NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

INTERVENTIONAL PROCEDURES PROGRAMME

Interventional procedure overview of percutaneous electrical nerve stimulation (PENS) for refractory neuropathic pain – additional information

Specialist societies

- British Pain Society.

Specialist Advisers' opinions

Specialist advice was sought from consultants who have been nominated or ratified by their Specialist Society or Royal College. The advice received is their individual opinion and does not represent the view of the society.

Dr Arun Bhaskar, Dr Heather Cameron, Dr Neil Collighan, Dr Sam Eldabe and Professor Turo Nurmikko (British Pain Society).

- Two Specialist Advisers performs this procedure regularly and 2 have performed this procedure at least once. One Specialist Adviser has never performed this procedure.
- Two Specialist Advisers consider the procedure to be definitely novel and of uncertain safety and efficacy; 1 considers it to be an established practice and no longer new, adding that PENS has been used by many clinicians in the management of localised neuropathic pain for nearly three years in the UK; 2 consider the procedure to be a minor variation of an existing procedure, which is unlikely to alter that procedure's safety and efficacy, 1 of the 2 Specialist Advisers added that safety issues with regards to electrical stimulation are fairly well established, it is efficacy that is less clear.
- One Specialist Adviser stated that PENS can describe a number of different procedures known by different name from electroacupuncture to implanting a neurostimulator with a subcutaneous lead or a temporary stimulating needle

inserted in the subcutaneous tissue and connected to an external neurostimulator.

- One Specialist Adviser stated that those who practice electroacupuncture have suggested similarities between that and PENS. Whilst both utilise electrical stimulation it is argued that the later involves needle insertion points distinct from electroacupuncture and different patterns and frequencies of stimulation. Safety data is likely to be/may be similar.
- The comparators are externalised implanted peripheral neurostimulator leads, TENS, other neuromodulation therapies (including electroacupuncture, acupuncture, spinal cord, deep brain and motor cortex stimulations) and pharmacological therapy.
- Theoretical adverse events include vascular damage, damage to local nerves with sequalae dependant on which nerve damaged, pneumothorax, possible interaction with cardiac pacemaker if used above waistline, possible epileptogenic if used near head, possible effects in pregnancy if used on torso, infection, dislodgement (with loss of effect), local pain (from skin or nerve irritation), temporary increase in pain/unpleasant sensation, unpleasant paresthesias, and local bruising/haematoma.
- Anecdotal adverse events include exacerbation of pain that is being treated, bruising and bleeding.
- Adverse events reported in the literature include infection.
- Key efficacy outcomes include reduction in pain (alleviation of the localised neuropathic pain, relief of allodynia and hyperpathia, reduction in the frequency of sharp shooting pains, reduction in the burning sensation) with its associated functional and emotional improvements.
- One Specialist Adviser stated that accurate electrode placement and achieving adequate stimulation is essential to obtain efficacious outcome.
- One Specialist Adviser noted that outcomes appear to be better amongst the highest users of this treatment. He thought that this may be related to increased experience/practice with regards patient selection and probe placement.

- One Specialist Adviser stated that the procedure appears to deliver mild to moderate short term pain reduction but long term benefits are unclear.
- One Specialist Adviser was concerned about uncertainty of treatment efficacy and duration of treatment effect.
- One Specialist Adviser thought that training is required for appropriate placement/mapping of percutaneous probes for particular areas of neuropathic pain. He added that facilities should match national guidelines for all interventional procedures including appropriate resuscitation protocols. One Specialist Adviser noted that knowledge of aseptic technique and contraindications is needed.
- One Specialist Adviser thought that minimal training is required for this procedure - any pain consultant or specialist who has the training to place the needle electrode appropriately can undertake the procedure safety. Subcutaneous probe placement could be carried out by trained operators to achieve field stimulation. Two Specialist Advisers thought that the facilities required is minimal and this procedure can be carried out in any clinical setting, be it in theatre, outpatient procedure room or day case procedure room, where minor procedures are carried out.
- Four Specialist Advisers thought that the procedure will have a minor impact on the NHS while 1 thought that the impact would be moderate. One Specialist Adviser stated that unlike implanted and programmable peripheral neurostimulators, PENS is simple to use and could be carried out by pain clinician in most district general hospitals. However, another Specialist Adviser does not expect rapid uptake of this procedure as there may be logistical concerns as each procedure takes a minimum of 20-30 minutes. He added that there would also be an initial investment in the required equipment. One Specialist Adviser thought that the procedure is already in practice throughout Pain Medicine Speciality and that it is currently typically practiced within pain clinics but if demonstrated safe and efficacious may be delivered more widely including by physiotherapists/specialist nurses.

Patient Commentators' opinions

NICE's Patient and Public Involvement Programme was unable to gather patient commentary for this procedure.