British Photodermatology Group Position Statement

Photodynamic Therapy

Background

Topical photodynamic therapy (PDT) is widely used in Dermatology and involves photoactivation of a tissue-localised photosensitiser, with resulting photodynamic effect. To date, mainly porphyrin pro-drugs have been used. Topical PDT is highly effective for superficial non-melanoma skin cancer (NMSC) and dysplasia and is at least as effective as cryotherapy and imiquimod for actinic keratosis (AK), 5-fluorouracil and cryotherapy for Bowen's disease (BD), and cryotherapy and surgery for superficial basal cell carcinoma (SBCC). Cosmetic outcome and patient preference is superior with PDT in comparative studies. Long-term recurrence rates are approximately 20-25% by three to five years, which is consistent with other non-surgical therapies. British and European guidelines summarise the evidence base for topical PDT and emphasise the importance of availability of PDT to offer as treatment for non-hyperkeratotic AK, BD, SBCC and in some instances thin nodular BCC if surgery is not feasible or appropriate[1-6].

PDT is an important and advantageous therapeutic option for patients with multiple or large lesions and for field change carcinogenesis and for use at specific body sites where healing is compromised, such as the lower leg. It can be effectively used in immunosuppressed patients. For nodular BCC, topical PDT is inferior to surgery and would not be the treatment of choice unless surgery was contraindicated. Topical PDT is also not recommended for invasive squamous cell carcinoma, malignant melanoma, other heavily pigmented tumours, subcutaneous metastases or other rarer skin cancers. Topical PDT is also under evaluation for several other indications, such as acne vulgaris and for antimicrobial use.

Topical PDT is generally well tolerated, although pain during irradiation can occur but is not typically treatment limiting[7]. If required, pain relief can usually be achieved by simple measures, such as cooling and reduction of irradiance of light delivery. Low irradiance PDT is increasingly used through the application of daylight PDT for field change superficial mild to moderate actinic keratoses on the face and scalp, with encouraging data showing treatment to be as effective but much less painful than hospital-based PDT for this indication and potentially also to have a preventative role[8-12].

Optimising PDT regimes, with adjustments to drug and light delivery; methods of assessing light exposure and the use of combination or rotational approaches are also under evaluation, with a view to improving outcomes, tolerance and convenience.

Topical PDT was previously assessed by NICE (Interventional procedures guidance 155 (February 2006). The development and application of the British Association of Dermatologists Standards for the delivery of PDT offers a comprehensive framework to facilitate the introduction of new PDT services and the governance and audit of all processes involved in the delivery of effective and safe PDT[13]. This includes the necessary equipment, facilities and education and training of staff involved in PDT delivery and patient care. These standards include the aims, objectives and outcomes of PDT services, which are important for audit and benchmarking of clinical practices.

In summary, topical PDT should be widely available in dermatology, and accessible to those involved in the management of patients via skin cancer pathways. Its main use should be for superficial AK, BD and SBCC and it is advantageous for patients with large and multiple lesions, field carcinogenesis, and difficult treatment sites, such as the lower leg. Guidelines for the use of PDT and the introduction of standards for the clinical governance of the processes and outcomes of PDT are invaluable in ensuring the optimal effective and safe use of PDT in dermatology.

Recommendations

- Topical PDT should be accessible to all dermatology departments and particularly for those involved in skin cancer management.

- Topical PDT should be considered and available to offer to patients with a diagnosis of superficial basal cell carcinoma, Bowen's disease or non-hyperkeratotic actinic keratosis.

- Topical PDT should be considered and available to offer for Bowen's disease at sites of poor healing, such as the lower leg, or at cosmetically sensitive sites.

- Topical PDT may be particularly advantageous for large, multiple, low risk lesions of BD and/or SBCC and for field change carcinogenesis and AK, including in immunosuppressed patients.

- Daylight PDT can be considered as an effective, well-tolerated and relatively painless treatment for patients with field change superficial mild to moderate AK on the face and scalp.

- Clinical governance of PDT services, processes and outcomes is important and should be in keeping with BAD Standards.

References

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