Role of Interventional Pain Management in Pain Practice

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Introduction

Interventional pain treatment procedures (IPTP) does play important role in relief of acute or chronic pain in multimodal approach. When oral medication results in inadequate pain relief, the interventional pain treatment techniques come as rescue for pain patients. In acute pain, especially in post-operative pain, oral route is not possible so interventional pain treatment procedure becomes mandatory such as continuous epidural, brachial plexus, femoral and nerve block.

The pain relief is a multi-disciplinary approach i.e. pain relief, physiotherapy, psychotherapy, other medical fraternity such as orthopaedic surgeon, neurologist is helpful.

Chronic pain is always associated with emotional disturbances; the role of alternate therapy such as yoga, meditation is needed.

The IPTPs include basic ones such as local infiltration, single or multiple nerve block, plexus or ganglion block, transforaminal epidurals, facet injections and advanced ones are radio frequency ablation, neurolytic blocks, spinal cord stimulation, intrathecal drug delivery systems, vertebroplasty, discolysis, adhesiolysis, epiduroscopy and endoscopic discectomy.

An interventional pain procedure remains the main stay in the treatment protocol for relief of chronic pain and for total pain management. Hence it is mandatory for pain physician, to follow a strict protocol while performing any interventional procedure. It will not only provide the safety, minimum or no morbidity but also ensure the credibility of the procedure and so of the physician. It is mandatory to do local anaesthetic block before performing a neurolytic one.

The suggested protocol is as follows: 1.

1. Complete evaluation and documentation of pain problem, history, symptoms, signs and investigations such as X-ray, CT Scan, MRI, Electro Myography, Nerve Conduction Study.
2. Explain the patient and family members about the procedure details, side effects, complications, if any.
3. Informed consent- must explain it in the language in which patient and his relatives understand, so they will sign the informed consent willingly.
4. Hospital admission for few hours to few days as the need be.
5. Investigations such as Bleeding time, clotting time, INR (if patient on anticoagulants); HIV and Australia antigen.
6. Interventional pain procedure should be done either in operating room or procedure room equipped with monitoring and resuscitation facilities
7. Pre procedure monitoring of Blood pressure, pulse
9. Secure I.V.line,
10. I.V. antibiotic cover
11. Sedation if necessary
12. Anaesthesiologist stands by as and when necessary.
13. Aseptic precaution such as wearing of gown, gloves, preparation of the area.
14. Lead gown and radiation counter for all present in procedure or operating room.

Procedure Tips

A. Keep talking to the patient while performing the procedure, to allay fear and anxiety.
B. Follow rule of Three D’s i.e Direction, Depth, Destination.
C. Dye spread Trans Foraminal Lumbar Epidural block (Figure 1).

Medications used for IPTPs : These
Local anaesthetic; steroids such as Triamcinolone Acetonide; Methyl Prednisolone (Depomedrol); Hyaluronidase; Neurolytic agents such as phenol 6-10% and alcohol (50-100%).

Interventional Pain Treatment Procedures (IPTPs): They are always done under fluoroscopy, ultrasound or CT guided and above mentioned protocol should be strictly followed.

They are broadly divided as Basic and Advanced.

Basic IPTPs
1. Trigger point injection- Myofascial pain such as Torticollis or Tennis Elbow
2. Peripheral Nerve Block- Occipital for Scalp pain; Mandibular for Dental Pain; Maxillary for upper jaw malignancy pain; Hypoglossal nerve block for cancer tongue and neck; Intercostal nerve block for # rib, post cholecystectomy pain and post herpetic neuralgia; Sciatic nerve for buttock or lower limb malignancy; Obturator nerve for perineal pain; Ileoinguinal nerve block for post herniorrhaphy pain and Femoral for lower limb pain
3. Epidural (Cervical, Thoracic, Lumbar, Caudal) for Radiculopathy due to disc bulge. They are also known as Sleeve root block when individual nerve is blocked. This is a very effective pain block for radicular pain in upper and lower extremity due to disc bulges in cervical or lumbar area.
4. Intrapleural block for carcinoma of lung, TAP (Transversus Abdominis Plane) block for abdominal wall pain
5. Ileopsoas muscle and tendon block; Piriformis muscle and tendon block for pain in perineum; buttock and gluteal region.

Advanced IPTPs
1. Neurolytic block : Stellate ganglion upper limb CRPS, ischaemic pain; Coeliac plexus (Figure 2) for any upper pain such as carcinoma stomach, liver, pancreas, kidney; Hypogastric plexus for pelvic or urogenital pain; Stellate Ganglion for ischemic pain or CRPS of upper limb (Figure 3); Lumbar plexus block for flank, buttock pain.
2. Radio frequency ablation of Median branch for facet joint pain (cervical, thoracic, lumbar)
3. Adhesiolysis (for epidural adhesions may be the cause of radicular pain in lower extremities followed by surgical discectomy)
4. Disc procedures- Provocative discography for discogenic pain to be followed by discectomy (either by laser, endoscopic); Vertebroplasty for osteoporotic spine or # vertebrae due to secondaries in very selective patients.
5. Epiduroscopy for chronic low back pain due to epidural adhesions; pain not relieved by transforaminal epidurals.
6. Spinal Cord Stimulation (SCS)- The accepted
mechanism is based on the gate control theory of pain published by Melzack and Wall in 1965. This theory first proposed that painful “electrochemical” nociceptive information in the periphery is transmitted to the spinal cord in small-diameter, unmyelinated C fibres and lightly myelinated Aδ fibres. These fibres terminate at the substantia gelatinosa of the dorsal horn, the gate of the spinal cord. Sensation such as touch and vibration is carried in large myelinated Aβ fibres and also terminate at this gate in the spinal cord. Therefore, the basis of this theory is that reception of large fibre information such as touch or vibration would turn off or close the gate to reception of small fibre information, resulting in analgesia. It has also been proposed that electrical stimulation may release putative neurotransmitters or neuromodulators, which effect prolonged pain relief.

A percutaneous trial stimulation is mandatory to permanent implantation of SCS. It is a procedure where leads are inserted into the epidural space percutaneously, and left in for a period of few days to a week. The benefit of an SCS trial is that the patient can experience the sensation of stimulation and assess the percentage of pain relief prior to surgical implantation. After following a successful trial, the leads and the pulse generator battery can be implanted in the flank, lower abdominal wall, or buttocks.

7. Intrathecal Drug Delivery System via Implantable Electronic Pump- This technique reduces the requirement of morphine considerably. (For example, Daily dose of oral Morphine from 200 mg to 1-2 mg)

It consists of a trial with intrathecal morphine to confirm the efficacy. After 2-3 days the procedure is planned under general anaesthesia under fluoroscopy. It consists of spinal puncture and tunneling of the intrathecal catheter in to the abdominal wall and attached to the electronic pump which is implanted in to the abdominal wall.

Conclusion

In the era of internet explosion the physician is accountable for his deeds while providing the pain relief procedure. In addition, the insurance agency requires to be satisfied before the reimbursement of the claim.

References