



PHOTODYNAMIC THERAPY

WHAT ARE THE AIMS OF THIS LEAFLET?

This leaflet has been written to help you understand more about photodynamic therapy - what it is, what is involved, what the potential side effects are, and where to find more information.

WHAT IS PHOTODYNAMIC THERAPY?

Photodynamic therapy (PDT) is a technique used to treat some types of skin cancer such as superficial basal cell carcinoma and areas of sun-damaged skin (pre-cancerous) that might become cancerous in the future.

In PDT, a cream is first applied to the area to be treated, a special light or daylight then activates the cream. PDT is effective in most cases: it works by killing the abnormal cells in the affected skin area. However, sometimes the treatment may not be successful and alternative treatment will need to be discussed with the healthcare professional.

HOW DOES PHOTODYNAMIC THERAPY WORK?

The cream used in PDT contains a chemical which is not itself light sensitive. However, once it is applied to the affected skin, it turns into a powerful light sensitive chemical (known as "photosensitiser"). Visible light (such as daylight, or the blue or red light used in the PDT clinic) activates the photosensitiser, causing the skin to become inflamed. Only the skin that is exposed to both the photosensitiser and the light will be treated. After the inflammation has cleared up, the area of affected skin will either be cured or improved.

WHAT SKIN CONDITIONS CAN BE TREATED WITH PHOTODYNAMIC THERAPY?

PDT can be used to treat various skin conditions including:

- Some types of **basal cell carcinomas**, such as superficial basal cell carcinoma
- **Bowen disease** (squamous cell carcinoma *in situ*).
- **Actinic (solar) keratoses** – chronic sun-damage, pre-cancer; or a whole area of sun-damaged skin (field change or "field cancerisation").
- Occasionally PDT can be used to treat other conditions, such as **acne** or **viral warts**, but this would usually only be if other conventional treatments were ineffective or not suitable.

WHAT DOES PHOTODYNAMIC THERAPY FOR SKIN LESIONS INVOLVE?

PDT is either an outpatient procedure, carried out by a doctor or nurse in a PDT clinic or it can be carried out at home. In home-based treatment daylight is used, and you are able to be more involved with your own treatment.

There are two ways to provide PDT treatment – "conventional" PDT and "daylight" PDT.

- For conventional PDT, the first step is to apply a cream or gel containing the inactive photosensitiser to the area to be treated. If necessary, any loose scales or crusts will be removed from the skin before



applying the cream. A dressing is then placed over the cream, and you will be asked to return in about 3 hours. This wait is to allow the inactive photosensitiser to be absorbed into the skin and to be converted by skin cells into the active form of the photosensitiser. The cream or gel is then wiped off and the area cleaned. A bright light (usually a red light) is then shone onto the treatment area for approximately 10 to 15 minutes (the exact time will be decided by the healthcare professional depending on the light source that is used). After the treatment has been completed, a dressing will be applied which is to be kept on, usually for two days to prevent any further exposure to light.

- In daylight PDT, the steps are similar to conventional PDT but this involves the use of the outdoor daylight. This method is used only if the conditions are suitable for staying comfortably outdoors for 2 hours (with temperatures over 10 °C). Sunscreen is applied to the whole area that needs to be treated to try and prevent any ultraviolet rays getting to your skin. If necessary, any loose scale or crusts will be removed from the skin first. A cream or gel containing the inactive photosensitiser is applied to the area of skin to be treated. You need to go outdoors within 30 minutes of the cream or gel application and should stay outdoors for 2 continuous hours with the affected area in full daylight. Taking shelter in partial shade in hot weather is acceptable, as long as you are able to get a total of 2 hours of full daylight exposure. The cream or gel is then wiped off and the area cleaned. The treatment area then needs to be covered to protect it

from daylight for the rest of the day to limit inflammation.

HOW SHOULD THE TREATED AREA BE CARED FOR?

The healthcare professional will explain how to care for the treated areas. It is usually advised that, after any dressings are removed, the area should be washed, bathed or showered as usual. Avoid rubbing the treated area with a towel, but gently pat it dry and only use mild cleansers and moisturisers. Within a few days, a scab will form and eventually fall off. The healing process may take a few weeks (depending on the part of the body treated).

Care must be taken not to scratch the affected area or accidentally dislodge the scab during the healing process. The treated area should be covered after the procedure, but for affect skin areas that can't be covered, the use of a suitable sunscreen (SPF 50), especially during outdoor activities, is essential for 48 hours.

WHAT REASONS MIGHT PREVENT YOU HAVING PHOTODYNAMIC THERAPY?

- PDT is not recommended if you are pregnant.
- The PDT cream may contain peanut oil, it is very important that you tell the healthcare professional if you are allergic to peanuts or to any of the other ingredients.
- PDT is not recommended if you have porphyria (a light-sensitive disorder, as in porphyria you would be producing the same photosensitiser that is used in PDT in your blood, skin and other parts of the body).

DO I NEED TO AVOID ANYTHING WHILST HAVING PHOTODYNAMIC THERAPY?

Care should be taken not to get the dressing wet when bathing or showering. It



is advisable to avoid swimming until the treated area is fully healed.

WHAT ARE THE POTENTIAL SIDE EFFECTS OF PHOTODYNAMIC THERAPY?

The short-term side effects of PDT include:

- *Pain and discomfort (common with conventional PDT)*. When the red light is shone onto the skin, the treated area may hurt. If it is too uncomfortable, your healthcare professional may suggest pausing treatment for a while, or a cooling spray, fan or a local anaesthetic injection may be recommended. After completion of treatment, discomfort and itching may last for a few days, and occasionally may require painkillers. Daylight PDT tends to be much less painful than conventional PDT.
- *Inflammation (common)*. The treated area may initially become pink, red, and puffy, and may crust or ooze a little: this is a normal reaction. It settles within a few days.
- *Blistering and ulceration (uncommon)*. The treated area may occasionally blister or break down (ulcerate) and develop a raw surface.
- *Bruising (uncommon)*. The treated area may occasionally show some bruising.
- *Changes in hair growth (uncommon)*. The treated area may occasionally show increased hair growth or loss of hair.
- *Dermatitis and contact allergy (uncommon)*. The treated area may occasionally become itchy, red and/or scaly, and this may indicate that you have become allergic to the cream or gel.
- *Infection (uncommon)*. If the treated area becomes red, swollen and

painful, an infection may have developed, and you should contact your healthcare professional.

Potential long-term side effects of PDT include:

- *Scarring (uncommon)*. There may be some scarring after PDT, but this is usually mild.
- *Colour change (uncommon)*. The skin may become darker or paler after PDT.
- Treatment may not be effective, or the condition may come back again. If this happens, you may be offered further PDT, or an alternative type of treatment may be recommended.

SELF-CARE (WHAT CAN I DO?)

Sun protection is recommended for all patients. It is advisable to protect the skin from further sun damage (for example, by wearing a hat, long sleeves and a sunscreen with a high sun protection factor).

- Protect your skin with clothing. Ensure that you wear a hat that protects your face, neck and ears, and a pair of UV protective sunglasses.
- Make use of shade between 11 am and 3 pm when it's sunny.
- It is important to avoid sunburn, which is a sign of damage to your skin and increases your risk of developing a skin cancer in the future. However, even a tan is a sign of skin damage and should be avoided.
- Use a 'high protection' sunscreen of at least SPF 30 which also has high UVA protection. Apply sunscreen generously 15 to 30 minutes before going out in the sun and make sure you reapply frequently when in the sun.



- Keep babies and young children out of direct sunlight.
- The British Association of Dermatologists recommends that you tell your doctor about any changes to a mole or patch of skin. If your GP is concerned about your skin, you should be referred to see a Consultant Dermatologist at no cost to yourself through the NHS. You can check your doctor's qualifications by searching for them on the GMC register – a Consultant Dermatologist will be listed as being on the Specialist Register for Dermatology.
- No sunscreen can offer you 100% protection. They should be used to provide additional protection from the sun, not as an alternative to clothing and shade.
- Routine sun protection is rarely necessary in the UK for people of colour, particularly those with black or dark brown skin tones. However, there are important exceptions to this; for example, sun protection is important if you have a skin condition, such as photosensitivity, vitiligo or lupus, or if you have a high risk of skin cancer, especially if you are taking immunosuppressive treatments (including organ transplant recipients) or if you are genetically pre-disposed to skin cancer. Outside of the UK in places with more extreme climates, you may need to follow our standard sun protection advice.
- It may be worth taking vitamin D supplement tablets (available from health food stores) as strictly avoiding sunlight can reduce your vitamin D levels.

Vitamin D advice

The evidence relating to the health effects of serum vitamin D levels, exposure to sunlight and vitamin D intake, is inconclusive. People who are avoiding (or need to avoid) sun exposure may be at risk of vitamin D deficiency and should consider having their serum vitamin D levels checked. If the levels are low, they may consider:

- taking vitamin D supplements of 10-25 micrograms per day
- increasing intake of food rich in vitamin D such as oily fish, eggs, meat, fortified margarine and cereals.

WHERE CAN I GET MORE INFORMATION ABOUT PHOTODYNAMIC THERAPY?

Detailed information about PDT:

<http://dermnetnz.org/procedures/photodynamic-therapy.html>

<http://www.macmillan.org.uk/information-and-support/treating/supportive-and-other-treatments/other-treatments/photodynamic-therapy.html>

Advice on sun protection:

<http://www.skinhealthinfo.org.uk/wp-content/uploads/2022/06/Sunscreen-Fact-Sheet.pdf>

<https://www.skinhealthinfo.org.uk/sun-awareness/sun-advice-for-skin-of-colour/>

<https://www.skinhealthinfo.org.uk/sun-awareness/sun-protection-advice-for-children-and-babies/>

<https://www.skinhealthinfo.org.uk/sun-awareness/vitamin-d-information/>



This leaflet aims to provide accurate information about the subject and is a consensus of the views held by representatives of the British Association of Dermatologists: individual patient circumstances may differ, which might alter both the advice and course of therapy given to you by your doctor.

This leaflet has been assessed for readability by the British Association of Dermatologists' Patient Information Lay Review Panel

**BRITISH ASSOCIATION OF
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