Photodynamic therapy –

pain and aspects of pain relief

Akademisk avhandling

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av

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I Halldin CB, Gillstedt M, Paoli J, Wennberg A-M, Gonzalez H. Predictors of pain associated with photodynamic therapy: a retrospective study of 658 treatments. Acta Derm Venereol. 2011;91(5):545–51.

II Halldin CB, Paoli J, Sandberg C, Ericson MB, Wennberg A-M. Transcutaneous electrical nerve stimulation for pain relief during photodynamic therapy of actinic keratoses. Acta Derm Venereol. 2008;88(3):311–3.

III Halldin CB, Paoli J, Sandberg C, Gonzalez H, Wennberg A-M. Nerve blocks enable adequate pain relief during topical photodynamic therapy of field cancerization on the forehead and scalp. Br J Dermatol. 2009 Apr;160(4):795–800.

IV Halldin CB, Gonzalez H, Wennberg A-M, Lepp M. Patients' experiences of pain and pain relief during photodynamic therapy of actinic keratoses. Submitted for publication.

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Photodynamic therapy – pain and aspects of pain relief

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ABSTRACT

Photodynamic therapy (PDT) is a non-invasive treatment option for superficial basal cell carcinoma (BCC), squamous cell carcinoma (SCC) in situ or Bowen's disease (BD), and actinic keratoses (AK). One of the advantages of PDT is the possibility to treat field cancerization. PDT is also suitable to use when treating poor healing areas such as the lower extremities. Furthermore, PDT offers an excellent cosmetic outcome compared with conventional therapies. In general the treatment is well tolerated, side effects such as erythema, scaling and crusts are normal after treatment. The most problematic side effect is pain, especially when large areas of extensive AKs are treaded in the face and/or scalp.

The overall aim of this thesis was to investigate and identify factors of pain associated with PDT, and try to achieve effective methods to reduce the pain during treatment.

In the first study (Paper I), 377 patients treated with PDT during the year 2004 were investigated. Of special interest was the patients' pain experience and identifying pain predictors. The strongest predictor of pain during PDT was size of the treated area, followed by diagnosis and location.

In Study II (Paper II), we examined transcutaneous electrical nerve stimulation (TENS) as a method of pain relief during PDT. During treatment the strength of the stimulation was controlled by the patient. The result of the TENS stimulation was a minor decrease in pain during PDT compared with the patient's previous pain assessments without TENS.

In Study III (Paper III), the pain-relieving effect of frontal nerve block (NB) in combination with occipital NBs was examined. The NBs were applied unilaterally in the occipital and frontal area, with the other side of the face serving as the patient's own control. In the nerve-blocked area the mean VAS score was 1.0 during PDT, compared with 6.4 on the non-blocked side. One limitation was that the temple area is not completely covered by current NBs.

Finally, in Study IV (Paper IV), the patients, being the PDT users, were interviewed about how they experienced and perceived PDT. All interviewees had been treated for AKs with PDT on the face and scalp and had undergone PDT with and without NB. The patients had experienced the pain as very intense without NB but said that the result in the end had made it worth it. The NBs had given satisfactory relief from pain; however, the injections could be transiently painful.

Key words: actinic keratosis (AK), field cancerization, interviews, nerve block (NB), pain, photodynamic therapy (PDT), transcutaneous electrical nerve stimulation (TENS)

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