British Photobiology Group Position Statement:

Phototherapy for skin disease

Background

Phototherapy is the use of ultraviolet or visible light to treat disease. The main forms of phototherapy used for skin diseases are ultraviolet B (usually using lamps producing narrowband ultraviolet B) and psoralen plus ultraviolet A (PUVA). A specialised form of phototherapy called ultraviolet A1 is also used, although not widely.

Various skin conditions can be treated with phototherapy (including psoriasis **[1,2]**, atopic eczema, chronic urticaria **[3]** and vitiligo); generalised itch (such as the widespread itch that is caused by some severe kidney problems) can be helped **[4]**; T cell lymphoma of the skin typically responds well to ultraviolet B **[5]** and to PUVA **[6].** Phototherapy can also be used to build up tolerance in those with various sunlight sensitivity skin disorders **[7]**. Phototherapy is not 'artificial sunlight'. Conditions that do not benefit from sunlight exposure, and even conditions triggered or made worse by sunlight exposure, often benefit from the correct choice of phototherapy **[8,9]**.

For many conditions both narrowband ultraviolet B and PUVA are treatment options. As ultraviolet B is simpler and the risks of side effects are less, it is used more frequently. PUVA is a good option for some conditions that do not respond to ultraviolet B and also for people with conditions which usually respond well to ultraviolet B but who have not responded adequately to this therapy. PUVA and ultraviolet B work in different ways and PUVA can work well when ultraviolet B has not done so.

Usually, phototherapy with ultraviolet B is given three-times a week and twice a week for PUVA. Ultraviolet B phototherapy involves standing in an ultraviolet B treatment cabinet; PUVA involves taking psoralen tablets or soaking in a psoralen solution before standing in an ultraviolet A treatment cabinet. 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 the phototherapies. The commonest unwanted effects are sunburn-like reactions (skin redness) 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 **[10]**, confirming an increased skin cancer risk with PUVA that has also been shown in other studies **[11]**. The risks of alternative treatments, such as the risks of internal side effects as well as of skin cancer with immunosuppressant tablet treatments, need to be considered when deciding what this small increased risk of skin cancer, after a high cumulative exposure to PUVA, means. Although from what we know about ultraviolet in general, and from studies on cells and animals, it seems likely there should also be some increased skin cancer risk with ultraviolet B, to date no increased risk of skin cancer in people treated with narrowband ultraviolet B has been found **[12]**.

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 complementary 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 is not available in all regions. [13,14]. Unsupervised self-purchased phototherapy units are however not recommended due to lack of quality control, servicing of equipment, and accurate documentation of amount of UV exposure.

The phototherapies should be given in units participating in a clinical governance scheme, such as the national managed clinical network for phototherapy through which all phototherapy in Scotland is delivered (http://www.photonet.scot.nhs.uk/). This ensures the treatments are given as effectively and safely as possible, with ongoing audit to identify any problems. 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.

There are ongoing efforts to develop new phototherapy treatments as well as to work out how best (most safely and most effectively) to use the phototherapy treatments already available.

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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 should be considered as a next line approach which is usually appropriate 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 skin cancer, and other, risks of any alternative therapies.

- Phototherapy should be delivered in a clinical governance system, and following, at a minimum, the recommendations of the NICE accredited Service Guidance and Standards For Phototherapy Units" (2016) (https://www.bad.org.uk/shared/get-file.ashx?itemtype=document&id=5959).

- Measures should be taken to make access to phototherapy as equitable as possible throughout the UK. .Such measures to consider include ensuring

adequate phototherapy units (in many areas a 'hub and spoke' model is appropriate), opening hours appropriate to the population served and hospital phototherapy unit supervised home phototherapy. Unsupervised treatment with phototherapy at home is not recommended.

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