MEDIAL BRANCH BLOCKS

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These safety practices have been developed to highlight the important elements in the safe performance of interventional pain procedures. Adherence to these practices will help decrease the risk of preventable complications. For additional information about the indications and technical aspects that yield improved treatment outcomes, refer to the *IPSIS Technical Manual and Atlas of Interventional Pain and Spine Procedures*.

/// PERSONNEL

- Only physicians trained in the technique and interpretation of medial branch blocks (MBBs) should perform this procedure.
- Appropriately trained personnel are needed to operate the fluoroscopy unit or assist the physician.

/// CONTRAINDICATIONS

ABSOLUTE

- An active systemic infection or a localized infection within the procedural field
- Uncooperative patient or inability to obtain informed consent
- Inability to communicate pain level
- Allergy to a local anesthetic used for the block that cannot safely be omitted or mitigated by pre-treatment
- Hypertensive emergency/urgency
- Anatomical derangements that compromise the safe and successful conduct of the procedure

RELATIVE

- Pregnancy
- Asymptomatic blood pressure >180/110
- Uncorrected coagulopathy

/// ANTITHROMBOTICS AND BLEEDING DISORDERS

- The decision to continue or how to temporarily discontinue anticoagulation/antiplatelet (AC/AP) therapy must take into account potential complications in each scenario.
- There is a quantifiable risk of life-threatening thrombotic events associated with discontinuation of therapeutic AC/AP agents for spine interventions.

- The decision to temporarily discontinue AC/AP therapy and whether to employ a bridging strategy should include the patient and the physician prescribing the AC/AP therapy.
- The bleeding risk is classified as low for MBBs. The general consensus is that AC/AP therapy does not need to be discontinued before LMBBs.

PROCEDURAL SEDATION

- Sedation is not intrinsically necessary for MBBs, but if employed in unique circumstances (*e.g.*, movement disorder, cases of extreme anxiety, previous vasovagal response), the patient should remain able to communicate pain or other adverse sensations or events. Deep sedation and general anesthesia are contraindicated.
- The use of sedation may alter diagnostic conclusions.
- The use of analgesic (*e.g.*, opioids) and anxiolytic medications will affect perceived pain and negatively alter diagnostic results.
- The decision to use sedation for an appropriate indication should be made on a case-by-case basis. Patients should be advised during informed consent that procedural sedation is not necessary but elective.
- If the physician performing the procedure decides that sedation is indicated, a separate healthcare provider must administer the medications and monitor the patient.
- Resuscitation drugs, appropriate monitoring equipment, and oxygen must be available if sedation is utilized.

SAFE, ASEPTIC PRACTICES

- Strict aseptic technique should always be applied to the facility, patient, physician, assisting personnel, injectate/syringe, and other procedural materials. Examples include but are not limited to:
  - Skin overlying the target region should be prepared for an aseptic procedure, preferably using chlorhexidine in alcohol. The area should then be draped to create a sterile field.
  - A face mask and sterile gloves must be worn during the procedure.
  - Sterile single-use syringes and needles are required, and single-dose vials should be utilized when available.
  - Acquisition, storage, and utilization of medications should adhere to relevant regulatory guidelines.

IMAGING

- The use of image guidance is critical for appropriate needle placement. Image guidance reduces the risk of complications, allowing the physician to avoid vulnerable vascular or neural structures, such as the spinal cord in the case of cervical MBBs and the pleural cavity in the case of thoracic MBBs. Image guidance also ensures that injectate is delivered to the target.
- The safety and validity of fluoroscopically-guided MBBs have been described in the medical literature, while the same rigor of investigation has not been applied to alternative image-guidance modalities. Thus, fluoroscopy is currently the recommended image guidance modality for MBBs.

- The fluoroscopic technique should follow the ALARA (As Low As Reasonably Achievable) principles to minimize X-ray exposure for the patient and the healthcare team.
- True AP and true lateral and/or oblique views should be obtained to show correct needle placement and to exclude penetration into the spinal canal or other vulnerable structures.
- Administration of contrast medium before local anesthetic is recommended to rule out vascular uptake. If MBBs are performed without contrast medium (*e.g.*, for a patient with a documented allergy to contrast medium), there is a risk that vascular injection would not be identified and that failure of the diagnostic block to relieve pain might represent a false negative response.
- Gadolinium-based contrast media (GBCM) should be used cautiously in interventional pain procedures and only when necessary. The clinical benefit of the interventional pain treatment should be weighed against the risk of catastrophic outcomes with intrathecal administration of even small amounts of GBCM, including acute neurotoxicity (confusion, acute agitation, reduced level of consciousness, visual and auditory hallucinations, seizures, severe spasticity), tachycardia, elevated blood pressure, vomiting, and respiratory failure. GBCM is not recommended for use in procedures where intrathecal access is possible; however, the possibility of intrathecal injection with properly performed MBBs is exceedingly remote.
- In procedures where intrathecal access is not possible, GBCM can be utilized. However, GBCM has a lower relative radiodensity compared to iodinated contrast medium, producing a contrast flow pattern that is less apparent on fluoroscopy. Regardless, the lowest necessary volume of GBCM should be utilized.
- Obtain images documenting the final needle position and appropriate contrast medium spread.

/// INJECTIONS

- For cervical MBBs, the ultimate choice of approach or technique should be made by the treating physician by balancing the potential risks and benefits of each technique for each patient.
- The ultimate choice of local anesthetic agent (*i.e.*, long-acting compound, short-acting compound, placebo agent) should be made by the treating physician.

/// POST-PROCEDURE MONITORING/FOLLOW-UP

- Patients should be monitored for an appropriate time following the procedure, depending upon the nature of the intervention and the agents utilized.
- Provide detailed oral and written discharge instructions to patients that outline the following:
  - restrictions and recommendations for the immediate post-procedure period
  - potential common side effects that may occur immediately post-injection and in the days following the procedure
  - symptoms that merit immediate medical attention
  - timing for resumption of usual medications and anticoagulants if discontinued for the procedure
- Ensure patients have a follow-up plan.

SOURCES

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DISCLOSURES

MacVicar, John:
No Financial Relationships to Disclose.

McCormick, Zachary:
Consultant: Saol Therapeutics; Stryker; OrthoSon; Avanos
Research support: Avanos; Boston Scientific; Relievant Medsystems; SPR Therapeutics; Saol Therapeutics; Spine Biopharma; Stratus
Expert witness: Various law firms
Board of Directors: American Board of Pain Medicine
Deputy Editor-in-Chief: Pain Medicine Journal
Editorial Board: The Spine Journal; Physical Medicine & Rehabilitation (Journal)

Doan, Lisa:
Grant and research support: NIH

Hambraeus, Johan:
No Financial Relationships to Disclose.

Vorobeychik, Yakov:
No Financial Relationships to Disclose.

DISCLAIMER

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