

## **Using ultrasound guidance to place a needle tip near a nerve to give anaesthetic and/or pain relief**

*NICE 'HealthTech  
guidance' advises  
the NHS on when  
and how new  
procedures can be  
used in clinical  
practice.*

This leaflet is about when and how ultrasound guidance can be used in the NHS to place a needle near a nerve to give anaesthetic and/or pain relief. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence).

This HealthTech guidance makes recommendations on the safety of a procedure and how well it works. An interventional procedure is a test, treatment or surgery that involves a cut or puncture of the skin, or an endoscope to look inside the body, or energy sources such as X-rays, heat or ultrasound. The guidance does not cover whether or not the NHS should fund a procedure. Decisions about funding are taken by local NHS bodies (primary care trusts and hospital trusts) after considering how well the procedure works and whether it represents value for money for the NHS.

This leaflet is written to help people who have been offered this procedure to decide whether to agree (consent) to it or not. It does not describe ultrasound guidance to place a needle near a nerve in detail – a member of your healthcare team should also give you full information and advice about these. The leaflet includes some questions you may want to ask your doctor to help you reach a decision. Some sources of further information and support are on page 6.

### What has NICE said?

This procedure can be offered routinely for people needing an anaesthetic or pain relief, during or after surgery, provided that doctors are sure that:

- the patient understands what is involved and agrees to the treatment, and
- the results of the procedure are monitored.

NICE has also said that it should only be carried out by doctors who are experienced in giving regional nerve blocks and who have training in ultrasound guidance techniques.

### Other comments from NICE

The ultrasound equipment should give an adequate image quality.

*This procedure may not be the only possible way of placing a needle tip. Your healthcare team should talk to you about whether it is suitable for you and about any other treatment options available.*

## Using ultrasound guidance to place a needle tip near a nerve to give anaesthetic and/or pain relief

The medical name for this procedure is 'ultrasound-guided regional nerve block'.

The procedure is not described in detail here – please talk to your doctor for a full description.

During or after surgery some patients need anaesthetic or pain relief drugs to be injected to stop pain in specific areas. This type of injection might also be used to manage chronic pain. This is called regional nerve block as the anaesthetic or pain relief drugs are injected close to the nerve in the area being operated on or close to the nerve that is transmitting the pain.

With ultrasound imaging, the person doing the procedure (usually an anaesthetist) can 'see' the nerve. This helps them to guide the needle tip into the right position and to check that the anaesthetic is reaching the targeted area.

### **What does this mean for me?**

NICE has said that this procedure is safe enough and works well enough for use in the NHS. If your doctor thinks using ultrasound guidance to help place a needle tip near a nerve is a suitable option for you, he or she should still make sure you understand the benefits and risks before asking you to agree to it.

### **You may want to ask the questions below**

- What does the procedure involve?
- What are the benefits I might get?
- How good are my chances of getting those benefits? Could having the procedure make me feel worse?
- Are there alternative procedures?
- What are the risks of the procedure?
- Are the risks minor or serious? How likely are they to happen?
- What care will I need after the operation?
- What happens if something goes wrong?
- What may happen if I don't have the procedure?

## Summary of possible benefits and risks

Some of the benefits and risks seen in the studies considered by NICE are briefly described below. NICE looked at 11 studies on this procedure.

## How well does the procedure work?

*You might decide to have this procedure, to have a different procedure, or not to have a procedure at all.*

Two studies reported that nerve block was more successful using ultrasound guidance than without ultrasound. In a study of 188 patients the success rate was 83% for ultrasound guidance and 63% without it. In a study of 40 patients, nerve block was more successful and faster in 20 patients who were treated with ultrasound guidance compared with 20 treated without it. One patient in the ultrasound guidance group and two in the group without it also needed a general anaesthetic. Two other studies showed that the nerve block was successful in 99% of 1146 patients and in 94% of 520 patients treated using ultrasound guidance.

In a study of 60 patients undergoing surgery, nerve block was unsuccessful in 1 out of 20 patients treated using ultrasound guidance, and in 2 out of 20 patients treated without it.

A study of 100 patients reported that less anaesthetic was needed to block the nerve when ultrasound guidance was used. Fewer patients in the ultrasound guidance group (6%) than in the group without ultrasound guidance (40%) needed pain relief after surgery.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that factors used to assess how well the procedure works include success of the nerve blocks, the volume of anaesthetic needed, how quickly the patient experienced pain relief, pain severity, and how many times the needle had to be inserted.



### **Risks and possible problems**

The three main complications were a sensation like ‘pins and needles’, blood vessel puncture and nerve injury. In the study of 188 patients, 13 out of 64 patients in the ultrasound group and 13 out of 62 patients without it had ‘pins and needles’, lasting up to 5 days. A study of 40 patients reported that significantly more people had ‘pins and needles’ in the group without ultrasound than in the ultrasound group. In this same study, 0 out of 20 patients in the ultrasound group and 3 out of 20 patients in the group without it had a blood vessel punctured. In another study of 60 patients, 0 out of 20 patients in the ultrasound group and 4 out of 40 patients without it had a blood vessel punctured, causing bruising. Two out of 620 patients had nerve injury after having a catheter (a thin hollow tube) inserted using ultrasound guidance, for treatment of ongoing pain. The symptoms resolved by 2 weeks in 1 patient and 6 weeks in the other.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that problems could include organ damage, nerve damage, injection errors, bleeding and lung collapse.

### More information about pain relief and anaesthesia

NHS Choices ([www.nhs.uk](http://www.nhs.uk)) may be a good place to find out more. Your local patient advice and liaison service (usually known as PALS) may also be able to give you further information and support.

#### About NICE

NICE produces guidance (advice) for the NHS about preventing, diagnosing and treating different medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider how well an interventional procedure works and how safe it is, and ask the opinions of expert advisers. This guidance applies to the whole of the NHS in England, Wales, Scotland and Northern Ireland. Staff working in the NHS are expected to follow this guidance.

*To find out more about NICE, its work and how it reaches decisions, see [www.nice.org.uk/aboutguidance](http://www.nice.org.uk/aboutguidance)*

*This leaflet is about 'ultrasound-guided regional nerve block'. This leaflet and the full guidance aimed at healthcare professionals are available at [www.nice.org.uk/HTG179](http://www.nice.org.uk/HTG179)*

*You can order printed copies of this leaflet from NICE publications (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote reference N1780).*

*We encourage voluntary organisations, NHS organisations and clinicians to use text from this booklet in their own information about this procedure.*



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ISBN 978-1-4731-7861-8

N1780 1P Jan 09

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