as neoadjuvant of other treatments.

Key Words:
PDT, Eyelid, BCC, ALA

P13 Satisfaction of mountain- and ski guides in Germany with high sun protection as a tool to prevent Non-melanoma skin cancer

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Linda Tizek, Julia Krause, Elisabeth Scheler, Tilo Biedermann and Alexander Zink

Background: NMSC is an occupational disease for outdoor workers in Germany since 2015. Sustainable prevention is demanded and sunscreen promoted as an effective tool. However, studies on the satisfaction of sunscreen users are rare.

Methods: Use of Actinica Lotion by mountain and ski guides in Germany during a 4-8 hour mountain tour followed by the completion of a self-filled paper-based questionnaire about their experience and satisfaction with the product.

Results: 88 mountain and ski guides (61 men, 27 women) have been included in the study, 84% were (very) satisfied with the dosing dispenser and 79.3% felt (very) protected against sun by the product. For 70.9%, Actinica Lotion is (very) easy to include into their daily routine and 57.5% would recommend the product to friends.

Conclusion: Overall satisfaction with Actinica Lotion is high in mountain and ski guides and could be an effective tool in prevention campaigns.

Key Words:
Actinica lotion, Mountain- and ski guides, NMSC, Non-melanoma skin cancer, Prevention, sun protection

P14 AK area and severity index (AKASI) as a monitoring tool for PDT treatment of AK - a first case study

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Lutz Schmitz,Thomas Dirschka

Background AK severity is currently assessed by subjective evaluation of patients. The actinic keratosis area and severity index (AKASI) is a new quantative tool for assessing AK severity on the head. The score ranges between 0 and 18.

Objectives To determine the utility and feasibility of the AKASI score in a day-to-day practice.

Material & Methods We performed the AKASI score prior to and 3 month after MAL-PDT. Thus far, 3 patients fulfilled the 3 month follow-up visit.

Results All patients showed a significant reduction of their AKASI score 3 month after treatment compared to pre-treatment (4,4 vs. 1,6, 63,6%; 5,8 vs. 3,6, 37,9%; 4,4 vs. 2, 54,5%) .

Conclusion The AKASI score is a feasible and easy-to-learn tool to determine the efficacy of AK treatment. The improvement of the AKASI due to PDT reveals a huge potential in quantifying treatment efficacy in general and may be of great value for standardized inter-study comparisons in the future.

Key Words:
AK, AKASI score, Area, PDT, Severity, Treatment efficacy

P15 Daylight-PDT of AK in daily routine

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Agne Ramanauskaite, Rolf-Markus Szeimies

Since July 2015 (periods between 07/15-10/15 and 03/16-10/16) we treated 78 patients with actinic keratoses (67 men and 11 women) at face and scalp with natural daylight-PDT (DL-PDT) using MAL as photosensitizer. Localization of the treatment, weather conditions during DL-PDT as well as associated pain was documented, using a visual analogue scale (0 = no pain, 10 = worst pain).

Altogether the treatment was well tolerated by all patients without any discontinuations of the treatment. Nearly no pain was reported by the patients (mean pain score VAS 1.08). Furthermore there was no positive correlation between pain and localization (face vs. scalp) or gender (men vs. women). The treatment appeared to be a little bit more painful on sunny days than on partial-cloudy or cloudy days (mean average pain score VAS 1.58 vs. 0.55 vs. 1.00), but without significant differences. Two days after the treatment we detected a mild to moderate erythema of the treated area in all cases and an excellent cosmetic outcome 12 weeks later without any hypopigmentation or scarring.

Key Words:
AK, MAL-PDT, Natural daylight-PDT, VAS pain score

P16 Disseminated Superficial Actinic Porokeratosis treated with Daylight PDT. Two Cases

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Pablo Hernández Bel, Pedro Cornejo, Blanca Ferrer Guillén and Victor Alegre de Miquel

A variety of therapeutic options have been used in disseminated superficial actinic porokeratosis (DSAP) with different results. We report two cases of DSAP treated with daylight photodynamic therapy (DL-PDT).

Material and Methods. Two women with history of DSAP for several years and unsatisfactory previous treatments were treated. DL-PDT was performed following Spanish-Portuguese consensus on the subject. Several sesions (n=XX) (please name how much !) were performed on both arms and legs simultaneously on days with mild temperature between May and November and respecting patients' disposability.

Results : Lesions at the arms improved or disappeared completely while lesions at the legs flattened and became free of scaling. Both patients were highly satisfied with the therapy results. Several months later the benefit still remains stable. The treatment was well tolerated and no adverse events were reported.

Commentary : Only two cases of DSAP treated with DL-PDT have been described so far in the literature. In both, results were good and the patients were free of lesions for 10 months after therapy. DL-PDT therefore could be a good treatment opportunity in DSAP.

Key Words:
Actinic porokeratosis, Day-ligth, Methyl aminolevulinate, PDT

Notes

Notes

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