



## 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 out more about it.

### What is photodynamic therapy?

Photodynamic therapy (PDT) is a technique that is used to treat certain types of skin cancers such as superficial Basal cell carcinoma and areas of sun-damaged skin (pre-cancerous) that might become cancer in the future. In PDT, a cream is first applied to the area to be treated. A special light or daylight then activates a cream. This treatment kills the abnormal cells in the skin.

### How does photodynamic therapy work?

PDT uses a light-sensitive chemical called a *photosensitiser*. This photosensitiser is not active when it is applied to the skin without light. However, when red light or daylight then shines onto the skin where the photosensitiser was applied, the photosensitiser is activated. This causes changes in the oxygen molecules (oxidisation) in abnormal skin cells. These “excited” oxygen molecules kill the abnormal cells. Only the area of skin exposed to both the photosensitiser and to the light will be affected and inflamed. After the inflammation clears, the sun damaged skin will either be cured or improve.

### 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's disease](#) (*in situ* squamous cell carcinoma), a pre-cancer.

- [Actinic \(solar\) keratoses](#) - early sun-damage, a pre-cancer; or a whole area of sun-damage (field change or “field cancerisation”).

### **What does photodynamic therapy for skin lesions involve?**

PDT is an outpatient procedure and is done by your doctor or nurse. It takes several hours to complete.

There are 2 ways to provide PDT treatment – the “conventional” PDT and the “daylight” PDT.

For the conventional PDT, the first step is to apply a cream or gel containing the photosensitiser to the treatment area. If necessary, any loose scales or crusts are removed from the skin first. A dressing is then applied over the cream and you will be asked to return in about 3 hours. This wait is to allow the photosensitiser to be absorbed and to be converted into the active chemical by the skin. The cream or gel is then wiped off and the area cleaned. A bright light is then shone onto the treatment area for approximately 10 to 15 minutes (the exact time will be decided by your doctor or nurse depending on the light source). After the treatment has been completed, a dressing will be applied for at least 2 days, to prevent any further exposure to light.

There is another way to provide PDT treatment using daylight. The steps are similar but involve the use of outdoor daylight. It is used only if the conditions are suitable for staying comfortably outdoors for 2 hours (with temperatures > 10 °C). Sunscreen is applied to the whole area that needs to be treated. If necessary, any loose scale or crusts are removed. A cream or gel containing the photosensitiser is applied to the area to be treated. You should then go outside within 30 minutes of the cream or gel application. You should stay outdoors for 2 continuous hours in full daylight. Taking shelter in the shade in hot weather is acceptable, but interruption of the time outdoors should be compensated by a longer time outdoor afterwards in order to make up for the total 2 hours of full daylight exposure. The cream or gel is then wiped off and the area cleaned. A dressing is then applied to cover the treatment area from the sun for the rest of the day to reduce inflammation. Use of gentle cleansers and moisturizers is recommended for the following week to avoid crusting.

### **How should the treated area be cared for?**

Your doctor or nurse will explain how to care for the treated areas. It is usually advised that, after the dressing has been removed, the area should be washed, bathed or showered as usual. Avoid rubbing the treated area, but gently pat it

dry. Within a few days, a scab will form, and the healing process will take several weeks (depending on the part of the body treated).

Care must be taken not to scratch the area or accidentally dislodge the scab during the healing process. The use of a suitable sunscreen (SPF 30 or more) following the procedure, 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, so tell your doctor and nurse if you are allergic to peanuts.
- PDT is not recommended if you have porphyria (a light-sensitive disorder, as you would be producing the same photosensitiser 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 phototherapy include:

- *Pain (common)*. When the red light is shone onto the skin, the treated area may hurt. If it is too uncomfortable, your doctor or nurse may suggest pausing treatment for a while, or a local anaesthetic injection may be recommended. After completion of treatment, discomfort and itching may last for a few days, and may require pain-killers.
- *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 open up (ulcerate) to 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 or loss of hair.

- *Dermatitis and contact allergy (uncommon)*. The treated area may occasionally show signs of dermatitis reaction to the cream or gel applied.
- *Infection (uncommon)*. If the treated area becomes red, swollen and painful, an infection may have developed, and you should contact your doctor.

Potential long-term side effects of phototherapy include:

- *Scarring (uncommon)*. There may be some scarring after PDT.
- *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.

### **Top sun safety tips**

- Protect your skin with adequate clothing, wear a hat that protects your face, neck and ears, and a pair of UV protective sunglasses. Choose sun protective clothing (with permanently sun-protective fabric, widely available for adults and children) if you have fair skin or many moles.
- Spend time in the shade between 11am and 3pm when it's sunny. Step out of the sun before your skin has a chance to redden or burn.
- When choosing a sunscreen look for a high protection SPF (current recommendations are SPR 50 or 50+) to protect against UVB, and the UVA circle logo and/or 4 or 5 UVA stars to protect against UVA. Apply plenty of sunscreen 15 to 30 minutes before going out in the sun and reapply every two hours and straight after swimming and towel-drying.
- 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 are advised to see a Consultant Dermatologist – an expert in diagnosing skin cancer. Your doctor can refer you for free through the NHS.
- Sunscreens are not an alternative to clothing and shade, rather they offer additional protection. No sunscreen will provide 100% protection.

### **Where can I get more information about photodynamic therapy?**

More information about photodynamic therapy can be found on the following websites:

<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>

For details of source materials use please contact the Clinical Standards Unit ([clinicalstandards@bad.org.uk](mailto:clinicalstandards@bad.org.uk)).

**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*

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