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Clinical Photodynamics

In Dermatology

An International Newsletter for PDT and FD in Clinical Practice

Editorial

In this edition of ***Clinical Photodynamics***, we report on two recent highly successful meetings, the 11th Annual Meeting of the European Society for Photodynamic Therapy in Dermatology (Euro-PDT) in Paris in March and 13th World Congress of the International Photodynamic Association (IPA) in Innsbruck in May.

We also summarise several recent publications concerning PDT. Enthusiasm remains high for exploring the potential of topical PDT in field cancerisation and in new indications, especially acne. We are also seeing evidence of choice in how PDT can be delivered in skin cancer, with the option of a simplified protocol using daylight for actinic keratosis, and other light devices and photosensitiser formulations that should satisfy a need for refining how PDT is delivered, to reflect patient preferences and ease of delivery in different health systems. Whilst there are efforts to simplify PDT, there is also a desire to push the boundaries of the therapy by looking to enhance drug penetration by various approaches, including using fractional laser. Many readers of this newsletter need little persuasion as to the benefits of PDT, but will remain frustrated at the limited access for many suitable patients to the therapy. Following a systematic review of PDT in the treatment of pre-cancerous skin conditions, Barrett's oesophagus and cancers of the biliary tract, brain, head and neck, lung, oesophagus and skin (*Health Technol Assess* 2010;**14**:1–288), we currently await the publication of a review of the place of PDT in Health Service practice in the UK, chaired by Prof Mike Richards, National Clinical Director for Cancer. It is anticipated to be supportive of topical PDT in skin cancer and is likely to recommend its wider availability wherever there are multidisciplinary teams managing skin cancer care.

STOP PRESS! – Euro-PDT will take place on 25th–26th May, 2012, in Copenhagen, Denmark (see page 7). Professor Hans Christian Wulf will be Congress President. Anyone wishing to offer a poster should submit abstracts by April 15th.

Further details will be announced shortly and be available on the Euro-PDT website: www.euro-pdt.org.

Colin Morton, Stirling, UK

13th World Congress of the International Photodynamic Association (IPA)

10-14 May, 2011, Innsbruck, Austria

by: **Karin Lehner** Dipl Chem
(Regensburg, Germany)

Innsbruck, the picturesque city in the Tyrolean Alps, was the host of the 13th World Congress of the International Photodynamic Association (IPA), in association with the European Platform of Photodynamic Medicine (EPPM) and the Head & Neck Optical Diagnosis Society (HNODS). In this case, the terms 'international' and 'world congress' were quite literally applicable, as almost 400 participants from over 50 nations from all fields of photodynamics (i.e. PDT and FD) attended the meeting.

In this Issue

The Congress was preceded by an extremely well-attended PDT school (the course directors were **Prof David Kessel**, **Dr Tayyaba Hasan** and **Dr Brian Pogue**) and a laser course with international participation (including some Austrian chickens that 'volunteered' to be CO_2 laser candidates for the practical class!) organised and held by **Mr Colin Hopper**, **Mr W Jerjes**, **Mr Charles Mosse**, **Dr K Russe** and **Dr Alexis Sidoroff**. Every morning, attendees to the meeting were welcomed by a fascinating film showing the beauty of the Tyrol's landscape, relaxing them for the plethora of highly interesting talks on every aspect of photodynamics – from innovative basic research to clinical applications in about 40 lecture sessions, far too many for all to be summarised in this brief report.

Congress President Herwig Kostron, Stephen Bown as representative of the IPA, and Herbert Lochs, Rector of the Medical University of Innsbruck.

Herwig Kostron – a relaxed Congress President.

In his opening address, the Congress President, **Prof Herwig Kostron** (Innsbruck, Austria) made clear that PDT and FD have been proven to be more than helpful tools but still – with few exceptions – haven't made their way into routine clinical use. As never before, the need for clinical studies, ongoing research and an 'umbrella organisation' such as the IPA was emphasised. Other lectures were dedicated to the position of PDT in the clinical world and the need for higher acceptance, such as the wake-up call by **Mr David Longman** from the 'Killing Cancer' organisation, **Prof Stephen Bown's** (London, UK) plenary lecture giving a comprehensive overview on PDT in the clinics, behind the scene talks, and especially the programme on the last day of the meeting (update on international PDT activities, regulatory affairs, a telephone conference with **Dr R Wong** from the NIH/NCI in the USA, and the session 'From evidence to clinical consensus', also organised by Prof Bown). In many fields, PDT has reached the stage where larger randomised controlled trials would be the final step to convince the clinical community. International collaborations, synchronising efforts, and one organisation (such as the IPA) merging the activities of the PDT community could be one way for a significant step forward in this direction. All this, however, would make no sense without the high quality basic research on photodynamics that is taking place worldwide.

The spectrum of PDT was reflected in a range of excellent plenary lectures. **Dr Tayyaba Hasan** (Boston, USA), the 'Grande Dame' of photodynamic basic research, took up the challenge to address its impacts on the clinical setting. **Dr Angelika Rück** (Ulm, Germany) gave an interesting overview of fluorescence lifetime imaging (FLIM) and its spectral resolved variant (SLIM), whilst former IPA President **Prof David Kessel** (Detroit, USA) discussed the many variables that influence the photodynamic effect on cells.

One specialty in which PDT has successfully made its way into clinical routine is Dermatology. The key event was the introduction of a topically applicable sensitiser (precursor). For this significant and innovative step, **Prof JC Kennedy** (Toronto, Canada) was awarded the Medal of Honor of the IPA. His very personal plenary lecture allowed a glance back to the pioneer days of PDT. In his – as always – entertaining and enthusiastic way, local Co-organiser **Prof Alexis Sidoroff** (Innsbruck, Austria) picked up the thread to address the status of PDT in dermatology from a very practical perspective: even if tens of thousands of patients have successfully been treated and recommendations speak in favour of this therapeutic modality, its use and acceptance within the medical community is very heterogeneous.

The clinical applications of PDT were addressed in various focused sessions and plenary lectures – all with a very realistic approach to what PDT/FD can do. Additionally, **Prof P Berlien** (Berlin, Germany) examined what steps have to be taken to promote these techniques.

While clinical PDT seems to be struggling for recognition in the clinical world, basic science and innovative ideas are still prospering. From the many excellent presentations, just a few topics can be highlighted in this report. One of them is Antimicrobial PDT. Plenary lectures and dedicated sessions by **Prof Giulio Jori** (Padua, Italy) and **Dr Michael Hamblin** (Boston, USA), amongst others, demonstrated the incredibly vast field of potential applications. They go far beyond clinical use such as the treatment of infected leg ulcers. Eradicating disease-bearing insects (e.g. mosquitoes and malaria) and disinfection of surfaces (hospital furniture or bottles for beverages) are just a few of the ongoing projects.

A thrilling field is the combination of photodynamic mechanisms and nanoparticles. Everybody who had the chance to attend the lectures on this topic by **Prof David Russel** (Norwich, UK), **Dr R**

S. Bown, N. Fleisch and J. Sears (the two nice ladies from the Congress site who organised a flawless meeting), A. Sidoroff, H.-C. Berg and K. Takato.

Kopelman (Ann Arbor, USA) and many others were confronted with a totally new world of thinking and an approach that might revolutionise targeted therapy in medicine. Molecular recognition of specific cell surface receptors, for example, can be achieved efficiently by conjugation of gold nanostructures (nanocages, nanorods, nanoshells) with antibodies and then can destroy cancerous tissue by conversion of near-infrared illumination into heat.

In the session 'Singlet oxygen in PDT and beyond', **Dr P Ogilby** (Aarhus, Denmark) and **Dr S Nonell** (Barcelona, Spain) provided a comprehensive update of singlet oxygen from physics to chemistry. Former IPA President **Prof Thierry Patrice** (Nantes, France) presented some highly innovative results demonstrating a relationship among primates with regard to their ability to deactivate singlet oxygen ($^1O_2$) in the course of various diseases. The role of heme oxygenase was also underlined by **Dr Z Malik** (Ramat-Gan, Israel) and could explain why cancers are more sensitive to oxidative stress. In the same session, it was suggested that $^1O_2$ could be used as a tool to explore direct and indirect oxidative damage.

Science is still driven by human beings, rather than machines, which means that there has to be a work/leisure balance. Innsbruck, with its nice old town, and surrounded by beautiful mountains, set the ideal scene for the IPA participants to meet privately, create new contacts, make friendships and share ideas. Next to the posters, a special area was dedicated to an art exhibition for paintings created by colleagues (demonstrating the wide spectrum of talents in the PDT community). The various receptions and, last but not least, the gala dinner, were perfect opportunities to meet and converse.

A particularly striking aspect of the 13th IPA Congress was one basic attitude shared by most of the participants: PDT is delivering high-level research results and has been shown to be highly effective and helpful in treating patients – now is the time that PDT must 'step out of the shadows' and become a clinical routine therapy.

In an atmosphere of friendship, collaboration and common interests, rather than competition, forces can be united to achieve this goal. As highlighted above, the IPA could be the perfect platform to achieve this. We are all looking forward to the next IPA Congress in Korea under the Presidency of **Dr WS Anh**.

11th Annual Congress of the European Society for Photodynamic Therapy (Euro-PDT)

11–12 March, 2011
Paris, France

by: **Prof Dr Sigrid Karrer**
Regensburg, Germany

Dr Nicole Basset-Seguin (Hôpital Saint Louis, Paris) was again the Congress President of the 11th Annual Congress of Euro-PDT that took place at the Hilton Arc de Triomphe Hotel in Paris. Previously, in 2007, she had organised the very successful 7th Euro-PDT Meeting in Paris. As most countries in Europe now have access to PDT, the aim of the Congress was to promote interactive discussions on the use of PDT internationally and to exchange knowledge of creating innovative developments in medicine. A total of eight plenary sessions, with 40 talks given by renowned speakers, were presented over two days, addressing all relevant topics of PDT in dermatology. Several interesting posters were also presented.

FRIDAY

A welcome address was given by the President of Euro-PDT, **Prof Lasse R. Braathen** (Bern, Switzerland) and Dr Basset-Seguin, who also chaired the first plenary session on 'Non-melanoma skin cancer: hospital- and office-based PDT'. The speakers shared their experiences with PDT in their home countries. **Dr Rianne Gerritsen** (Nijmegen, The Netherlands) described how she uses PDT when treating actinic keratoses (AK). Prior to PDT, it is necessary to remove the hyperkeratosis of the AK lesions. Several techniques can be used for that purpose, such as 5–10% salicylic ointment 1–2x/day, roughening of the skin surface, curettage or tape stripping (2–4x). After application of the photosensitiser, patients should stay at normal room temperature and should not go outside during cold weather to ensure efficacy of the treatment. Many factors have an influence on pain during PDT, e.g. the light source used or the gender of the patient (men complain of more pain than women). For pain relief, she gives 1g paracetamol in the morning and one hour prior to PDT. Air cooling, water cooling and field or nerve blocks are also effective for pain management. After PDT, cooling of the treated area with an ice-filled bag will not only lower the pain, but might even enhance the efficacy of the treatment. After PDT patients can use a soft cream, but antibiotic creams are usually not necessary due to the antimicrobial effects of PDT.

Dr Colin Morton (Stirling, United Kingdom) also described his tricks and tips for PDT when treating Bowen's disease. In several studies, it has been shown that PDT is superior to cryosurgery or 5-fluorouracil in Bowen's disease. When methyl aminolevulinate (MAL)-PDT is performed, pain relief is rarely required, except for large or multiple plaques. Efficacy can be improved by removal of the crusts, e.g. by applying an ointment with salicylic acid for 2 days prior to PDT. Dr Basset-Seguin reported on her experiences with hospital-based PDT of basal cell carcinoma (BCC). In France, MAL-PDT is licensed for the treatment of superficial BCC, but not for nodular BCC or other forms of BCC. In her study, from 2007–2010, she treated 163 BCC patients with PDT, with a complete response rate of 83% at 3 months after treatment. In a study comparing MAL-PDT with surgery in superficial BCC, the cure rates were very similar, with a complete response of 92.2% for PDT and 99.2% for surgery, although the recurrence rate was higher after PDT (9.2%), as compared to surgery (0%). As expected, the cosmetic outcome was much better after PDT. The last speaker of this session, **Dr Jacques Savary** (Paris, France), talked about private practice PDT in France. Since 2008, Metvix® has been registered, with three indications currently reimbursed in France: AK of face and scalp, superficial BCC apart from the face and neck, and Bowen's disease. PDT can be implemented for those indications in private offices. When larger areas of the skin are treated (e.g. scalp AK), pain management in private practice is based on scalp nerve block, reducing the fluence rate, or cooling the treated area.

The next session addressed the problem of field cancerisation. For field cancerisation, field-directed treatments are necessary. Dr Basset-Seguin summarised these field-directed treatments, which include imiquimod, 5-fluorouracil (5-FU), cryosurgery, diclofenac gel and PDT. A study comparing efficacy of imiquimod, 5-FU and cryosurgery showed best results for imiquimod. The choice of treatment has to be made according to the clinical status of the patient, the number and thickness of the lesions, efficacy of previous treatments and the patient's preference. The pros and cons of combination therapies for field cancerisation were discussed by the participants of the Congress, following the talk given by **Prof Ann-Marie Wennberg** (Gothenburg, Sweden). She presented the results of several studies which effectively combined different therapies. An advantage of combination therapy might be the fact that different

cellular targets can be hit and thus efficacy can be improved. In a small study, 5-FU was combined with PDT in 15 patients with AK. After application of 5-FU for 5 days, ALA-PDT was performed once, with a complete response rate of 90%. Diclofenac gel combined with PDT or cryosurgery also showed good results. A combination of ALA-PDT with imiquimod showed better results, compared to PDT alone.

The third session tried to answer the question of how PDT can be simplified. **Dr Merete Haedersdal** (Copenhagen, Denmark) discussed differentiated PDT and presented alternative ways of delivering PDT. New procedures include daylight-mediated PDT, which results in less pain and is easy to perform. Fractional laser-assisted PDT represents a new intensive treatment concept with promising preclinical data for the treatment of thicker lesions. Also very promising is the prophylactic use of PDT to prevent the occurrence of new lesions in patients with extensive sun damage or in organ transplant patients. The term 'differentiated PDT' thus describes different ways of delivering PDT to different types of patients, and Dr Haedersdal was awarded the first prize for the best oral presentation (awarded on Saturday, 12th March) for this interesting talk. **Dr James Ferguson** (Dundee, United Kingdom) showed how PDT can be simplified by the use of new light sources, such as portable LED sources. A discussion arose after the talk of **Prof Alexis Sidoroff** (Innsbruck, Austria) on whether simplification of PDT by a standardised procedure or a 'differentiated' PDT with a lot of variables might be the best solution. Changes in various parameters, such as lesion preparation, light source, photosensitiser, application time, illumination parameters, etc., may have some influence on the treatment response that is often unpredictable. Whilst a standardised procedure that has proven its efficacy and gives reproducible results gives some guarantee for a good outcome, it is also possible for a modification of the standard procedure to be helpful to further optimise the treatment results for individual patients. Thorough knowledge of the mechanisms of the procedure and considerable clinical experience should be the prerequisites for clinicians to alter the standard procedure individually.

SATURDAY

The first session of the second Congress day began with a very important and current topic: PDT for organ transplant recipients (OTR). **Dr Günther Hofbauer** (Zürich, Switzerland) explained why skin cancer surveillance and therapy is so important in OTR. Organ transplant recipients have a greatly increased risk of cancer, with squamous cell carcinoma (SCC) of the skin occurring 60–100-fold more often than in the general population. Immunosuppressive medications, such as azathioprine or ciclosporin, contribute to the enhanced risk of skin cancer, as also does UV light exposure. Thus, preventive measures, such as sun protection, regular skin examinations and substitution of immunosuppression, are mandatory to avoid metastasising skin cancer. **Dr Claas Ulrich** (Berlin, Germany) also pointed out the necessity of early diagnosis and therapy of actinic keratoses as precursors of invasive SCC. PDT has been shown to be a useful and efficient tool to treat field cancerisation in immunocompromised patients. A European Expert Panel has recently met to share their experience with PDT in OTR and to work on recommendations for the treatment of AK in this patient group.

In the next session, the advantages and disadvantages of daylight PDT were debated. **Prof Hans-Christian Wulf** (Copenhagen, Denmark) has developed daylight PDT and has published several studies showing excellent results. While curettage and application of the photosensitiser are unchanged, no occlusive dressing is applied after application of the drug. Within 30 minutes after drug application, the patient is sent outside for a period of 2 hours. Daylight is able to activate PPIX formation without inducing pain and gives a cure rate identical to standard PDT. Since less time is needed for this procedure, many more patients could be treated in a clinic. Although these clinical results are very promising, **Prof Wolfgang Bäumler** (Regensburg, Germany) pointed out some possible theoretical drawbacks of this new procedure. The amount of reactive oxygen species (ROS) produced during PDT is correlated to the concentration of the photosensitiser in the tissue and the applied light radiant exposure. To completely destroy a skin malignancy, the amount of ROS must be sufficiently high. In addition, the generation of ROS per second is dependent on the light intensity (W/cm^2) and must be high enough to overpower the cellular defences. Therefore, light dosimetry is crucial for PDT efficacy and so daylight PDT, with the associated unpredictable and undefined light doses and light intensities, could carry a risk of a less effective outcome.

The next debate was about whether SCC development can effectively be blocked by PDT. **Dr Carin Sandberg** (Gothenburg, Sweden) argued that up to 10% of actinic keratoses develop into SCC. Therefore, treatment of field cancerisation with PDT will prevent this development effectively. On the other hand, **Prof Rolf-Markus Szeimies** (Recklinghausen, Germany) warned that some patients with field cancerisation might present with some lesions that already represent early invasive SCC. Therefore, careful selection of treatment areas for PDT is important to avoid

Prof Lasse Braathen opens the Congress.

Delegates at a session.

recurrences at those already infiltrative sites due to insufficient tumour destruction. In case of doubt, a preceding biopsy will help to identify initial invasive tumours.

The question of whether a short incubation time can be used for PDT was debated by **Prof Lasse R Braathen** (Bern, Switzerland) and **Dr Bibiana Perez Garcia** (Madrid, Spain). Prof Braathen presented an early study on MAL-PDT for AK using different incubation times. No statistical difference could be shown between 1 and 3 hours of incubation. Therefore, an experienced PDT user might also achieve good results with a short incubation time of 1 hour in selected patients. In contrast, Dr Perez Garcia argued that a deviation from the well-established treatment protocol carries the risk of efficacy failure. So long as there is no evidence of sufficient quality from controlled studies, protocol adhesion should favour a better treatment outcome in most patients.

Several clinical cases were presented, e.g. PDT for disseminated porokeratosis, Gorlin's disease, actinic cheilitis, erythroplasia of Queyrat, extramammary Paget's disease, mycosis fungoides and viral warts. **Dr Ardeshir Bayat** (Manchester, United Kingdom) won the third prize for an oral presentation (awarded by Galderma International) for his talk on PDT for the treatment of keloid disease. In a small group of patients, he demonstrated that, in post-surgical patients, PDT prevented recurrence of the keloid. **Dr Eduardo Nagore** (Valencia, Spain) presented the results of a study comparing PDT, imiquimod and a sequential schedule with both modalities for the treatment of AK on face and scalp. The sequential schedule showed the best results without worsening the tolerance and satisfaction of the patients. In addition, tolerance to imiquimod was even improved after a single cycle of PDT. **Dr Luis A Torezan** (Sao Paulo, Brazil) could demonstrate that the overall clinical response to PDT in patients with AK and photodamaged skin can be improved by combining MAL-PDT with microneedling, using a Dermaroller® with 1.5 mm high needles.

In the Plenary session 'PDT in acne and related disorders', **Dr Robert Bissonnette** (Montreal, Canada) had to answer the difficult question of which protocol might be best for the treatment of acne. There are a lot of studies on PDT for acne, all using different treatment protocols, varying incubation time and light dose, using different photosensitisers, with or without occlusion, and different light sources. Most studies showing efficacy were conducted using MAL under occlusion followed by red light 3 hours later. With this protocol, inflammatory lesions are reduced by up to 65%, but the tolerance is often poor. Based upon his own experiences, Dr Bissonnette proposed to use MAL as photosensitiser, to apply the MAL over the entire face without occlusion for 90 minutes (to reduce side effects) and to irradiate with red light using the ActiLite® (37J/cm^2). After the treatment, the patients should be advised to use sunscreens (SPF 50). A total of 3–4 PDT sessions can be performed (4 weeks apart) and, depending on the response and tolerability, the incubation time can be successively increased up to 2.5–4 hours.

The last Plenary session of this Congress covered the topics of 'Inflammatory skin conditions' and 'Photorejuvenation'. **Prof Sigrid Karrer** (Regensburg, Germany) gave an overview of rare skin diseases that have been successfully treated with PDT. Due to the rarity of these diseases, often only case reports or small case series are available for such indications. These rare diseases include sclerosing skin diseases such as localised scleroderma, lichen sclerosus, hypertrophic scars and keloids, or inflammatory skin disorders such as pseudolymphoma, Hailey-Hailey disease, Darier's disease and chondrodermatitis nodularis chronica helicis. Particularly granulomatous skin diseases, such as cutaneous sarcoidosis, necrobiosis lipoidica and granuloma annulare, which are often very recalcitrant, have been shown to respond quite well to PDT. Also, diseases of the pilosebaceous unit other than acne vulgaris (e.g. nevus sebaceous, acne inversa) have been investigated in several studies, however showing contradicting results. The last speaker of this Congress, **Dr Enrique Herrera-Acosta** (Malaga, Spain) presented a study investigating a combination treatment with PDT for photo-rejuvenation. A lipo-hydroxy-acid peel was performed 7 days prior to MAL-PDT to maximise epidermal penetration and subsequent activation of ALA. After this combined procedure, there was a significant improvement of several photodamage parameters in all patients treated.

PRIZES

At the end of the Congress, the prizes for the best oral presentations (sponsored by Galderma) and for the best posters (sponsored by Photonamic) were awarded by the President of Euro-PDT, Prof Braathen. The first place, for her oral presentation, was awarded to **Dr Merete Haedersdal** (Copenhagen, Denmark) who talked about 'Differentiated PDT'. The second prize went to **Dr Günther Hofbauer** (Zürich, Switzerland) for his talk 'Why do we need skin cancer surveillance and therapy in organ transplant recipients?'. **Dr Ardeshir Bayat** (Manchester, United Kingdom) received the third prize for his talk 'PDT: an innovative approach to treatment of keloid disease, evaluated using subjective and objective, non-invasive tools'.

The first prize for the best poster went to **Dr Yolanda Gilaberte** (Zaragosa, Spain) for her poster entitled 'MAL-PDT for onychomycosis'. In second place was **Dr Allan Karam** (Brest, France), chosen for his poster 'Treatment of lentigo maligna by PDT'. The third prize was given to **Dr Eidi Christensen** (Trondheim, Norway) who presented a poster entitled 'Agreement between measurements of punch biopsy and excision specimens. Is it possible to reliably access BCC tumour thickness?'.

Finally, Prof Braathen closed this interesting meeting, thanked Nicole Basset-Seguin for her excellent organisation of the Congress and looked forward to proposals for a Euro-PDT meeting in 2012 – for more details, see page 7 in this issue of ***Clinical Photodynamics***.

Calendar of Events 2012

January 31-February 4, Cancun, Mexico
8th World Congress of the International Academy of Cosmetic Dermatology
Contact: Conference Secretariat
Tel: +1 555 531 0865
Fax: +1 555 203 6454
e-mail: info@wcocd2012.com
Website: www.wcocd2012.com

March 5-7, Omaha, USA
2nd World Congress on Clinical & Experimental Dermatology
Contact: Conference Secretariat
5716 Corsa Avenue,
Suite 110, Westlake, Los Angeles
CA 91362-7354, USA
Tel: +1 650 268 9744
Fax: +1 650 618 1414
e-mail: dermatology2012@omicsonline.org
Website: www.omicsonline.org

March 16-20, San Diego, USA
70th Annual Meeting of the American Academy of Dermatology (AAD)
Contact: AAD Conference Secretariat
Tel: +1 847 330 0230
Fax: +1 847 330 1090
e-mail: MRC@aad.org
Website: www.aad.org

May 17-19, Orlando, USA
20th Annual World Congress on Anti-Aging and Aesthetic Medicine
Contact: A4M
Tel: +1 561 997 0112
Website: worldhealth.net/orland-2012-anti-aging-conference

May 25-26, Copenhagen, Denmark
12th Euro-PDT Annual Congress
Contact: Congress Secretariat, VISTA Euro-PDT 2012, 9 rue Henri Martin, 92772 Boulogne Billancourt Cedex, France.
Tel: +33 (0)1 46 43 33 42
Fax: +33 (0)1 46 24 88 38
e-mail: europdt2012@vista-fr.com

June 6-10, Verona, Italy
9th Spring Symposium of the European Academy of Dermatology and Venereology (EADV)
Contact: EADV, Via delle Scuole 12, CH-6900 Lugano, Switzerland
Tel: +41 91 973 45 20
Fax: +41 91 973 45 30
e-mail: info@eadvverona2012.org

or:

Ecliptica sri-Servizi Congressuali
Tel: +39 030 245 28 18
Fax: +39 030 245 28 26
Website: www.eadv.org

September 1-4, Rio de Janeiro, Brazil
67th Congress of the Brazilian Society of Dermatology
Contact: Ramos Silva
e-mail: ramos.e.silva@dermato.med.br

September 6-10, Riga, Latvia
21st Congress of the European Academy of Dermatology and Venereology (EADV)
Contact: EADV
Tel: +322 650 0090
Fax: +322 650 0098
e-mail: office@eadv.org
Website: www.eadv.org

Prime Time PDT

An international roundup of
PDT-related papers and publications

NEW TECHNIQUES

Enhanced Uptake and Photoactivation of Topical Methyl Aminolevulinate After Fractional CO_2 Laser Pretreatment

M Haedersdal *et al* 2011 *Lasers Surg Med* **43** 804-813

Ablative fractional resurfacing (AFR) has been suggested as a technique for increasing topical photosensitiser uptake in thick skin lesions, by creating vertical channels for easier drug penetration. In this joint USA/Danish study, the authors describe the use of 'Yorkshire swine' (which, I hope, are a breed of pig otherwise known as the Large English White, rather than any other interpretation), which were treated under general anaesthesia with stacked single pulses of 3 milliseconds (91.6mJ/pulse) from a fractional CO_2 laser, followed by topical methyl aminolevulinate (MAL, Metvix®) for 3 hours. Illumination using red-light LED arrays was then delivered at fluences of 37 and 200J/cm^2.

The average depth of laser-ablated channels was 1850µm, which led to significantly greater porphyrin fluorescence ($P<0.0001$) and PDT response, compared to topical MAL-PDT alone. Photobleaching was slightly less after illumination at 37J/cm^2 than at 200J/cm^2, and did not vary significantly with skin depth. The authors concluded that AFR offers an effective method of enhancing MAL uptake in deep skin lesions.

Photodynamic Therapy with BF-200 ALA for the Treatment of Actinic Keratosis

T Dirschka *et al* 2011 *Brit J Dermatol* September 12 (E-pub ahead of print)

BF-200 ALA is a novel gel formulation with nanoemulsion, which increases ALA stability and skin penetration. The authors report the results of a multicentre, randomised, observer-blind Phase III study, which compared BF-200 ALA-PDT to a placebo and a registered MAL cream in the treatment of AK. A total of 600 patients with 4-8 mild to moderate AK lesions on the face and/or scalp were recruited and given a single treatment of PDT. If residual lesions were present after 3 months, a second PDT treatment was administered. Not surprisingly, BF-200 ALA-PDT was significantly superior to placebo (patient complete clearance rate: 78.2% versus 17.1%, $p<0.0001$). There was also an observed difference in primary endpoint patient complete clearance rates between BF-200 (78.2%) and MAL (64.2%), which just reached significance ($p<0.05$). The study was complicated by the use of both narrow- and broad-spectrum light sources, which showed significant differences between the two options in both patient and lesion complete clearance rates and also treatment-related adverse events.

Monitoring Blood Volume and Saturation Using Superficial Fibre Optic Reflectance Spectroscopy During PDT of Actinic Keratosis

T Middelburg *et al* 2011 *J Biophotonics* **4** 721-730

Vascular physiology has been associated with individual differences in response to topical PDT. The authors trialled the use of differential path-length spectroscopy (DPS) at an interrogation depth of up to 400 microns to measure superficial vascular physiology during light-fractionated PDT treatment of actinic keratosis (AK) with aminolevulinic acid (ALA). They found significant lesion-specific changes in blood volume during PDT, but without a general trend for all lesions. Saturation remained high during PDT. The authors suggest the use of DPS to enable patient-specific dosimetric measurements and the lesion-specific interrogation depth can be varied according to lesion thickness.

ANTI-INFECTIVE PDT

Antibacterial Activity of Methyl Aminolevulinate Photodynamic Therapy in the Treatment of a Cutaneous Ulcer

V Devirgiliis *et al* 2011 *Int J Immunopathol Pharmacol* **43** 804-813

This Italian case study involved a 79 year-old woman with a chronic ulcer infected with *Staphylococcus aureus* and *Enterococcus faecalis* and not responding to conventional antibiotic therapy. The area was treated with MAL-PDT and after 4 weeks there was a significant clinical improvement, with pathogen-negative cutaneous swabs. The authors propose that MAL-PDT could represent a useful option for the treatment of infected chronic ulcers.

Successful Treatment of Cutaneous Leishmaniasis with Intralesional Aminolevulinic Acid Photodynamic Therapy

G Evangelou *et al* 2011 *Photodermatol Photoimmunol Photomed* **27** 254-256

Another case study, this time by a Greek team, who successfully treated a 69 year-old patient with intralesional ALA-PDT for a relapse of longstanding cutaneous leishmaniasis.

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