

British Photobiology Group Position Statement

Phototherapy for skin disease

Background

Phototherapy is the use of ultraviolet light to treat skin diseases. This is a second line treatment following topical treatments when response has been inadequate or the disease is very widespread. [1] The main forms of phototherapy are narrowband ultraviolet B (UVB) and PUVA which is a combination of psoralen (a photosensitizer) and UVA. In some specialist centres ultraviolet A1 is also available. Ultraviolet reduces immune reactions within the skin.

Phototherapy can be used as a treatment for many skin conditions including psoriasis, atopic eczema, chronic urticaria, vitiligo, pruritus (of unknown cause or relating to underlying systemic disease namely liver or renal diseases), subacute or nodular prurigo, lichen planus and T cell lymphoma of the skin (mycosis fungoides). Phototherapy can also be used to build up tolerance in some sunlight sensitivity skin disorders including polymorphic light eruption and solar urticaria. This is known as 'hardening' treatment. [1,2]

It is important the correct ultraviolet treatment is used for specific skin conditions.

Narrowband UVB is the most frequently used form of phototherapy as treatment is simpler and associated with less risks. Usually, treatment is given three times per week and involves standing in an ultraviolet B treatment cabinet.[1]

PUVA can be used if response is poor to narrowband UVB, or first line for localised palm and sole disease, and in nodular prurigo and plaque stage mycosis fungoides. This treatment is given twice a week. PUVA involves taking psoralen tablets or soaking in a psoralen solution or applying gel or cream to the skin before ultraviolet A treatment. Following psoralen some precautions are usually required to protect the skin and eyes.[2]

The number of treatments needed for a course of phototherapy varies across the different conditions and from person to person, but a typical course is between 15 and 30 treatments.

As with all effective treatments there are possible side effects with phototherapy. During treatment common skin effects are sunburn like reactions, skin dryness and associated itch, a flare of the underlying condition or trigger of an ultraviolet sensitivity disorder (most commonly polymorphic light eruption), reactivation of the herpes simplex virus and tanning. With PUVA, there is an increased risk of skin cancer which is related to the cumulative

lifetime number of treatments. A large Swedish study found that one in 18 patients treated with more than 180 whole-body PUVA treatments developed a squamous cell skin cancer [3]. This has also been confirmed by other studies.[4] Although from what we know about ultraviolet in general, and from laboratory studies on cells and animals, it seems likely there should also be some increased skin cancer risk with repeated ultraviolet B, to date no increased risk of skin cancer in people treated with narrowband ultraviolet B has been found [5].

Narrowband UVB can be used safely during pregnancy and breast feeding although additional folic acid supplementation is required during pregnancy. Psoralen in all forms is unlicensed in pregnancy and breast feeding therefore PUVA should not be used.

Some people who could benefit from phototherapy find it difficult to attend for this treatment as they live too far away from the hospital or the opening times of a local unit do not fit in with their work and home commitments. Most dermatology services try to make phototherapy available through a 'hub and spoke' model with ultraviolet B and PUVA available in a central department as well as in smaller hospitals. In many places, efforts are also being made to extend unit opening times. Another way of extending availability of phototherapy is to provide a hospital supervised home phototherapy service. Supervised home phototherapy has been shown to be as effective and safe as hospital phototherapy as well as being cost effective, but this is not currently available in all regions. [6,7]

Service Guidance and Standards for Phototherapy Units ensure the safe delivery of phototherapy with ongoing audit of outcomes and adverse events. Such systems help to ensure that the correct phototherapies are used for the correct conditions. Prescription of courses of phototherapy must be by a dermatologist knowledgeable about these treatments and about any possible alternative treatments.[8]

Recommendations

- Phototherapy (at a minimum narrowband ultraviolet B and PUVA) should be available to all for whom a phototherapy treatment is indicated.
- If ultraviolet B phototherapy has been inadequate, PUVA could be considered as a next line approach before systemic therapies.
- The skin cancer risks of PUVA are important and should be considered when deciding on appropriate treatment for an individual, but these risks should be considered in context, including the individual's risk factors for skin cancer, and risks of any alternative therapies.

- Phototherapy should be delivered in a clinical governance system, and following, at a minimum, the recommendations of the British Association of Dermatologists Phototherapy Working Party Report (2012)
- Measures should be taken to make access to phototherapy as equitable as possible throughout the UK. Unsupervised treatment with phototherapy at home is not recommended

References

1. Goulden V, Ling TC, Babakinejad P, Dawe R, Eadie E, Fassihi H, Fityan A, Garibaldinos T, Ibbotson SH, Novakovic L, Rush E, Weatherhead SC, Whitehouse H, Hashme M, Mohd Mustapa MF, Exton LS. British Association of Dermatologists and British Photodermatology Group guidelines for narrowband ultraviolet B phototherapy 2022. *Br J Dermatol* 2022; **187**: 295–308
2. Tsui C Ling, T.H. Clayton, J. Crawley, L.S Exton, V. Goulden, S.Ibbotson, K McKenna, M.F. Mohd Mustapa, L.E Rhodes, R. Sarkany, R.S Dawe. British Association of Dermatologists and British Photodermatology Group guidelines for the safe and effective use of psoralen–ultraviolet A therapy 2015. *Br J Dermatol* Lindelof B, Sigurgeirsson B, Tegner E, Larko O, Johannesson A, Berne B, Ljunggren B, Andersson T, Molin L, Nylander-Lundqvist E, Emtestam L. PUVA and cancer risk: the Swedish follow-up study. *Br J Dermatol* 1999; **141**: 108-12.
3. Stern RS, Liebman EJ, Vakeva L. Oral psoralen and ultraviolet-A light (PUVA) treatment of psoriasis and persistent risk of nonmelanoma skin cancer. PUVA Follow-up Study. *J Natl Cancer Inst* 1998; **90**: 1278-84.
4. Hearn RM, Kerr AC, Rahim KF, Ferguson J, Dawe RS. Incidence of skin cancers in 3867 patients treated with narrow-band ultraviolet B phototherapy. *Br J Dermatol* 2008; **159**: 931-5.
5. Koek MB, Buskens E, van Weelden H, Steegmans PH, Bruijnzeel-Koomen CA, Sigurdsson V. Home versus outpatient ultraviolet B phototherapy for mild to severe psoriasis: pragmatic multicentre randomised controlled non-inferiority trial (PLUTO study). *BMJ* 2009; **338**: b1542.
6. Koek MB, Sigurdsson V, van Weelden H, Steegmans PH, Bruijnzeel-Koomen CA, Buskens E. Cost effectiveness of home ultraviolet B phototherapy for psoriasis: economic evaluation of a randomised controlled trial (PLUTO study). *BMJ* 2010; **340**: c1490
7. British Association of Dermatologists Phototherapy Working Party Report (2012) (http://www.bad.org.uk/Portals/_Bad/Clinical%20Services/BAD%20Working%20Part%20Report%20on%20Phototherapy%20Services%202011v8%20final%20draft%20logo.pdf)