



A Quick Guide: Ultrasound Guided Nerve Blocks

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Ultrasound Machine and Image Acquisition Scanning Preparation

1. Obtain written informed consent for the block- **AORA Written Consent Form**
2. Re-examine the patient before administering the block
3. Checklist ticked before the block - (anaesthesiologist and nurse to be present)

AORA Checklist

- Ensure we have correct patient/block and marked site/side of block
 - Check Documents and Equipment before initiating the procedure
 - I.V cannula secured before performing the block
 - Minimum ASA standard monitoring (pulse oxymeter, NIBP, ECG) started
4. Ergonomics- Ultrasound machine should be in direct line of sight of the anaesthesiologist performing the block
 5. Selection of Pre-Set in certain machines to better visualize that structure (eg: Nerves/ Musculoskeletal/Vascular)
 6. Probe selection- High frequency probe (13-6 MHz) for superficial nerves/structures and Low frequency probe (5-2 MHz) for deeper nerves/structures and neuraxial blocks
 7. Tegaderm, Cling Wrap or Camera Cover wrapped around the probe for sterility
 8. Oxygen administration via ventimask /nasal prongs
 9. I.V. sedation like Midazolam /Fentanyl I.V. before initiating the block, but after finishing timeout/ checklist
 10. Maintenance of strict asepsis during the block procedure- **AORA Sterility Precautions**
 11. Skin infiltration with 1% Lignocaine 1 min before inserting the needle; at the site of needle entry
 12. Probe holding- Pen holding method is preferable for most blocks
 13. At end of procedure- probe should be cleaned with Soap and water

Image Optimisation

The following movements of the probe can be utilized for optimization of image:

Transducer Movements:

1. Sliding
2. Tilting
3. Rocking
4. Rotation
5. Compression

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Needle Approaches

In Plane- Whole length of the needle is visualized

Out of Plane- Only needle tip is visualized

Clinical Pearls

1. Optimize the image by setting the appropriate focus, depth and gain
2. Focus the target in centre of the screen
3. Ensure that the skin sterilizing solution has dried, before inserting the needle for block, as contact of sterilizing solution with the nerve can lead to nerve injury (neuropraxia/neurotemesis/axonotemesis)
4. Incremental injection of Local Anaesthetic in 2-3 ml aliquots after repeated aspiration
5. Stop administration of perineural drug, if the patient complains of pain during injection; as it can be a feature of intraneural injection of drug and lead to nerve injury
6. When using peripheral nerve stimulator, never inject the drug, if muscle contraction occurs at current less than 0.3 MA; as it can be a feature of intraneural (intrafascicular) administration of drug and cause nerve injury
7. Scan with the Colour Doppler while doing Brachial Plexus Block (especially Interscalene and Infraclavicular blocks); to avoid inadvertent intravascular injection

These practical tips decrease the potential complications, making ultrasound guided regional anaesthesia a safer technique. Acquisition of a better image improves the success rate of the block.

From the protocols and guidelines committee of AORA

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