SUMMARY

In recent years there has been a growing interest in the practice of regional anesthesia and ,in particular, peripheral nerve blocks for surgical anesthesia and postoperative analgesia. Peripheral nerve blocks have been found to be superior to general anesthesia, as they provide effective analgesia with few side effects, and can fasten patient recovery.

Additional advantages of peripheral nerve blocks are that they are generally not contraindicated in patients taking anti-coagulants, they can be used in patients having lumbo-sacral disease and avoid the need for airway instrumentation.

It is almost universally accepted that these techniques offer numerous advantages and it is very likely that a trend toward increased interest in peripheral nerve blocks will continue to take place in the near future.

Unfortunately the practice of regional anesthesia does not enjoy widespread endorsement because of inconsistent success, varying from one anesthesiologist to another. Current methods of nerve localization (e.g, parathesia and nerve stimulation) are essentially blind procedures, since they both relay on an indirect evidence in needle- to- nerve contact.

Seeking nerves by trial and error and random needle movement can cause complications. Although uncommon, complications such as intravascular local anesthetic injection resulting in systemic toxicity, inadvertent spinal cord injury following interscalene block, pneumothorax following supraclavicular block, and nerve injury have been all reported.

In this essay we threw light on application of ultrasound in blockage of the brachial plexus by four techniques which are interscalene, supraclavicular, infraclavicular and axillary brachial plexus block.

Imaging guidance for nerve localization holds the promise of improving block success and decreasing complication. Among imaging modalities currently available, ultrasonography seems to be the one most suitable for regional anesthesia. Perhaps the most significant advantage of ultrasound technology is the ability to provide anatomic examination of the area of interest in real-time.

Ultrasound imaging allows one to visualize neural structure (plexus and peripheral nerves) and the surrounding structures (e.g, blood vessels and pleura), navigate the needle towards target nerves, and visualize the pattern of local anesthetic spread.

Successful brachial plexus blocks rely on proper techniques of nerve localization, needle placement, and local anesthetic injection. Standard approaches used today, unfortunately, are all "blind" techniques that rely on surface landmarks before needle insertion and elicitation of paresthesia or nerve-stimulated muscle contraction after needle insertion. Often, multiple trial-and-error needle attempts are necessary, resulting in procedure-related pain and complications. This is risky, particularly for the supraclavicular approach, because of the chance of pneumothorax.

Ultrasound guidance for brachial plexus blocks can potentially improve success and complication rates. We hypothesized that ultrasound imaging can help localize the brachial plexus accurately and guide needle advancement to the target nerves.