

Meeting News

Finsen 100 Years Anniversary Symposium in Copenhagen November 27 – 29, 2003

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Niels Finsen received the Nobel Prize in dermatology for his work on phototherapy in 1903. To celebrate this, a symposium was held in Copenhagen on November 27–29, 2003. It was organized by Hans Christian Wulf and clearly showed that Denmark still dominates photodermatology in Northern Europe.

Cellular effects of UV

Anthony Young gave a lecture concerning DNA photodamage and its repair in human skin *in vivo*. The data suggested that DNA repair may be inducible in skin types that tan (e.g. type IV) but not in skin types that tan poorly and are more prone to develop skin cancer.

Bo Bang discussed *in vivo* UVB radiation and clustering of Fas on human epidermal cells. UV-induced apoptosis is a complex process with activation of several signalling pathways. One of these signalling pathways is activated through the death receptor Fas. Human

keratinocytes express Fas and *in vitro* studies have demonstrated that Fas can be activated by UV radiation.

Hans Christian Wulf gave a talk concerning broad- and narrow-band UVB photocarcinogenesis in mice. Lately, there has been some discussion concerning which type of treatment that is most carcinogenic; broad- or narrow-band UVB. In equal erythemogenic doses, TL01 seems to be more carcinogenic than the old broad-band TL12.

Jim Ferguson from Dundee discussed the photocarcinogenic risk of narrow-band TL01 UVB phototherapy. 1908 patients were followed and the median follow-up time was 6 years. No increased incidence of melanoma or squamous cell skin carcinoma was observed. However, there seems to be a slightly increased risk of developing basal cell carcinoma. Follow-up data over a longer period of time are required to assess the risk of skin malignancies from narrow-band UVB.

Renhua Na et al. have studied skin autofluorescence in demarcation of basal cell carcinoma. In these cases basal cell carcinomas were irradiated with 370 nm radiation and the skin autofluorescence was observed. Autofluorescence seems to be a fast and simple non-invasive technique. However, its sensitivity has to be investigated further.

Marica Ericson et al. discussed this



Niels Finsen

matter further in “multispectral fluorescence imaging of basal cell carcinoma assisted by image warping”. In this case, fluorescence imaging using both autofluorescence and ALA-induced fluorescence is used. In this work a simple set up for multispectral imaging was assisted by computerized image warping. Using this technique, better agreement with the tumour border is achieved.

Bo Stenquist, from the same group, gave his view on “combining autofluorescence and protoporphyrin induced fluorescence for visualization of basal cell carcinoma checked by histopathological mapping”.

Several authors discussed Raman spectroscopy for the diagnosis of skin tumours. This seems to be an

exciting new field.

UV and laser treatment, new indications

Merete Haedersdal discussed laser and photoepilation – status from an evidence-based point of view. Laser- and photoepilation means hair removal by laser systems and intense pulsed light (IPL) sources. However, unfortunately the long-term clinical outcome from laser and photoepilation devices is not clear, which is mainly due to varying quality of the published clinical studies, as well as numerous available treatment techniques.

Measurement of sun-exposure

Magnus Falk et al. from Linköping discussed “Phototesting with a divergent beam in the characterisation of UVB sensitivity and the effect of topically applied agents”.

Phototesting based on a single exposure to a divergent UVB beam with radially decreasing irradiance values can be used to determine the minimal erythema dose (MED) for a tested individual. Perfusion is measured by a modified laser Doppler. The divergent beam protocol can also be used to study the effects of topically applied agents, which can change the MED or alter the inflammatory response to a given dose of UVB.

Johan Moan discussed “Solar radia-

tion, vitamin D and cancer”. Solar radiation is a major source of vitamin D. In late summer, the serum concentration is 30–60% larger than in late winter. It seems as though the prognosis of several forms of cancer may be related to the vitamin D status. Large solar exposure may lead to skin cancer while small, non-erythemogenic exposures may act positively through induction of vitamin D.

Photoprotection

Anita Petersen from Copenhagen discussed sunless tanning and photocarcinogenesis in hairless mice. Self-tanning lotions contain dihydroxyacetone (DHA). The site of action of DHA in the skin is the stratum corneum and the browning of the skin after DHA application is caused by a chemical staining reaction. In mice experiments, the topical application of 20% DHA significantly delayed the time to appearance of skin tumours.

Nils Tarras-Wahlberg et al. held a lecture concerning “Photostability of sunscreens and photoactive species used in sunscreens”. Some photoactive species used in chemical sunscreens undergo degradation after UV irradiation. Recently, these studies have been extended to commercial sunscreens. Some of these preparations also undergo chemical degradation during ultraviolet irradiation.

Helena Gonzalez et al. discussed

“Percutaneous absorption of benzophenone-3”. The group has showed that a significant amount of applied sunscreen (benzophenone-3) is found in the urine in a metabolized form. This may have some implications when chemical sunscreens are used on small children on large areas of the body.

Photodynamic therapy

Photodynamic therapy (PDT) is a new two-step procedure involving the systemic or topical application of a photosensitizer or its precursor with subsequent illumination with light. Previously, ALA was used as a sensitizer but methyl-aminolevulinate (Metvix) has recently been used more, as the selectivity seems to be better and the pain during treatment is reduced.

Ana Solèr from Norway described good results from treatment of more than 6000 basal cell carcinomas and actinic keratoses. Especially large and superficial lesions can be treated.

Peter Wolf and Colin Morton described good results in the treatment of basal cell carcinomas and Bowen's disease. PDT should be considered a first line therapy option for Bowen's disease.

Ellen de Haas et al. reported on “Topical ALA-photodynamic therapy of superficial basal cell carcinoma using two light fractions with two-

hour dark interval". Light fluence has been discussed during PDT treatment. It might be that fractionated treatment is more effective than a single session. The preliminary conclusion is that equal light fraction with an interval of two hours increases the effectiveness of ALA-PDT compared to a single fraction. The experimental investigations suggest that a further improvement may also be possible by reducing the fluence of the first light fraction. The illumination has therefore been

modified so the 20+80 J/cm² is delivered in two fractions separated by a 2-hour dark interval.

Hans Christian Wulf discussed the "Temperature-dependent effect of PDT". Pain during PDT may be diminished by lowering the skin temperature. To obtain the same PDT effect it is needed to prolong the illumination time if the skin is

cooled.

Wulf's group also investigated "Pain associated with photodynamic therapy using ALA or ALA-methylester on tape-stripped normal skin". It is quite clear from this experiment that PDT using ALA-methylester is less painful than ordinary ALA-PDT.

In summary, the meeting was extremely useful and very well organized by Professor Hans Christian Wulf.



30th Nordic Congress of Dermatology and Venerology, Odense May 6-9 2004

Sponsored Symposium PhotoCure ASA May 7 14.30 - 16.00

Recent developments in photodynamic treatment using methyl aminolevulinat (Metvix®) in non-melanoma skin cancer. An interactive programme!

Chair: *Olle Larkö, Gothenburg*

Co-Chair: *Kari Saarinen, Lahti*

- 14.30 Opening remarks, Olle Larkö
- 14.35 Non melanoma skin cancer in organ transplant patients and the use of photodynamic therapy (Gregor Jemec, Roskilde)
- 14.50 Practical aspects of photodynamic therapy (Ida Marie Stender, Copenhagen)
- 15.05 Different properties of amino levulinic acid and Metvix regarding selectivity to diseased skin and its relation to pain during illumination (Hans Christian Wulf, Copenhagen)
- 15.20 Clinical experience with photodynamic therapy using Metvix® in the treatment of Basal Cell Carcinoma (Ann-Marie Wennberg, Gothenburg)
- 15.30 Clinical experience with photodynamic therapy using Metvix® in the treatment of actinic keratosis. (Mikael Tarstedt, Karlstad)
- 15.40 Some examples of differential diagnosis, Kari Saarinen
- 15.50 Concluding remarks, Olle Larkö