



British Pain Society and Faculty of Pain Medicine of the Royal College of Anaesthetists

Standards of good practice for medial branch block injections and radiofrequency denervation for low back pain

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1 Introduction

This document describes the standards of good practice for pain specialists carrying out medial branch block (MBB) injections and radiofrequency denervation (RFD) as recommended by the British Pain Society (BPS) and the Faculty of Pain Medicine of the Royal College of Anaesthetists (FPMRCA). This document also defines the facilities and important aspects of technique required in order to safely carry out these procedures. This document however, does not serve as critical analyses of published evidence.

MBB and RFD are procedures used widely to treat back pain, thought to be caused predominantly by facet joint disease. These procedures are an accepted part of “low back pain, specialist management”, a pathway prepared by the BPS and the Map of Medicine where their evidential basis and clinical context are considered ^[1]. This care pathway emphasises that MBB and RFD procedures should not be undertaken in isolation and should include the support, guidance and decision making of an interdisciplinary team. Furthermore, these procedures should be undertaken in conjunction with rehabilitative interventions designed to reduce disability and enhance maximum improvement in quality of life.

The BPS and the FPMRCA recognise that clinicians from other medical disciplines perform MBB and RFD. The FPMRCA however, only takes responsibility for the professional standards of Pain Medicine Specialists. These recommendations apply to both doctors in training, who perform MBB injections and RFD under varying levels of supervision, and to established practitioners in non-training grades. The competencies expected of pain medicine doctors are defined in the Curriculum for a CCT in Anaesthetics (Certificate of Completion of Training) - Advanced Level Training (Annex E) ^[2].

2 Consent

You must work in partnership with your patients when performing pain interventions. You should discuss their condition and treatment options with them. You must respect their right to make decisions about their care. You should view obtaining informed consent as a process of discussion and joint decision-making. You must be satisfied that you have consent before you provide any treatment. This will involve providing information to patients in a way that they can understand before asking for their consent. You must follow the guidance provided by the GMC (2008) ^[3].

In deciding how much information to share with your patients you should take account of their wishes, religious beliefs (or none) and social and economic circumstances. The information you provide should be in proportion to the nature of their condition, the complexity of the proposed treatment and the seriousness of any potential side effects, complications or other risks. You may need to support your discussions by using written material, visual or other aids; any material used however, must be accurate and up-to-date. Furthermore, should you wish to use such material then this must be made available in an accessible format to the patient; factors such as age, ethnicity, cognitive/communication skills and capacity must be considered. You must be aware of current recommendations about safeguarding vulnerable patients and follow the provisions of the 2005 Mental Capacity legislation ^[4].

If you are the doctor providing treatment, it is your responsibility to discuss this with the patient. If this is not practical, you can delegate this responsibility to another doctor, provided you make sure the person to whom you delegate is suitably trained and qualified, has sufficient knowledge of the proposed treatment and understands the risks involved. They must understand and act in accordance with GMC guidance ^[3].

You must identify adverse outcomes that may result from the proposed treatment including the potential outcome of taking no action. Risks will usually be side-effects/complications or failure to achieve the desired aim. You must inform patients about less serious complications if they are common and explain what the patient should do if they experience these. You must also inform patients if the treatment might result in a serious adverse outcome, even if the likelihood of this is minimal.

Written consent should be obtained but this is just the end point of the consent process. You should use the patient's medical records or a consent form to record the key elements of your discussion with the patient. This should include the information you discussed, any specific requests made by the patient, any written, visual or other information given to the patient and the details of any decisions that were agreed.

3 Preparation and identification of patients

All hospital inpatients must wear wristbands (identity bands) with accurate details that correctly identify them and match them to their care. All patient identification procedures must follow National guidelines^[5,6]. Allergies must be checked and noted according to local policy and practice.

The WHO safer surgery checklist must be used for all procedures to ensure appropriate checking of patient identity, site and nature of planned procedure, patient preparation, and readiness of equipment^[7].

When fluoroscopy is to be used in females of childbearing age, pregnancy status must be confirmed prior to the procedure according to National guidelines^[8].

Citing an intravenous cannula should be considered dependent upon hospital policy and practice.

Patients receiving local anaesthesia should be fasted prior to the procedure according to local hospital policy and practice. If the patient is to have conscious sedation they must be fasted as for general anaesthesia according to local policy and practice^[9,10].

4 Environment and facilities

MBB and RFD should be performed aseptically in an appropriate environment that adheres to local guidelines with regards to minimally invasive procedures. Infection prevention and control, monitoring, imaging and availability of assistance must all adhere to local policies and National guidelines. The clinical area should be of an adequate size in order to accommodate the staff and equipment necessary for safe minimally invasive procedure practice. The clinical area should have a fully equipped and staffed post anaesthesia care facility in close proximity. Resuscitation equipment and facilities must be immediately available should this be required^[11].

5 Anticoagulation

Whilst MBB injections are considered a low risk intervention, particular care is needed in patients with disordered clotting either from medical problems or medication. Facet denervation would normally be considered a high-risk procedure for bleeding. The benefits and risks of the procedure should therefore be considered on an individual basis and where needed advice on withdrawal of anticoagulants should be sought from other clinicians involved in the patient's care such as supervising cardiologist, local haematology services and the patient's GP, where appropriate. This is important as abrupt withdrawal of anticoagulants may risk serious thrombotic episodes whereas the continued use carries an increased risk of bleeding^[12-14].

6 Sedation

Sedation may be required, though reassurance and adequate local anaesthesia usually suffice. In patients where sedation is required, intravenous cannulation is necessary. It is important to emphasise that feedback from the patient during the procedure is desirable and that the sedation used is light and short acting^[15,16].

7 Technique

7.1 Lumbar Medial Branch block (MBB) injections

The procedure must be performed in a room that is suitable for an aseptic procedure with fluoroscopy C-arm facilities. The operator must be trained in the use of fluoroscopy to obtain the best images and thereby have reliable information about needle positions. Standard technique as described by the International Spinal Intervention Society^[17] or other recognised body or specialist books^[18] is recommended. It is the responsibility of the operating pain physician to gain and maintain competency in using the most effective technique.

7.2 Radiofrequency denervation

Operators must be familiar with and competent to operate the RF generator. They must be trained in the use of fluoroscopy to obtain the best images and thereby have reliable information regarding electrode positions. Standard technique as described by the International Spinal Intervention Society^[19] or other recognised body or books^[18] is recommended. Customarily, a nerve lesion is performed with a large gauge RF needle with a long curved exposed active tip (e.g. 18 G needle, 10 mm active tip) placed parallel to the medial branch and dorsal ramus. If a smaller diameter or active tip RF needle is used, it is recommended that multiple lesions are made.

Motor stimulation may be performed to further confirm that the needle is not in proximity to the ventral root. This should already have been established beyond any doubt by checking the AP tunnel or gun-barrel, oblique and superior views on fluoroscopy. It is the responsibility of the operating pain physician to obtain and maintain competency in using RF devices and the most effective technique.

8 Record keeping

Standards of record keeping should be audited in accordance with local clinical governance arrangements.

Records should include the following information:

- Clinical indication for injection
- Date and time of procedure
- Type of procedure performed
- Name of clinician performing procedure (Printed and signed)
- Position of patient
- Sedation (if used), oxygen, monitoring
- Skin preparation
- Spinal level of injection
- Size of needle (gauge and active tip length)
- Radio-opaque contrast and dose if used
- Any difficulties encountered

- Injected drugs and doses
- Stimulation parameters, temperature, duration and the number of lesions when RF is used
- Images taken in 2 planes (such as AP tunnel or gun-barrel and oblique views) sufficient to determine the final positions of the RF needle tip in relation to the target. These should be stored in the patient's records or hospital radiology system for clinical and legal purposes according to local hospital guidance
- Post-procedure observations
- Aftercare instructions
- Follow up arrangements
- Contact details for patient and primary care team

9 Follow up and discharge planning

On the day of the procedure, patients' should be seen by a member of the treating team or a specifically assigned member of staff on admission and prior to discharge. The patient's limbs should be checked for numbness and/or weakness and the patient asked about urine retention or headache. Patients' should be ready for discharge one to three hours after the procedure. Usual medication can be resumed on the day of the procedure. If there is unexpected significant limb weakness, sensory loss or headache, an unplanned overnight admission may be necessary, with a review the following day before discharge.

If the procedure is complicated by inadvertent dural puncture then the patient may need a more prolonged admission and management in accordance with local guidance. Facilities for overnight stay should therefore be available.

After discharge, a reliable telephone contact number must be provided so that patient can report any acute complication such as headache, fever, prolonged numbness/weakness or urinary retention. The day surgery unit, as part of the normal discharge procedure, should provide this.

Other healthcare providers (primary care team, emergency department or day care staff) who may be involved in the patient's care after the injection should know how to contact a member of the treating team or hospital staff by telephone in order to help make management decisions where necessary.

A letter, with a copy provided to the patient, should be sent to the patient's GP detailing the procedure and follow up arrangements. The letter should emphasise that fever, severe back pain or worsening neurological and/or urinary symptoms are potentially serious adverse events and that the patient should be monitored at primary care level for any such complications.

Emergency full spine MRI scanning must be available. Arrangements must be in place for urgent referral for neurosurgical or spinal surgical opinion.

Follow up arrangements should be made for all patients after MBB injections and RFD. The time of review will depend on the patient's condition and the indications for the injection.

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12 Conflicts of interest

This publication received no specific grants from any funding agency in the public, commercial, or not-for-profit sectors.

Drs K Simpson, G Baranidharan and S Gupta are editors of Oxford Specialist Handbook in Pain Medicine: Spinal Interventions in Pain Management, Oxford: Oxford University Press, 2012. Part of a chapter from this book: Lumbar Spine Interventions, pp 52 to 63, has been referenced in this document under Technique.

Dr S Gupta has organised meetings sponsored by NeuroTherm Limited who market radiofrequency generators and disposables

Dr Vivek Mehta is the Principal Investigator of "A sham, controlled, randomised trial to investigate the effects of radiofrequency neurotomy using Simplicity III on patients with sacroiliac joint pain". This trial is being funded as an investigator initiated trial by Neurotherm Inc and is currently recruiting.



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