Intense pulsed light therapy (IPL)

What are the aims of this leaflet?
This leaflet aims to provide information on intense pulsed light therapy. It will cover the available technique, how it works and the potential risks/complications.

What is IPL and how does it work?
IPL is a non-invasive ‘flashlamp’ therapy which has been recognised since the early 1990’s. It uses pulses of visible red light which targets coloured cells (chromophores) in the skin causing them to heat up and get destroyed. The colour targeted can be varied by filtering the light depending on which condition is being treated. IPL targets the deeper layer of the skin (dermis) without affecting the upper layer of the skin (epidermis) and can be used to treat a variety of conditions, usually vascular lesions, pigmented lesions and unwanted hair.  

What are the results?
1. Vascular Lesions
The following vascular conditions can be treated with IPL:
   - Thread veins
   - Cherry angiomas
   - Some port wine stains
   - Capillary malformations
   - Superficial venous malformations
   - Facial telangiectasia (visible blood vessels and redness)
   - Rosacea
   - Poikiloderma of civatte (streaky red changes of the neck skin)
IPL can target oxyhaemoglobin (red vascular lesions) and deoxygenated haemoglobin (blue vascular lesions). The success of treatment is dependent on the type and size of vessel involved. Lesions such as cherry angiomas (AKA Campbell de Morgan spots) and small dilated vessels which lie close to the upper part of the skin eg ‘thread veins’ tend to respond very well to IPL whereas larger, deeper more complex vascular lesions such as birthmarks may not respond as well. Treatment intervals vary between 3-8 weeks in between treatment depending on what lesion is being treated.

2. Pigmented lesions
The following pigmented lesions can be treated with IPL:
   - Solar lentigines (Brown flat patches on sun-exposed sites AKA ‘age spots’)
   - Freckles
   - Birthmarks
   - Café au lait macules (pale brown flat patches)
   - Melasma (uneven brown facial pigmentation)
IPL can treat pigmented (brown) skin lesions by targeting the pigment melanin in the upper layers of the skin. Results vary depending on the size, site, thickness and darkness of the lesion.
3. Hair removal
IPL can be used to treat unwanted hair in a variety of locations eg face & neck, underarms, bikini line, back, chest and legs.\(^1\) The exact mechanism of action is not fully understood but is thought to be due to targeting the melanin within the hair and a subsequent disruption of the normal hair cycle in the hair follicle.\(^2,3\) As melanin is the target, darker coarser hair tends to respond better than lighter finer hair.\(^1,3\)

4. Skin rejuvenation
An emerging use of IPL technology is to treat general skin ageing changes such as wrinkles. The mechanism of action is thought to be skin tightening by heating of collagen fibres in the skin causing them to contract.\(^3\) Reported results have been variable but seem to show at least a mild improvement in at least 50% of treated patients.\(^2\)

What will happen before the procedure?
You should expect to have a pre-treatment consultation with your practitioner who should ask information about your past medical history and medications. They should establish what exactly you wish to be treated and should give you an idea of the expected outcomes and risks of the procedure. It is important that the abnormality to be treated has been diagnosed correctly to ensure the correct targeted treatment is being offered.\(^1\) You should avoid sun exposure 6 weeks prior to the procedure and protect your skin daily with a broad spectrum sunblock of at least SPF30.

What will happen during the procedure?
An anaesthetic cream may be applied to the skin 30-60 minutes prior to the procedure. During the IPL treatment you will be asked to wear protective eyewear to avoid any damage to the eyes from the light source. Your skin will be cleaned and a cold contact jelly will be applied to the area skin to be treated. The IPL light source probe will be placed onto your skin and the glass surface will come into gentle contact with your skin. When your practitioner applies the IPL light to the area to be treated you should expect to feel a mild ‘pinching’ sensation on the skin and you may hear a ‘snapping’ noise. The treatment is often not thought to be painful but there may be some short-term discomfort. Depending on the response seen your practitioner may alter the settings on the IPL machine during the treatment. Depending on the area to be treated you might expect each treatment to last anywhere between 5-30 minutes.

What will happen after the procedure?
Following IPL treatment, most people find that there is no ‘downtime’ and can immediately return to their normal activities. The skin may feel slightly sensitive afterwards and you should expect a degree of redness to the skin following the procedure. There may be some minor peeling similar to that experienced with sunburn. 10% of people experience some post-treatment bruising (purpura) which should settle after 7-14 days.\(^1\)
Are there any risks involved?

Common Side effects:
- Redness
- Peeling
- Temporary skin sensitivity and discomfort
- Purpura (bruising)

Uncommon side effects
- Post-inflammatory pigmentation:
  Unwanted increased or decreased pigmentation at the site of treatment
- Demarcation lines:
  The treated skin contrasts starkly with the nearby untreated skin
- Blistering:
  Injury to skin resulting in the formation of blisters which may vary in size
- Scarring:
  Permanent damage to the colour and texture of the skin
- Paradoxical hair growth:
  Excess hair growth in areas treated

FURTHER READING

AUTHORS
Dr R Urwin ST6 Dermatology The Leeds Centre for Dermatology
Dr Nisith Sheth St John’s Institute of Dermatology

REVIEWED DATE: OCTOBER 2016