# SUMMARY AND CONCLUSION

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Between the site of active tissue damage and the perception of pain lies a complex series of electrochemical events, collectively called nociception. The noxious stimuli are translated into electrical activity, propagated as impulses which are modulated then percepted. Transduction, transmission and modulation interact with the unique psychology for the individual to create the final subjective, emotional experience we perceive as pain. Pain is deemed to be chronic when it persists beyond 3-6 months.

Chronic pain is a multiheaded dragon that requires an assay of weapons to combat.

The prognosis in chronic pain is guarded and one excepts to cape with pain and not to be cured.

The treatment continuum for the patient with chronic pain involves starting with conservative options then progressively initiating more invasive techniques, this requires good assessment and good pain measurement.

The wide spread societal focus an alleviating suffering and the appropriate treatment of pain has lead to acceptance fo interventional therapies early in the clinical course.

Interventional pain medicine involves invasion of the body tissues with techniques that have a primary goal of reducing pain. The spectrum of interventional pain procedures range from trigger points to neurosurgical destruction therapy. Nerve block, cryotherapy, radiofrequency ablation, spinal endoscopy, intradi sca I electrothermoplasty and implantable devices.

Management of chronic pain is incomplete without attention to the psychological factors.

**Neural blockade:**

Neural blockade inevitably play an important part in the management of a proportion of patients suffering from chronic pain, but it is clearly not appropriate for all of them, the challenge is to identify, with randomized controlled trials, those patients who clearly do benefit from neural blockades.

**Neural blockade has many advantages as:**

1- It prevents the neurobiological changes which transfers a peripheral nerve lesion to central sensitization, neuropathic pain & deafferentation pain, i.e. "protect the spinal cord from continuous cumulative depolarization by simple repeated local blockade".
2- Relief pain by sympatholysis in sympathetic maintained pain (SMP) in the early phase. This favourable response becomes refractory with time by developing sympathetic independent pain (SIP).
3- Prevent deterioration in the quality of life by the long lasting relieving effect of neurolytic blocks (celiac plexus block) and the associated reduction of NSAID-Morphine consumption.

There are diagnostic, prognostic, therapeutic and prophylactic indications for nerve blocks.

- Diagnostic blocks to identify the pain source for research or for epidemiologic purposes.
- Prognostic blocks to determine whether the clinical results of a neurolytic or neurosurgical treatment would be effective and acceptable to the patient.
- Therapeutic blocks can be used directly to treat the cause of pain or indirectly to provide temporary symptomatic relief, in order that other treatment can be given.
- Prophylactic blocks to prevent the changes to central processing that may be initiated by acute nocicpetion and result in chronic pain. Also to modify disease progression.

When assessing the effects of a block on a patient, one has to consider not only the immediate amount of pain relief obtained but also it duration, where it persists with normal activities of daily life, and if unpleasant side effects are produced. Somatic and sympathetic nerve fibres can be blocked at various sites after they leave the spinal canal from their peripheral terminals to the intervertebral foramen.

**Botulinus toxin injections:**

A neurotoxin produced by clostridium botulinum injected intramuscular to produce localized chemical denervation. It is beneficial in reduction of muscle tone and relief of painful spasticity of muscles.

**Implantation therapy for pain management:**

The use of neuroaugmentative techniques is a useful tool for the pain practitioner. These techniques, however should be used in the

context of a treatment continuum and only after the failure of syndrome-specific conservative therapies. All patients being considered for implantable techniques should undergo appropriate scruting and meet specific selection criteria including failure of conservative therapy, absence of untreated drug habituation, absence of sever psychopathology, and successful trial period demonstrating efficacy; they should also no longer be surgical candidates.

The use of spinal administered narcotics is more appropriate for opioid-responsive nociceptive pain syndromes.

Spinal cord stimulation is more appropriate for the treatment of various neuropathic syndromes. Patients who present with mononuropathic syndromes, pain of ischemic origin or pain due to intractable angina pectoris appear to respond the best to spinal cord stimulation. Although studies documenting the safety and reversibility of spinal cord stimulation exist, long-term outcome studies involving intraspinal drug delivery is scant at best. Both of these technologies offer a reversible option to patients who have failed conservative therapy and in whom neuroablative procedures are being considered.

Spinal endoscopy:

The increase in utilization of spinal endoscopy is due to improvements in fiberoptic and endoscopic technologies. The ability to directly visualize the contents of the epidural space is an attractive option when epidural fibrosis is suspected as the pain generator. This technique offers many advantages over the conventional approach of spinal injections and epidural lysis of adhesions, since in this procedure direct

vision is used. An advantage over MRI evaluation also exists because of the ability to differentiate scar tissue from recurrent disc herniation.

Acupuncture:

Acupuncture is a minimally invasive technique that has neurophysiologic consequences probably related to augmentation of neural input or the provocation of modulating influences.

**Neurosurgical modalities for pain management:**

Decompressive procedure for treatment of carpal tunnel syndrome. Ablative procedures used with short life expectancy to destroy portions of the nervous system to block transmission of nociceptive information. Examples of ablative procedures are Rhizotomy, Myelotomy, Cordotomy, Rhizolysis and Pituitary ablation. With improved intraspinal drug delivery systems, the need for ablative procedures to treat cancer pain has diminished, but they remain advantageous in some settings.

The pain treating physician should know and understand all of the appropriate "tools of the trade" for the treatment of pain of both terminal illness and non malignant origin. These tools of the pain practitioners include all of the modalities and therapies, either conservative and invasive, used for treating chronic and cancer related pain syndromes. The patients phyisician must work with colleagues experienced in surgical, psychological, behavioural medicine in order to obtain an effective diagnosis. This diagnostic dilernma was the initial impetus for the formation of pain clinics. These clinics are groupings of various types of clinicians whose common interest is pain. The anaesthesiologist can be an important member in a team approach to these problems.