University College London Hospitals

Sacral Neuromodulation (SNM)

Uro-Neurology Department
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1 Introduction

The aim of this leaflet is to provide you and your carers with information on the procedure, how to prepare for it, what care to expect and follow-up care.

2 What is sacral neuromodulation (SNM)?

Sacral neuromodulation (SNM) is a therapy for treating certain bladder and bowel disorders in which the conventional treatment methods have failed. The bladder disorders include: urinary incontinence, urinary retention and bladder pain syndrome.

The treatment involves continuous electrical stimulation of the pelvic nerves which supply the bladder, rectum and anal sphincters. Sphincters are muscles which control the opening to the bladder or bowel and help to keep you continent.

3 How can sacral neurmodulation help?

When the nerves are stimulated continuously by electrical pulses carried along the inserted wires, the muscles they supply change how they contract and relax and if effective then your symptoms will improve.
However it is not effective in everyone, so before inserting a permanent stimulation device temporary stimulation is attempted first. Temporary stimulation is achieved by inserting a wire into the pelvic nerves in the operating theatre and later connecting this wire to an external electrical stimulation device. This test will last for 4-8 weeks and you will be asked to keep a bladder diary, three weeks after the initial procedure for a total of three days. This will be analysed by one of the SNM team. If your response to SNM is evaluated as being successful, we will be able to offer you a permanent Sacral Neuromodulator – InterStim. Therefore the whole procedure entails you undergoing two operations – one for the temporary insertion and one for insertion of the permanent device. If you are not
suitable for the permanent device you will still need the second operation to remove the temporary wires.

4 What is a permanent sacral neuromodulation?

This is an implantable electronic metal device that is inserted under the skin like a pacemaker. From the implant a thin wire carries electrical pulses down into the nerves that control the bladder. A hand held remote control allows you to turn the neuromodulator on and off and the strength of the stimulation up and down.

5 What are the risks of sacral neuromodulation?

Common (greater than 1 in 10)
- Replacement, relocation or removal of the implanted pulse generator device
- Replacement, relocation or removal of the lead
- Pain

Occasional (between 1 in 10 and 1 in 50)
- Wound infection
- Adverse effect on bowel function
- Urinary infection
- Implanted pulse generator device malfunction

Rare (less than 1 in 50)
- None

Hospital-acquired infection (overall risk for UCLH)
- Colonisation with MRSA (0.9%, 1 in 110)
- Clostridium difficile bowel infection (0.005%; 1 in 10,000)
- MRSA bloodstream infection (0.01%; 1 in 10,000)

(These rates may be greater in high-risk patients e.g. with long-term drainage tubes, after removal of the bladder for cancer, after previous infections, after prolonged hospitalisation or after multiple admissions)

6 What will happen if I choose not to have the procedure?

If you decide not to have SNM, the doctor will talk to you about your options. Keep in mind that some alternatives may not give as good an outcome as SNM or you may not be suitable to have the alternatives.

7 What alternatives are available?

This depends on the symptoms you presented with and you would only have been offered pelvic nerve stimulation once you had tried the alternatives such as bladder retraining, physiotherapy, drug treatment or Botox injections into the bladder.

8 How should I prepare for SNM?

You will be admitted on the day of surgery to the Day Surgery Unit (DSU). You will be seen by the anaesthetist and the surgical team and the form for your consent will be signed if this was not done in clinic. After your full recovery from
anaesthetic/sedation you will return to a ward bed, either for several hours or for overnight depending on your operation time.

9 Asking for your consent
We want to involve you in all the decisions about your care and treatment. If you decide to go ahead, with treatment by law we must ask you to sign a consent form. This confirms that you agree to have the procedure and understand what it involves. Staff will explain all the risks, benefits and alternatives before they ask you to sign a consent form. If you are unsure about any aspect of your proposed treatment, please don’t hesitate to speak with a senior member of staff again.

10 What are the risks of the general anaesthetic?
There are a number of issues that affect the chances of suffering complications, including: age, weight, lifestyle issues and your general state of health. Your anaesthetist and/or your surgeon can give further details. The information below on risks is provided by the Royal College of Anaesthetists.

- **Very common (1 in 10) and common (1 in 100) side effects**
  - Feeling sick and vomiting after surgery
  - Sore throat
  - Dizziness, blurred vision
Headache
Itching
Aches, pains and backache
Pain during injection of drugs
Bruising and soreness
Confusion or memory loss

- **Uncommon side effects and complications (1 in 1000)**
  - Chest infection
  - Bladder problems
  - Muscle pains
  - Slow breathing (depressed respiration)
  - Damage to teeth, lips or tongue
  - An existing medical condition getting worse
  - Awareness (becoming conscious during your operation)

- **Rare (1 in 10,000) or very rare (1 in 100,000 or less) complications**
  - Damage to the eyes
  - Serious allergy to drugs
  - Nerve damage
  - Death
  - Equipment failure

Deaths caused by anaesthesia are very rare, and are usually caused by a combination of four or five complications together.
There are probably about five deaths for every million anaesthetics in the UK.

11 What happens during the SNM procedure?

The operation entails the insertion of the neuromodulator wire into the pelvic nerves through the anatomical foramina (small openings in the bone that the nerves pass through) on the back of the sacrum (the lower part of the back). The correct placement of the wire is checked by x-ray and by the response achieved on stimulation during the procedure. The procedure takes between half an hour to an hour.

12 What should I expect after the SNM procedure?

Moderate discomfort over the sacrum (lower back) might be experienced: you will also feel some moderate pain over the metal implant site in your side. We will give you painkillers to ease this discomfort.

After your recovery you will be seen by one of the SNM team to check you are well and safe to go home. We ask that you NOT shower or bath (although body washing is fine) until you have been back to see us for review. Try to keep your dressings dry. During the time that you are at home, hygiene is of paramount importance – it is essential that the wound does not get infected. If it does, the lead will have to be removed and the first stage procedure will have to be done again. Please note this will be no sooner than
three months later.

There will be a detailed discussion with you regarding what you do when you are at home and who you should contact if you have any problems.

3-5 days after the operation
You will return to the hospital three and seven days after your operation to see the clinical nurse practitioner (CNP). The nurse practitioner will check your wound to ensure there are no signs of infection. At that point the device will be switched on and programmed. You will be discharged with painkillers and prophylactic antibiotics if necessary.

3 weeks after the operation
You will be asked to contact the nurse and begin to fill in the bladder diary you would have been given. It is vital you fill it in accurately and bring it with you when being reviewed in clinic and also on when you come back in for the second operation.

4-5 weeks after the operation
You will be contacted by our CNP who will discuss your symptoms with you or for review of the wounds.

Second stage procedure (Final operation 4-8 weeks after the first operation)
If you have responded well to the temporary insertion then you will be admitted to have the permanent device inserted under the skin on your buttocks. You will be admitted on the day of surgery and consent obtained. The device will be inserted under general anaesthetic and will take about half
an hour. If the tests have been successful the device will be activated within one week.

If however your tests have been unsuccessful, then you will still have surgery but the operation will involve removing the temporary wire. You will go home on the same day and be advised of follow up.

Again you will be discharged with painkillers and prophylactic antibiotics if necessary.

13 What should I expect at home with my temporary device?

The device will be connected to a wire inside the body attached to an electric cable sitting outside (long enough to allow the device to be clipped to your belt or trousers). You are encouraged to keep the stimulation ON at all times. However, if you prefer to switch the device OFF during the night time you may do so. At the time of connecting the device you will be shown how to control the voltage settings and how to switch the stimulator ON and OFF. The rest of the device parameters will be set in the hospital and should not be changed.

Do’s and don’ts with the device:

Do: keep the dressings and the device dry at all times. You should avoid bathing, but you can take a careful shower using the shower head and avoiding the back and bottom. During this time the device should be disconnected, (You will be shown how to do this in hospital).
Don’t: Remove any of the dressings on the back. If needed, further dressings should be applied and these will be provided on discharge from the hospital.

14 What should I expect when I at home with the permanent device?

You will be given a separate booklet of instructions for your device on the day of your operation. You should take the time to read this as it contains some important and interesting information.

When you are at home you can generally return to your normal activities once you feel more comfortable. It is important your scar heals well, so any signs of infection including redness or inflammation should be reported to the SNM team.

Within the first few months the neuromodulator may need some fine tuning, as it is more complicated than the test stimulation, this may mean that you need to come to the hospital, or may need to be able to communicate via the telephone. You will gradually start to feel the neuromodulation less and may turn the voltage/strength up if you want to so you can feel it. It is not necessary to feel the neuromodulation all the time if your symptoms are controlled.

The device battery has a life of between three to five years. If you notice a change in your symptoms you should call the SMN team to be reviewed and the neuromodulator checked. Your remote controller will indicate if the battery is low.
The battery

You will have an identity card that you should carry with you at all times. This will indicate you have a **metal implant**. Most medical tests and treatments are safe with an SNM, however you must tell your doctor or nurse that you have a Sacral Neuromodulator and show them the ID card. These treatments **MUST NOT** be undertaken with an SNM in situ:

- Magnetic resonance imaging (MRI)
- Lithotripsy (for kidney stones)
- Radiation therapy over the stimulator
- Heart defibrillators
- Diving below 10M
- Extreme sports such as bungee jumps/parachute jumps

The following procedure CAN be undertaken (with your SNM turned off) but you must tell the technician you have an implant:

- Electrocardiography (ECG)
- A holter monitor
- Electroencephalogram (EEG)
• Implantable heart monitor

Going through theft detectors and screening devices
Show your SNM ID at the airport security and ask to be allowed to bypass the screening device. Airport security systems may turn your neuromodulator OFF – so please ensure you turn it off if security will not allow you to bypass the system. It is safe to fly with your SNM on.

Shops, department stores and banks should not interfere with your device.

Hospital equipment
Hospital operations often require the use of equipment that stops you bleeding, this is called diathermy. Some types of diathermy (such as monopolar) are not allowed with an SNM, even if it is switched off. Please ask your doctor to contact a member of the SNM team for more information if you require surgery.

15 Frequently asked questions

What do you do if the neuromodulation becomes painful?
Use your remote control to reduce the level of neuromodulation.
Can I have sex with the SNM switched on?
Yes – there are no restrictions.

Will a mobile phone or microwave oven affect my neuromodulator?
No, but do not hold or store your mobile phone next to the SNM (for example in your back pocket, on the side of your neuromodulator).

Will the SNM interfere with my sporting activities?
No, but you should avoid extreme sports which involve impact to the body over the implant e.g.: Kickboxing, rugby. Sports such as horse riding, golf, football and aerobics are safe.

Can I dive?
Yes, but not deep sea diving below 10m of water or enter hyperbaric chambers above 202.65kPa (2.0 ATA).

Can I use it whilst pregnant?
No, the device must be switched off once you have a positive pregnancy test, and only turned on again once breast feeding is completed.
16 Contact information

University College London Hospitals,
235, Euston Road
London, NW1 2BU
Switchboard: 0845 155 5000 or 020 3456 7890
Website: www.uclh.nhs.uk

Ms Julie Jenks
Clinical nurse practitioner
020 3447 7799

PA to Mr Ockrim, Miss Greenwell and Miss Pakzad
Switchboard: 0845 155 5000 or 020 3456 7890
Extension: 79210
Direct line: 020 3447 9210

17 Where can I get more information?

You may find the information on the following websites of interest:
NICE
http://www.nice.org.uk/guidance/ipg64/resources/ipg64-sacral-nerve-stimulation-for-urge-incontinence-understanding-nice-guidance2

The IUGA (international urogynaecological association) info sheet on SNM for women (2013):

The Medtronic website for pre-implant videos for patients:

18 References
Anaesthetic information provided by the Royal College of Anaesthetists (www.rcoa.ac.uk)

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Some information is taken from patient information leaflets from Addenbrooks and Gateshead Hospitals – with thanks
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Space for notes and questions