

PAIN MEDICINE: AN EMERGING SPECIALITY

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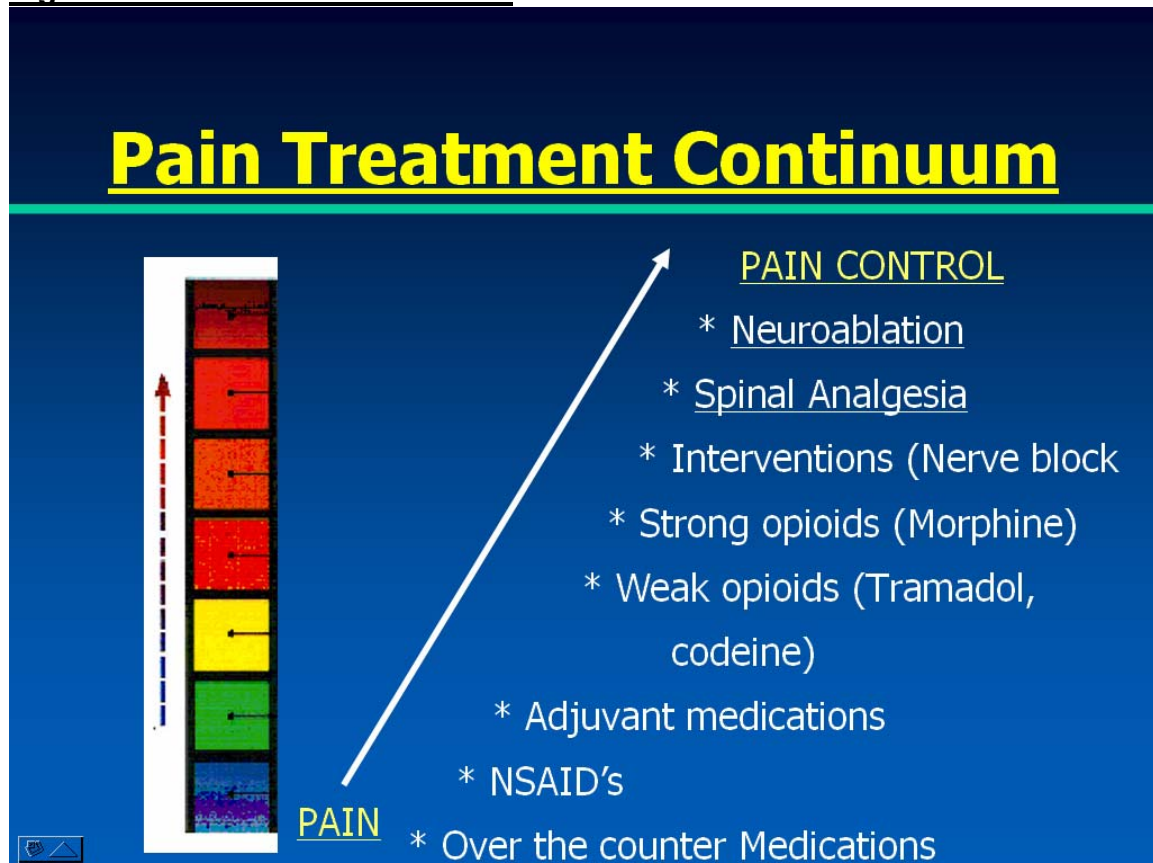
For centuries , pain is one of the greatest factors affecting human life. From mystics to quacks everyone has promised relief but alas! have failed. Pain is now being considered a major health problem. In fact, 80% of the patients visiting any hospital or doctor have pain as their major complaint It can be severe and extensive to the extent of damaging the nervous system. Pain could be *Acute* – short-lived and usually secondary to some disease or *Chronic* – lasting for months/years and leading to disability. Pain is multi-dimensional and its severity depends on psychological, emotional, cultural and situational components as well as physiological inputs.

Last two decades have seen tremendous advances in our understanding of mechanisms that underlie in causation of pain and the treatment of patients with **acute and chronic pain**. This has resulted chiefly due to an extensive

experimental and clinical research being undertaken to understand the pathophysiology of pain. In the 1960s, pain was considered just an inevitable sensory response to tissue damage and no considerations were given to the affective dimension of this miserable experience and none whatsoever to the accompanying anxiety and stress. However it was only as late as 1994 that a proper definition of pain was brought forward as: "***Pain an unpleasant sensory is and emotional experience associated with actual or potential tissue damage, or described in terms of such a damage.***" This description of pain was even endorsed by the *International Association for the Study of Pain (IASP)* – the world body monitoring various researches on experimental and clinical pain.

Evidence increasingly lends support to the use of a **multidisciplinary** or an interdisciplinary approach to patients with chronic pain. This involves a comprehensive rehabilitation programme along with multiple therapies both pharmacological and interventional, provided in a coordinated manner so that all the dimensions of the patient's condition are treated (Pain treatment continuum fig1).

Fig 1: Pain Treatment Continuum



Bonica in early 1960's first conceived and developed an interdisciplinary approach designed to integrate the effort of all such physicians. In fact the concept of **Pain Clinic** was first brought forward by Bonica which has now lead to the development of a subspeciality of *Pain Medicine*. This approach to management of difficult chronic pain states addresses not only the patients expectation but provides a comprehensive treatment plan to the treating physicians including monitoring of the patient's response to a modality employed for treating the pain. As a specialized pain physician, we have been striving to control or effectively eliminate chronic pain and its accompanying miseries. Experience has shown that single modalities of treatment are rarely sufficient to treat chronic pain. Interventions that target only nociception with nerve blocks or implants etc. without addressing the affective and cognitive components are bound to fail. The goals of treatment should also be to rehabilitate the patient so that he can function as well as possible.

Cancer Pain

Pain is among the most common symptom in cancer patients. It is estimated that 6 million cancer patients suffer pain globally and for most of these patients, pain is not satisfactorily relieved. For over two decades, World Health Organization (WHO) has taken a lead in establishing a consensus for a scientifically valid method of relieving cancer pain that is relatively simple, inexpensive and easy to apply at community level, known as the WHO "**Three step Analgesic Ladder**" method (Fig 2). This approach to drug therapy is however effective in relieving pain in only about 50% of patients treated.

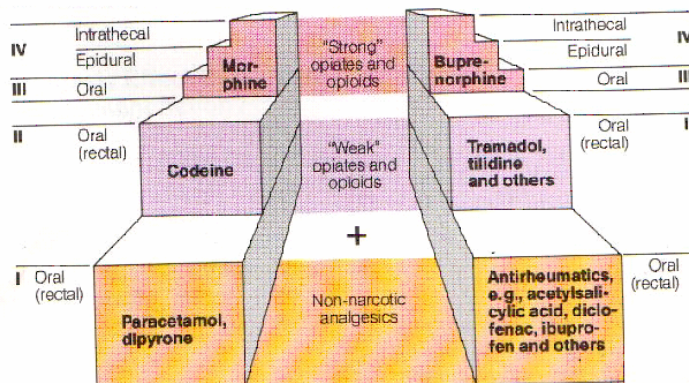


Fig 2: WHO Three Step Analgesic Ladder for control of cancer pain

Although developed countries have established government policies on pain, cancer pain and terminal care; India still has no national policy on the care of terminal cancer patients or palliative care. There is an urgent need for fresh initiatives in this direction and we, the pain physicians should take a lead in formulating a national cancer pain relief programme. Freedom from pain, suffering and access to palliative care should be seen as a right of every cancer patient.

Methods of Cancer Pain relief

Relief of cancer pain is possible: the protocols for pain treatment have to be laid down keeping in view the Indian perspective. The key points are simplicity and low cost of the technology used to manage pain and other symptoms. 'A judicious use of available NSAIDs, Opioids, chemotherapy, radiotherapy and Neurolytic blocks can be adopted to minimise the pain and improve the quality of life of terminally ill patients. In spite of following the WHO 'analgesic ladder', 40-50% of patients with cancer pain do not achieve a satisfactory balance between relief and side effects using systemic drugs alone without unacceptable drug toxicity.

Neurolytic peripheral and neuraxial blockade may reduce or eliminate the requirement for systemically administered opioids for achieving analgesia. Neurolytic blocks such as coeliac plexus blockade is the preferred method for managing pain caused by neoplastic infiltration of upper abdominal viscera, including pancreas, liver and stomach. This blocks relieves pain by 50 –90% in such patients with relief lasting from 1 to 12 months. Sympathetically maintained pain syndrome in cancer patients is most effectively relieved by interruption of sympathetic outflow e.g. lumbar sympathetic block for pain in lower limbs etc. The role of neuroablative techniques for somatic and neuropathic pain of cancer is often debatable. However chemical neurolysis and pituitary ablations have been reported to relieve diffuse and multifocal pain syndromes.

Interventions in Pain Management

Although perception of pathological pain is a complex interaction that involves sensory, psychological and environmental factors, interventional management of pain with neurolytic blocks, radiofrequency lesioning, Spinal cord stimulation and

Intrathecal drug delivery systems(implantable pumps) all play an important role in the management of chronic pain. In this era of “**Evidence Based Medicine**”, we have been able to identify the level of evidence for each procedure using randomized prospective controlled studies. Chronic neuropathic pain unresponsive to conventional therapeutic modalities is one pain syndrome where spinal cord stimulation is an indispensable treatment. Ablative procedures such as dorsal root entry zone lesions (DREZ), dorsal rhizotomy and cordotomy although very popular in the past, their utilization has declined dramatically. This is because of lack of evidence of its success in relieving chronic intractable pain and additional uncomfortable neurologic complications which might occur after ablation. The interventional modalities for pain management, till recently, a domain of the neurosurgeons, are now being increasingly practiced by the pain physicians and anaesthesiologists.

Advanced interventional Pain Management

Advanced interventional pain management modalities involve both neuroablation and neuromodulation as the main entities.

Neuroablation is the physical interruption of Pain Pathways by thermal or chemical means.

Neuromodulation is the dynamic and functional inhibition of pain transmission by intraspinal opioids or electrical stimulation such as spinal cord stimulation.

Advanced Methods used for neuroablation is **Radiofrequency Lesioning** of somatic and sympathetic nerves/plexus, cranial nerves, somatic nerves if pain is of spinal origin, and splanchnic nerves. Radiofrequency treatment uses high frequency electrical current adjacent to the nerve. The electrical field and/or the heat induce changes in this nerve structure thus blocking the conduction of pain. Radiofrequency treatment now allows a targeted and selective intervention and is slowly replacing the conventional neurolytic block procedures. Radiofrequency treatment is performed under fluoroscopic guidance on an ambulatory basis in the outpatient clinic setting. Trigeminal Neuralgia, Peripheral vascular diseases, Cancer pain, atypical orofacial pain, spinal pain such as facet arthropathy, sacroiliac pain, complex regional pain syndrome (RPS) are some of the chronic pain syndromes where radiofrequency neuroablation has resulted in satisfactory to excellent pain relief. We at AIIMS have been performing Radiofrequency ablation for the past 5 years with excellent results particularly in peripheral vascular disease, facet arthropathy, and trigeminal neuralgia. Radiofrequency

lesioning is a neurodestructive procedure, therefore, it has to be considered as an end of the line procedure where conservative therapeutic modalities have failed.

Spinal cord (dorsal column)stimulation is a neuromodulatory interventional modality used for relief of vascular and intractable neuropathic pain. Once the trial stimulation is successful in relieving pain, a permanent stimulation device is then implanted and controlled by an external programmer. Although expensive, dorsal column stimulation is often the only solution to pain syndromes such as deafferentation pain, phantom limb, vascular pain and sympathetically mediated pain state. The technology is now available in our country and we at AIIMS have experience of 54 patients with this implanted device. A significant improvement in the quality of life ensued in all the patients in our series.

Perhaps one of the frontrunners in the technological advances in cancer pain management has been the **implanted Intrathecal pumps** which allow a continuous flow of opioids such as morphine to flow into the cerebrospinal fluid and resulting in an extraordinary degree of pain free state.

Terminal cancer patients with a life expectancy of more than 6 months are ideal for such modalities as it causes a complete relief of pain and a significant improvement in the quality of life in the terminal period of life. Our experience with 42 patients has shown its efficacy in pain relief with no major untoward effect and a cost effective modality too.

Pain Medicine as a Superspeciality

Treatment of acute and chronic pain has always been the major concern of physicians and super-specialists. Alleviating chronic pain however becomes a major challenge for the treating doctor and requires specialised physicians for its treatment. Pain Medicine - a superspeciality - deals with the management of these difficult chronic painful disease states including treatment of cancer pain. This science and art of pain management is rapidly approaching the period of responsibility and recognition even in developing countries like India. Majority of complex chronic painful states, unsuccessful by conventional treatment are being successfully treated at Pain Clinics. The very concept of a Pain Clinic is based on the conviction that the effective management of difficult pain conditions is possible only through well-coordinated efforts of a specialist possessing knowledge and skills to diagnose and treat pain.

Role of Pain Clinics

Pain clinics are essentially areas/centres established with the purpose of practising algology – the art and science of pain management. In 1961, an American anaesthesiologist – John J. Bonica, along with Lowell White established the first Pain Clinic at the University of Washington. Their organised efforts and multi-disciplinary treatment was so successful that their clinic has since become a model for numerous Pain Clinics all over the world. In India, the concept of Pain Clinics or pain management centres was initiated at major institutions in the 1970s and it is only in the last few years that we have seen more of such centres being setup in major institutions.

A Pain Clinic uses services of specialities such as neurology, psychology, physical therapy, orthopaedics and neurosurgery. The key person is the anaesthesiologist, who possess the technical expertise of invasive and non-invasive methods of pain relief. Besides pain, the pain clinician also treats emotional, behavioural and social aspects of the suffering. Management of pain due to terminal cancer is also an important function at any Pain Clinic. Specialised cancer pain clinics, have been established at few centres in India. Drugs such as oral morphine and other invasive methods are available in Pain Clinics for relieving cancer pain.

The most common diseases managed in the Pain Clinics : include *chronic lowback pain, cervical spondylitis, joint pains, chronic headaches, migraines, neuralgias, facial pains, muscle pains, causalgia and cancer pain.*

Some modalities employed at these clinics include **nerve blocks, , nerve stimulation (TENS), administration of drugs in spinal cord, nerve blocks with alcohol, laser treatment, acupuncture psychological counselling, hypnosis, relaxation exercises and drugs.** Acupuncture is one of the non-conventional modality, used particularly for joint and back pain. Surgical methods of pain relief are provided in consultation and assistance of general surgeons and neurosurgeons.

Thus, Pain Clinics are specialised areas which are now assuming the role of an essential service as they meet a need unmet by any previously existing medical service i.e. relief of chronic pain effectively. They do so by

simultaneously treating the physical, emotional, cognitive, behavioural, vocational and social aspects of chronic pain. Moreover, Pain Clinics are cost-effective as well. The Pain Clinics are at a pivotal point in acceptance by the medical community and by many other individuals who come in contact with pain patients.