

# THE PAIN ENIGMA

Dr. A.K. Unnikrishnan

Pain is one of the most common causes of human suffering. In fact, it is said that the science of medicine originated when a person approached another and said, 'I have a pain. Please do something'. Even in modern times, the most common reason that makes people seek medical help is probably pain. In earlier times, when medical science was in its infancy, medical treatment was aimed at alleviating symptoms like pain. But with advances in our knowledge about the causes of the diseases, the main thrust got directed to rooting out the cause of the disease. In the bargain controlling symptoms like pain was pushed to the background. Fortunately, in recent times, there has been a realization that treating symptoms like pain is as important for giving a good quality of life to the patient.

## What is PAIN ?

Everybody, even a child, knows what is meant by Pain. But if you ask a person to define Pain, he will find it difficult. This was the problem with medical science also till The International Association for Study of Pain (IASP) in 1979 came out with a satisfactory definition. It says: "Pain is an unpleasant sensory and emotional experience produced by actual or potential tissue damage or described in terms of such damage." So it has an emotional component apart from the physical aspect. The emotional angle often leads to difficulties in understanding the pain and also complicates its management.

In simpler terms one can say that, 'Pain is a warning sign to the body that some part of it is being damaged.' It is not easy to say exactly what is meant by pain because there are so many different aspects to it. Just think of a toothache, a broken bone, a scald on the skin or a heart attack. Each pain is different and has its own special features. Each pain will be recognized by the person as different when it recurs.

## Why PAIN ?

The question may arise, pain being a curse and a cause for suffering, then why has nature endowed all living creatures with this curse? But the fact is that Pain has a definite role in the survival of the organism. Let us see what is likely to happen if the symptom of Pain is not present. There are very rare instances of babies born

without the ability to appreciate Pain. You may think that this is a good thing. But these babies, because they cannot appreciate pain will repeatedly injure themselves and will die before they reach the teen age! What happens in leprosy is a similar phenomenon. Since leprosy destroys the nerves in the feet and hands that carry pain impulses, they fail to feel pain and repeatedly injure themselves and gradually losing fingers and toes. But warning us of external or internal threat, Pain protects our body.

The protective role of Pain is well recognized and Pain is an essential component for continuation of life. But in many instances, what unfortunately happens is that, after giving us warning about the bodily injury, which is its prime function, the Pain goes on and on and does not disappear. Here it is not serving any purpose. In this situation it is called a 'Chronic' or 'Intractable Pain'. A good example of this is seen in cancer patient. In these patients Pain does not serve any purpose and becomes a curse. Migraine, Trigeminal Neuralgia (recurring pain occurring on one side of face), Post herpetic neuralgia are some other examples of chronic intractable pain.

## How The Body Appreciates Pain ?

Pain is ultimately appreciated and acted upon by the brain. To inform the brain about injuries happening in the various parts of the body, there exists a very elaborate communication system, the nervous system. When body is damaged in any manner, information is sent to the brain in the form of electrical impulses along the nervous pathways. There are specialized sense organs all over the body, called receptors, to pick up the offending information. These are naturally plentiful in the skin because it is the organ coming directly in contact with the surroundings. The receptors pick up information about changes occurring in the body and send impulses to the brain. The receptors can tell the brain whether it is a gentle stroke, a pressure, if it is cold or hot, if it is a cut or a prick etc. Those that give information about damage to the body are termed Pain Receptors. Pain receptors themselves are of different types 'thermoreceptors,

Mechanoreceptors, Non specific receptors etc. Between them they respond to all forms of Pain.

Let us say you get a sharp prick on your hand. You feel a sharp, excruciating pain and suddenly, in a split second withdraw your hand from the offending agent. How does this happen? The prick stimulates the pain receptors, which in turn sends electrical impulses via the spinal cord to the brain. The brain recognizes the exact point of the prick and recognizes it as a threat to the body. It sends information to the motor area, which is concerned with motor function or movement and orders that part to withdraw from the danger. All this feeling of pain and its response is over in milliseconds. This type of sharp pain is transmitted by specialized nerve fibres called Adelta fibres. The sharp pain usually disappears soon and is followed by a dull aching pain. The sharp prick has damaged the tissue, which result in release of certain pain chemicals called kinins, prostaglandins etc. These chemicals stimulate pain receptors to produce the dull ache. These impulses are carried by another group of nerve fibres called C fibres. Drugs like aspirin relieve pain by blocking the activity of chemicals like prostaglandins.

### **Body's Pain Control System**

Very often we find that body responds to apparently painful conditions in different ways. Body has means to modify the transmission of impulses to the brain in certain situations. This is probably important for survival. Seriously injured persons may sometimes move or even run away from a danger area oblivious of the pain to save their life. Body suppresses pain in these instances to save life. In religious frenzies when people walk on fire or deliberately cut their body, the pain suppressed. The brain releases certain chemicals endorphins, encephalins etc. which lock the transmission of pain impulses to the brain. The result is that pain is not felt by the individual. Another interesting fact is that there is a gate at the spinal cord level. Normally the pain impulses pass through this gate. When a child, for example falls and injured himself, what do we do immediately? We gently stroke the body around the injured area. The gentle strokes stimulate another type nerve fibres called A beta fibres. This in turn closes the gate at the spinal cord to block transmission of pain impulses to the brain. This relieves the pain to some extent. The point is that body can appreciate pain to ward

off injury and under certain circumstances ignore pain also.

### **Pain Measurement**

One problem in pain management is the fact that there is no simple, reliable means to measure pain - like the ones we have for checking body temperature, blood pressure etc. The pain threshold, the level at which one appreciates pain, varies in individuals. Even in the same individual, it varies at different times. There is a racial difference also. Asians are said to tolerate pain better than westerners.

A simple method of measuring pain is what is known as Visual Analogue scale. This is a 10 cm. scale. One end denotes no pain and the other end stands for the most intense imaginable pain. The patient notes the intensity of his pain at the appropriate level on the scale. This can be used in a patient to assess the effectiveness of the pain therapy. The drawback of this method is that it cannot compare pain between two patients. There are more elaborate systems like the McGill Pain Questionnaire but they are too complicated to be of any use in a clinical set up.

Ultimately we depend on the patient to assess his pain. If a person says he has pain, you have no right to contest it, whether there is an obvious cause for the pain or not. PAIN IS WHAT THE PATIENT SAYS HURTS.

### **Pain & The mind**

Appreciation of pain is altered by the mental makeup of the individual. Anxiety can affect perception of pain. When a person is anxious from any cause, pain is exaggerated. Again, when one cannot explain the cause of the pain and also when its control is ineffective, pain gets exaggerated. In these situation relieving the anxiety using drugs can help in the control of pain.

Depression. Pain and depression are interlinked. Depression is a feature of most long-standing painful conditions. It is postulated that pathways of chronic pain and depression, located in a part of the brain called the brainstem, may overlap to some extent and thus respond to same type of drugs. This is how antidepressants are effective in chronic pain.

### **Acute & Chronic Pain**

Acute pain, as when it occurs from an injury, is essential for survival as it warns of damage to the body. However, when that lasts longer than needed as a warning, in other words it has

become long standing or chronic, it turns out to be a burden for the individual. Acute pain and chronic pain have important implications for the patient and also from a treatment angle. These differences are not necessarily concerned with the severity of the pain. For example toothache is said to be very severe pain. But the attitude of the patient to toothache is entirely different from that of another patient with say, cancer pain. The cancer pain may indeed be less severe than toothache. In the former, the patient knows that the pain is going to be relieved if the tooth is removed and anyway the pain is going to be short lived. On the other hand, the cancer patient knows that the future is bleak and all that he can look forward to is death. This complicates his attitude to his pain and also makes the management of his pain difficult. Thus we can see that the difference between acute and chronic pain is not simply of their duration but the attitude of the patient to his pain.

### **Cancer Pain**

The mention of cancer always brings to the mind the chance of severe pain. Not all cancers produce pain. But majority of cancer patients at some point in the course of their illness will suffer chronic intractable pain. Pain in cancer is produced either by the cancerous growth irritating the pain receptors, in which case it is termed nociceptive pain or the cancerous process may invade the nerve producing what we call a neuropathic pain. Nociceptive pain can be treated with common analgesics including morphine.

Neuropathic pain is not controlled with morphine but needs another group of drugs called anticonvulsant.

As mentioned earlier, cancer pain has many different aspects and understanding these is important for successfully managing these types of pain. The pain in cancer is said to be “TOTAL PAIN”. The physical aspect of pain is well understood. Apart from the physical, there are psychological, social and spiritual aspects which together goes to make it “TOTAL PAIN”. The patient is often depressed, as he knows that death is not far off. Depression makes the physical pain more intense. There is a social aspect as the person gradually realises that his role in the family and society is getting eroded. He often has a spiritual problem, as he cannot understand why he has been chosen to suffer this? Why God has been so cruel with me? All these different aspects complicate the management of these patients. Addressing each of these different aspects is important for the successful management of these types of patients.

Though pain is one of the most common symptoms of disease, it is an enigma, poorly understood. We know that pain is a protective phenomenon and that life cannot be sustained without it. Why should the pain be sustained if it is not serving any purpose? This is quite perplexing. As our knowledge grows and our understanding of this enigma gets clearer, let us hope that we can live in a pain free world.

