INTRODUCTION

Regional anesthesia has acquired a tremendous increase in popularity over the past two decades. With modern general anesthestic techniques, recovery after surgery can be both rapid and complete. However, in many day case patients regional anesthetic techniques may be preferable. Regional anesthesia not only can reduce or avoid the hazards and discomforts of general anesthesia including sore throat, airway trauma, and muscle pain, but it also offers a number of advantages to outpatients undergoing surgery. These techniques provide analgesia without sedation, earlier discharge, and prolonged postoperative analgesia. Regional anesthesia reduces the requirements of opioids and thus reducing the incidence of postoperative nausea and vomiting ***(Jeffrey et al, 2006).***

The ideal in the practice of regional anesthesia would be the ability to deliver precisely to the target nerve exactly the right dose of local anesthetic without incurring any risk of damage to the nerve or its related structures. This goal can be mostly achieved under sonographic visualization which provides real time imaging guidance allowing for purposeful needle movement and proper adjustment in the direction and depth ***(Riazi et al, 2008).***

Conventional peripheral nerve block techniques that are performed without visual guidance are highly dependent on surface anatomical landmarks for localization of the target nerve; it is therefore not surprising that regional anesthetic techniques are associated with a reported failure rate up to 20% because of incorrect needle and/or local anesthetic placement.

Ultrasound provides anatomic examination of the area of interest in real-time and reveals nerve location, needle location and the local anesthetic spread pattern during injection so improving the success rate of regional anesthetic techniques ***(Clifford et al, 2010).***

In patients with difficult anatomical landmarks, multiple trial-and-error attempts to locate the target nerve by conventional techniques can lead to operator frustration, patient pain and time delay in the operating room. This can be mostly avoided by ultrasound guidance ***(Duggan et al, 2008).***

Peripheral nerve stimulation technique is useful only when a motor response is elicited so it provides objective but indirect evidence of nerve location , such a motor response achieved at < 0.5 milliamper does not guarantee a successful or complete block , also this response disappears after injection of 1-2 ml of local anesthetic. Peripheral nerve stimulation technique does not prevent intravascular , intraneural or intrapleural injections ***(Dufour et al, 2008).***

On contrast to conventional blind and nerve stimulation techniques, ultrasound reduces the number of needle attempts for nerve localization, differentiates extravascular injection from unintentional intravascular injection, differentiates extraneural injection from unintentional intraneural injection and avoids pleural puncture ***(Spencer et al, 2009).***

With the help of high resolution ultrasonography, direct visualization of the nerve improves the quality of the block and the onset time. The use of ultrasound is also of great importance in some difficult situations as in anticoagulated patient, a patient with ventriculoperitoneal shunt and in generally anesthetized patient ***(Perlas et al, 2009).***

Although the structure and innervation of the arm, shoulder, and lateral clavicular area is complex, the superficial location of the brachial plexus, its branches, and the surrounding structures allow high-quality ultrasound images to be achieved, thereby making upper limb regional blocks highly amenable to ultrasound-guided techniques ***(Fredrickson et al, 2009).***