INTRODUCTION

Cancer is an important medical and public health problem. Each year more than 1.2 million individuals in the United states are diagnosed with the disease and more than 50,000 die from it (Garfinkel, 1995). Cancer is the second leading cause of death in the United States (after heart disease) and a major source of premature mortality among both men and women (Garfinkel, 1995). It is estimated that 70 out of 100,000 people develop cancer (between 5 and 6 lakh cases) annually in India (National Cancer Registry, 1987). It strikes all ages and all social, ethnic, religious, and cultural strata. Studies indicated that there was a meteoric rise in the mortality rate associated with Cancer. At the turn of the 20th century, cancer was the eighth leading cause of death, far behind infectious illness, heart disease and stroke, accounting for 3% of death in the United States (Institute for the Future, 2000). Now cancer accounts for approximately 23% of deaths in the United States (Hoyert, Kochanek & Murphy, 1999).

1.1. Cancer pain prevalence

In cancer patients, pain is one of the most feared and burdensome symptoms. Cancer pain affects 17 million people worldwide. It’s prevalence increases with extent of disease. Its type, location, and intensity vary with tumor type, spread of disease, and disease treatments (Hearn and Higginson, 2003). Surveys indicate a pain prevalence of 28% among patients with newly diagnosed cancer (Vuorinen1993), 50 - 70% among patients receiving active anticancer therapy (Portenoy, Miransky & Thaler, 1992; Portenoy, Cornblith & Wong, 1994) and 64 - 80% among patients with far advanced disease (Caraceni and Portenoy, 1999; Coyle, Adelhardt, Foley & Portenoy, 1990;
Twycross, 1982). In a systematic review on the prevalence of cancer pain over a period of last 40 years, Van Van den Beuken - van Everdingen et al. (2007) found that early reports on the prevalence of pain in cancer patients draw attention to high figures that ranged from 52% - 77%. More recent studies on the prevalence of pain in patients with cancer showed figures that ranged from 24% - 60% in patients on active anticancer treatment and 62% - 86% in patients with advanced cancer, which illustrates that this problem has not been solved.

It is also estimated that 25 % of cancer patients die in severe pain. There is considerable variability in the prevalence of pain among different types of cancer. For example, approximately 5 % of leukemia patients experience pain during the course of their illness, compared to 50 % - 75 % of patients with tumors of the lung, gastrointestinal (GI) tract, or genitourinary system. Patients with cancers of the bone or cervix have been found to have the highest prevalence of pain, with as many as 85 % of patients experiencing significant pain during the course of their illness (Foley, 1975).

1.2. Impact of cancer pain on the individual

A cancer diagnosis is typically followed by a series of emotional responses that appear quite consistent across many studies, settings, and patient populations (Massie & Holland 1987; Breitbart, 1989). The initial responses usually consist of shock, denial, and disbelief, which typically evolve into a period of anxiety and / or depression. Disturbed sleep, diminished appetite and impaired concentration, irritability, pervasive thoughts about cancer, and fears about the future often interfere with normal daily activities. These ‘stress responses’ generally occur at specific points in the course of cancer and its
treatment: after diagnosis, with relapse, prior to diagnostic tests, surgery, radiation, and chemotherapy, as well as after treatment has concluded.

The degree of psychological distress observed in cancer patients also varies considerably between individuals. Some patients experience persistently high levels of anxiety and depression for weeks or months, which significantly impede their ability to function, or at times, even comply with cancer treatment. Others experience only mild or transient symptoms that remit rapidly even without intervention. A number of factors influence this variability, including the presence and degree of pain, stage of disease, pre-existing psychiatric disorders, coping abilities, and level of social support (Ahles, Blanchard & Ruckdeschel, 1983).

One of the most distressing elements of a cancer diagnosis is the anticipation of pain, and the lay public typically believes that pain is a common, if not inevitable, consequence of cancer (Levin, Cleeland & Dan, 1985). Yet only about 15% of cancer patients without metastatic disease report significant pain (Daut & Cleeland, 1982). Although this proportion climbs dramatically in the presence of advanced disease, with between 60 and 90% of all patients with metastatic disease reporting debilitating pain and as many as 25% of all cancer patients die while still experiencing considerable pain (Foley, 1975; Bond, 1979; & Cleeland, 1984).

Not only does pain have a profound impact on psychological distress in cancer patients, psychological factors appear to influence the experience and intensity of cancer pain. Psychological factors such as perceived control, meaning attributed to the pain experience, fear of death, hopelessness, and anxious or depressed mood all appear to...
contribute to the experience of cancer pain and suffering (Spiegel & Bloom 1983; Ahles, Blanchard & Ruckdeschel, 1983). For example, in a study of women with metastatic breast cancer, Spiegel and Bloom (1983) found that although the site of metastasis did not predict the intensity of pain report, greater depression and the belief that pain represented the spread of disease (e.g., the meaning attributed to the pain) corresponded to greater levels of pain experienced. Daut and Cleeland (1982) also found that cancer patients who believed that their pain represented disease progression reported significantly more interference with their ability to function and enjoy daily activities than did patients who attributed their pain to a benign cause. Other research has demonstrated that patients with advanced disease who report high levels of emotional distress also report more pain (Bond, 1973; McKegney, Bailey & Yates, 1981).

1.3. Cancer pain types and Syndromes

Cancer pain has been classified according to a series of common pain syndromes. This has facilitated a wider understanding of the causes of pain among cancer patients and enhanced the possibility of specific treatment approaches based upon better understanding of the underlying pathological process (Cherny, 2003). The association of particular pain characteristics and physical signs with specific consequences of the underlying disease or its treatment defines the cancer pain syndromes. These syndromes have distinct etiologies and pathophysiologies, as well as important prognostic and therapeutic implications (Portenoy & Conn, 2003).

Pain syndromes associated with cancer can be either acute or chronic whereas acute pains experienced by cancer patients are usually related to diagnostic and therapeutic
interventions. Chronic pains are mostly caused by direct tumor effects. Adverse consequences of cancer therapy including surgery, chemotherapy and radiation therapy account for 15-25% of chronic cancer pain problems, and a small proportion of the chronic pain experienced by cancer patients are caused by pathology unrelated to either the cancer or the cancer therapy (Cherny, 2003).

1.3.1 Acute pain syndromes

Cancer-related acute pain syndromes are most commonly due to diagnostic or therapeutic interventions and they generally pose little diagnostic difficulty. Although some tumor-related pains have an acute onset (such as pain from a pathological fracture), most of these will persist unless effective treatment for the underlying lesion is provided. A comprehensive pain assessment in such patients is usually valuable, potentially yielding important information about the extent of disease or concurrent issues relevant to therapy (Cherny, 2003). The acute pain syndrome is broadly classified into pain associated with tumor and pain associated with cancer therapy. Patients with acute tumor related pain may have first sought medical attention because of a complaint of pain. For this group of patients, future pain episodes immediately imply recurrence of cancer. Defining the etiology of the pain and treating the cause, for example, radiation therapy to bony metastasis is usually associated with dramatic relief (Coyle & Foley, 1987).

Those patients whose acute pain is associated with cancer therapy (e.g.; post-operative pain or pain secondary to mouth ulceration from chemotherapy) do not have the same uncertainty or fear. The cause of the pain is known, the potential for pain associated with the treatment modality may have been discussed with them, and the duration of the
pain is limited. These patients will frequently withstand a considerable amount of discomfort and pain, and some may view the pain as a necessary part of getting well. At times they will endure significant pain for the chance of a cure (Coyle & Foley, 1987). Acute pain associated with disease and treatment has been classified as follows

1.3.1.1. Acute Pain associated with disease and treatment (Cherny, 2003)

Acute pain associated with diagnostic and therapeutic interventions

Acute pain associated with therapeutic interventions

Acute pain associated with anticancer therapies

Acute pain associated with analgesic techniques

Acute pain associated with chemotherapy infusion techniques

Acute pain associated with chemotherapy toxicity

Acute pain associated with hormonal therapy

Acute pain associated with biphosphonates

Acute pain associated with growth factors

Acute pain associated with radiotherapy

Acute pain associated with immunotherapy

Acute pain associated with infection

1.3.2. Chronic pain syndromes (Cherny, 2003)

This group includes patients with chronic cancer related pain that is pain persisting for six months or longer. As with the acute pain group, these patients can be further subdivided into those with chronic pain from tumour progression and those with chronic pain related to cancer treatment. Most chronic cancer-related pains are caused directly by
the tumour infiltration of pain sensitive structures such as bone, nerve, or soft tissue.

Psychological factors play a significant role in this group of patients, in whom palliative cancer therapy may be of little value and is physically debilitating. The sense of hopelessness and fear of impending death may further add to and exaggerate the pain complaint; pain then becomes an aspect of the global suffering component (Coyle & Foley, 1987)

1.3.2.1. Chronic pain from tumor progression

1.3.2.1.1. Bone pain

Bone metastases are the most common cause of chronic pain in cancer patients (Banning, Sjogren, Henriksen as cited in Cherny, 2003. P.617)

1.3.2.1.2. Muscle pain

Persistent muscle cramps in cancer patients are usually caused by an identifiable neural, muscular, or biochemical abnormality (Siegel as cited in Cherny, 2003. P.617)

1.3.2.1.3. Headache and facial pain

Headache in the cancer patient results from traction, inflammation, or infiltration of pain-sensitive structures in the head or neck.

1.3.2.1.4. Ear and eye pain syndromes

1.3.2.1.5. Neuropathic pains involving the peripheral nervous system

Neuropathic pains involving the peripheral nervous system are common. The syndromes include painful radiculopathy, plexopathy, mononeuropathy, or peripheral neuropathy.
1.3.2.1.6. Pain syndromes of the viscera and miscellaneous tumor-related syndromes

Pain may be caused by pathology involving the luminal organs of the gastrointestinal or genitourinary tracts, the parenchymal organs, the peritoneum, or the retroperitoneal soft tissues. Obstruction of hollow viscus, including intestine, biliary tract, and ureter, produces visceral nociceptive syndromes that are well described in the surgical literature (Siegel as cited in Cherny, 2003. P.617)

1.3.2.2. Chronic pain syndromes associated with cancer therapy. (Cherny, 2003).

Most treatment-related pains are caused by tissue damaging procedures. These pains are acute, predictable, and self-limited. Chronic treatment related pain syndromes are associated with either a persistent nociceptive complication of an invasive treatment (such as a postsurgical abscess) or, more commonly, neural injury. In some cases, these syndromes occur long after the therapy is completed, resulting in a difficult differential diagnosis between recurrent disease and a complication of therapy.

1.3.2.2.1. Post chemotherapy pain syndromes

Post chemotherapy pain syndrome result from the use of agents that are toxic to peripheral nerves. These syndromes are being seen with increased frequency as patients survive longer with more effective chemotherapy

1.3.2.2.2. Chronic pain associated with hormonal therapy

Chronic postsurgical pain syndromes

Chronic post- surgical pain starts either at the time of surgery or evolves shortly thereafter, increasing in intensity from the time of the surgery. In contrast, acute post-
operative pain is initially intense and then slowly decreases as tissue healing takes place.

The characteristics of a post-surgical pain syndrome are persistent pain, or recurrent pain after the initial post-operative pain has cleared.

### 1.3.2.2.3. Chronic post radiation pain syndromes

Chronic pain complicating radiation therapy tends to occur late in the course of a patient’s illness. These syndromes must always be differentiated from recurrent tumour.

### 1.3.3. Breakthrough pain

Transitory exacerbations of severe pain over a baseline of moderate pain or less may be described as ‘breakthrough pain’ (Portenoy & Hagen, 1990). Breakthrough pains are common in both acute and chronic pain states. These exacerbations may be precipitated by volitional actions of the patient (incident pains), such as movement, micturition, spontaneous pain (no evident precipitating event), and end-of-dose failure (reduction in analgesic blood levels of around-the-clock medication resulting in a “breaking through” baseline pain).

### 1.4. Cancer Pain Characteristics

Cancer pain syndromes are identified on the basis of pain characteristics which include intensity, quality, distribution, and temporal relationships (Cherny, 2003)

#### 1.4.1. Intensity

Intensity of pain is pivotal to therapeutic decision making (WHO, 1996) as it is related to the pain mechanism and underlying syndrome. For example, the pain associated with radiation-induced nerve injury is rarely severe; the occurrence of severe pain in a
previously irradiated region therefore suggests the existence of recurrent neoplasm or a radiation-induced second primary neoplasm (Banning, Sjogren & Henriksen, 1991; Cherny & Portenoy, 1994).

1.4.2. Pain Quality

The quality of the pain often suggests its pathophysiology. Somatic nociceptive pains are usually described as sharp, aching, throbbing, or pressure-like. Visceral nociceptive pains may be gnawing or crampy when due to obstruction of a hollow viscus or aching, sharp, or throbbing when due to involvement of organ capsules or mesentery. Neuropathic pains may be described as burning, tingling, or shock-like (lancinating).

1.4.3. Pain Distribution

Patients with cancer pain commonly experience pain at more than one site (Portenoy et al. 1992). The distinction between focal, multifocal, and generalized pain may be important in the selection of pain therapy. The term “focal” pain, which is used to denote a single site, has also been used to depict pain that is experienced in the region of the underlying lesion. Focal pains can be distinguished from those that are referred, that is, experienced in a site remote from the lesion.

1.4.4. Temporal Relationships

Cancer-related pain may be acute or chronic. Acute pain is defined by a recent onset and a natural history characterized by transience. The pain is often associated with overt pain behaviors (such as moaning, grimacing, and splinting), anxiety or signs of generalized sympathetic hyperactivity, including diaphoresis, hypertension, and tachycardia. Chronic pain has been defined by persistence of pain for three months or more.
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beyond the usual course of an acute illness or injury, a pattern of recurrence at intervals over months or years, or by association with a chronic pathologic process (Bonica, 1990). Chronic tumor-related pain is usually insidious in onset, often increases progressively with tumor growth, and may regress with tumor shrinkage. Overt pain behaviors and sympathetic hyperactivity are often absent, and the pain may be associated with affective disturbances (anxiety and / or depression) and vegetative symptoms, such as asthenia, anorexia, and sleep disturbance (McCaughey and Thorpe, 1989).

1.5. Multidimensional nature of cancer pain

Ahles et al. (1983) conceptualized cancer related pain experience as having five separate components which include

1.5.1. Physiologic (organic causes of pain),

1.5.2. Sensory (intensity, location, and quality);

1.5.3. Affective (anxiety, depression)

1.5.4. Cognitive (thought process and views of one’s self);

1.5. 5. Behavioral (Physical activity, medication intake)

1.5.1. The Physiological component of pain

The organic etiology of cancer pain such as bone metastases, nerve compression, and infiltration of a hollow viscus etc. forms the physiological component of pain. The type of pain also has been identified as a part of the physiological component. Acute pain occurs as a result of tissue damage and it has got a definite pattern of onset and lasts only a limited amount of time characterized by transience. The pain is often associated with overt pain behaviors (e.g. moaning, grimacing, and splinting), anxiety, or signs of generalized sympathetic hyperactivity, including diaphoresis, hypertension and tachycardia. Chronic
pain on the other hand may or may not be associated with tissue damage, persists for more than three months and is usually accompanied by adaptation of the autonomic nervous system. Chronic tumour related pain is usually insidious in onset, often increases progressively with tumour growth and may regress with tumor shrinkage. Overt pain behaviors and sympathetic hyperactivity may not be present, and the pain may be associated with anxiety, depression, and vegetative symptoms (e.g. asthenia, anorexia and sleep disturbance). Cancer related pain can be dichotomized as acute and chronic subtypes (Cherny, 2003).

1.5.2. Sensory component of pain

Sensory component is related to the location, intensity as well as the quality of pain. All three of these parameters interact to influence the individual’s perception of and response to pain. Location of pain will affect an individual’s physical and emotional response to pain (McGuire, 1987). The experience of pain is different for single and multiple sites. Intensity is the second aspect of the sensory component of pain which is affected by a variety of factors such as an individual’s pain threshold, mood, physical comfort, social environment and medication (Twycross, 1987). It has got a direct effect on perception and response.

Quality of pain is concerned about how an individual feels about the pain and is represented in terms of choice of words such as stabbing, heavy, shooting, and tender (McGuire, 1987). The quality of pain often suggests its pathophysiology. Somatic nociceptive pains are usually well localized and described as sharp, aching, throbbing or pressure like. Visceral nociceptive pain are generally diffuse and may be gnawing or crampy when due to obstruction of a hollow viscus, or aching, sharp or throbbing when
due to involvement of organ capsules or mesentery. Neuropathic pains are described as burning, tingling or shock like (lancinating) (Cherny, 2003).

1.5.3. Affective component

The affective component of the pain experience consists of anxiety, depression and much other psychological reaction to pain (Massie 2004). Patients with cancer pain reported higher score on neuroticism and hypochondriasis which are indirectly related to affective aspects (Bond, 1979). Cancer is often associated with pain, destruction, loss, and often with death. Cancer patients develop anxiety and fear of separation from family and friends, of loss of work and life’s goals, and of the consequences of the illness for others. They are also anxious and fearful in regard to increasing dependency and to loss of self-esteem, personal control, and their faculties, and mutilation by surgery (Roth, Mc Clear & Massie, 2000).

1.6. Impact of uncontrolled pain

The presence of cancer pain, even when it is adequately controlled, can sometimes complicate the course of illness, disturb normal process of coping and adjustment, and intensify emotional distress. Uncontrollable pain is one of the most fearful aspects of cancer and its treatment, and it is perceived as a threat almost as severe as upset to family and the possibility of death. When pain is chronic however, severely disabling behavioral and social complications may develop over time, which can further intensify suffering (Fishman, 1990). Patients who reported more prolonged and severe pain scored higher on a measure of alexithymia than did patients experiencing sporadic or less intense pain (Dalton & Feuerstein, 1989). Pain is also associated with an increased prevalence of depression,
anxiety, suicidality, hopelessness, and desire for hastened death (Chochinov, Wilson & Enns, 1995). More than 50% of ambulatory patients receiving treatment for metastatic colon and lung cancer reported moderate or greater pain interference with sleep, mood, and enjoyment of life (Portenoy, 1992).

1.7. Treatment of cancer pain

Cancer pain is a complex chronic pain with a significant affective component and often multiple physical components invoking different pain mechanisms. Hence the treatment is expected to be multimodal, incorporating optimal combinations of analgesics, adjuvant analgesic drugs, psychological and sociological support and specific cancer treatment (Hoskin, 2006).

1.7.1. Pharmacological management

Nearly 85% of patients with cancer pain can achieve good control of their pain with conventional oral medications (Twycross & Fairfield, 1982). Pharmacologic approaches are the most commonly used treatments for cancer pain as they are effective, safe, and usually inexpensive (Foley, Chenry as cited in Abeloff, Armitage, Niederhuber, 2004 p. 719). Pharmacologic approaches are classified as non opioids, opioids, and adjuvant analgesics.

1.7.1.1. Treatment with Non- opioids

The site of action of the non- opioids is primarily the peripheral nervous system. These agents are not associated with physical dependence, tolerance or addiction, and they have a maximum dose associated with analgesia. The anti-inflammatory component of aspirin and of the non-steroidal anti-inflammatory agents (NSAIDs) is often useful for
patients with somatic pain from bone metastasis, inflammation or mechanical compression of tendons, muscles, pleura and peritoneum, and for nonobstructive visceral pain (Ventafridda as cited in Grossman, Nesbit, 2004, p.720).

1.7.1.2. Opioid treatment

Opioid analgesics are the mainstay of therapy for cancer pain. The objective is to control pain while minimizing distressing side effects. Opioid therapy can yield adequate relief in more than three quarters of patients with cancer pain. This justifies its use as a first-line therapy for patients with moderate to severe cancer pain. (Lema, Day & Myers, 2000)

1.7.1.3. Adjuvant Therapy

Adjuvant medications are used in conjunction with oral or parenteral analgesics. They may have inherent analgesic action, potentiate the effect of the opioid analgesics, improve mood or sleep, or alleviate nausea, anxiety and somnolence. The tricyclic antidepressants are known to have analgesic action. They alleviate depression, improve sleep, and benefit patients with neuropathic pain, especially those with dysesthesias. Anticonvulsants drugs and corticosteroids and benzodiazepines are used in adjuvant therapy. (Lema, Day & Myers 2000)

1.8. The WHO Cancer Pain Ladder: Applications of a severity based Classification

The concept of stepwise changes in medication through a hierarchy of ever more potent analgesic drugs as defined by the WHO ladder underpins the use of analgesics in cancer pain. This method consists of a simple, three-step, analgesic ladder for treatment of cancer pain that relies on widely available, inexpensive analgesic agents (WHO, 1986).
The method was originally introduced in 1986 and advocates an approach based on pain intensity to manage cancer-related discomfort. The first step of the algorithm manages mild pain with non-opioid analgesics, including non-steroidal anti-inflammatory drugs (NSAIDs) or acetaminophen. The second step for persistent discomfort or mild to moderate levels of pain advises adding a “weak” opioid such as codeine to the non-opioid analgesic regimen. The third tier recommends combination of a “strong” opioid (e.g., morphine, hydromorphone) and non-opioid agents for moderate to severe pain. Moreover, adjuvant drugs, including antidepressants, corticosteroids, or anticonvulsants, are recommended when appropriate at any step of the ladder. (Hoskin, 2006)

The effectiveness of the analgesic ladder has been confirmed by multiple studies (Ventafridda V., Tamburini M., Caraceni A., De Conno F., & Naldi F., 1987). However, the quality of the supportive evidence has been challenged. The WHO three-step method has primarily been evaluated by uncontrolled trials, which may be distorted by bias and which lack comparisons with other sequences of analgesic pharmacotherapy (Delion, 2006).
1.9. Non-Pharmacological treatment

Specific non-pharmacological cancer treatment includes loco regional treatments, either surgery or radio therapy (Hoskin, 2006).

1.9.1. Radiation Therapy

Radiation therapy can relieve metastatic pain as well as symptoms from local extension of primary disease. One third of the practice of radiation therapy is palliative. The intent of any palliative treatment is to relieve pain quickly and maintain symptom control for the duration of the patient's life. Treatment is therefore tailored to the patient's clinical condition and overall prognosis. Radiation therapy is complementary to analgesic drug therapies and may enhance their effectiveness because it directly targets the cause of pain. In general, the larger the daily dose of radiation, the lower the total dose that can be administered because of limits to normal tissue tolerance. Proportionately more tumor cells are killed when the daily radiation dose is larger. A balance is required between the killing of tumour cells and the adverse radiation effects on normal tissues, which are largely a function of the daily dose. A number of different schedules have been developed that take into account specific tumour characteristics and the tolerance of normal tissues. (AHCPR Publication No. 94-0592: March 1994).

1.9.2. Surgery

Operations for the curative excision or palliative debulking of a tumor have the potential to reduce pain, improve prognosis, and even to achieve long-term, symptom-free survival. On the other hand, a tumor may be recognized to be unresectable at the time of operation. These perioperative dilemmas provoke anxiety in patients and their families,
who worry not only about mortality but also about possible survival at the expense of function or loss of body parts. This anxiety may worsen pain. (AHCPR Publication No. 94-0592: March 1994).

1.10. Under treatment of cancer Pain

Despite the diffusion of several guidelines for cancer pain management, including well-known recommendations of the World Health Organization (WHO), the Agency for Health Care Policy and Research (AHCPR) and the Expert Working Group of the European Association for the Palliative Care and even if effective treatments are available for 70% - 90% of cases, under treatment is well documented and can involve up to 40% of patients. Under treatment is usually attributed to an inappropriate use of opioids for reasons often conceptualized in terms of barriers (Deandrea, 2008). Numerous barriers to effective pain management have been identified (Foley, 2006). This includes professional barriers, patient barriers and system barriers. Inadequate knowledge of pain mechanisms, pain assessment, appropriate use of pain medicine, fear of producing iatrogenic addictions, concern about analgesic side effects, concern about development of tolerance, inability to differentiate between tolerance, physical dependence, fear of regulatory scrutiny etc. contribute to the professional barriers.

Patient barriers include reluctance to report pain, reluctance to take pain medications as prescribed, concern about addiction, belief that pain is inevitable and not treatable, lack of access to cancer pain management professionals, inability to effectively manage the side effects of pain medications, fear of making symptoms, cost of pain
medications, and inadequate knowledge of how to adjust the dose of pain medications (Ward, Goldberg, & Miller-McCauley, 2003).

The belief system of the patient as a barrier, has a crucial role in deciding the under treatment of cancer pain. There are a variety of misconceptions that impede patients' desire to report pain. These include the belief that pain is inevitable and the old adage “suffer in silence” is the required appropriate behavior. Patients may be fearful that pain indicates advanced disease and do not want to admit that their cancer may be recurring. Patients may feel that by reporting pain symptoms, they may be distracting their physicians from active treatment of their cancer. Some patients manifest a reluctance to take medications, especially opioids. This reluctance may be due to a fear of addiction, cultural barriers or religious concerns, discomfort with route of administration, or fear of unmanageable side effects. (Delion, 2006).

1.11. Psychological intervention in cancer pain

Epidemiological studies indicate that pain is quite common in cancer (Caraceni & Portenoy 1999; Portenoy, 1989). Pain is often one of the major concerns of individuals suffering from cancer. Despite the widespread acceptance of a highly effective therapeutic strategy for the management of cancer pain, studies have shown that more than 40 to 50 percent of patients in routine practice settings fail to achieve adequate relief (Brescia, et al. 1990; Cleeland, 1991).

Although the research literature on psychological interventions for individuals with cancer pain is relatively young, a number of different treatments have been used. The main treatments include cognitive-behavioral, psychoeducational, and supportive therapies. To
maximize therapeutic effectiveness, psychological research protocols and clinical practices often combine aspects of each of these types of therapies into a “package.” Depending on the specific therapeutic technique, the format may be individual, group, or family sessions. The duration of treatment ranges from brief periods, including times of crisis, to longer term periods.

The belief system of the patient in addition to the other personal and professional as well as system barriers, contribute substantially to the under treatment of cancer pain (Cleeland & Janjan, 2000). Psychological management can be effectively used to alter the dysfunctional cognitions associated with pain and its treatment. Cancer pain is said to be multidimensional in nature as well with variables such as perception of control, the meaning of pain, fear of death, depressed mood, and hopelessness contributing to cancer pain experience and suffering. (Keefe, Abernethy & Campbell, 2005) Cognitive, emotional, socio-environmental, and nociceptive aspects interact in the genesis and maintenance of pain which implicate the role of psychological intervention in its management (Breitbart, Park & Katz, 2010).

The multiplicity of pain etiologies, as well as pain syndromes, that cancer patients present with mandates the need for the multidisciplinary treatment of the patient with cancer pain (AHCPR Publication No. 94-0592: March 1994). Efforts to control pain and emotional distress using conventional means, such as analgesics, antidepressants, and anxiolytics, may lead to other side effects, such as somnolence, confusion, nausea, and constipation, all having an effect on quality of life (Keefe, Abernethy & Campbell, 2005). Cancer patients, particularly those in advanced stages of illness, such as patients in the
palliative care setting, often cannot tolerate medications. The exploration of non-pharmacologic modalities to alleviate pain would therefore seem particularly worthwhile in this population.

Finally, psychological approaches can build upon and enhance a person's own self-help efforts. Recent clinical guidelines for chronic diseases emphasize the important role that self-help efforts play in the overall management of these conditions (American Pain Society Quality of Care Committee 1995, Schug et al. 1990)

In view of the above reasons, Cognitive behavioral intervention has been used as an adjunctive to other principal pharmacological management of cancer pain.

1.12. Cognitive Behavior Therapy

Cognitive behavioral therapy focuses on the cognitive, affective, and behavioral components of the pain experience. It is based on a multidimensional conceptualization of pain derived from the Gate control or Neuromatrix theory of pain and the assumption that responses to nociception (e.g. the sensation of pain) are modulated by bio psychosocial factors, including individualized knowledge, beliefs, and attitudes that may be mediated by variation in the process of pain transmission (Dalton, 2003).

1.13. Modifications of cognitive therapy in cancer pain management

Cognitive therapy for life-threatening illness often addresses emotional problems such as anxiety and depression (Cherny, 2003). Hence it is very similar to standard cognitive therapy in several respects as it is based on the cognitive model of adjustment, being structured, short term, focused and problem oriented, educational, collaborative,
makes use of homework assignments, and uses a variety of treatment techniques including nondirective methods, behavioral, cognitive and interpersonal techniques. However, it is often difficult to pursue a typical course of therapy with patients with active physical illness. Fluctuations in the disease, demands of physical treatment may disrupt the flow of weekly therapy. This means that therapy in this setting is often shorter and has more circumscribed goals. The aim with ill patients is to achieve the maximum change with minimum intervention and wherever possible the therapist works to regain and enhance previous coping strategies (Moorey, 2010). While cognitive therapy always pays attention to emotional and interpersonal issues, these considerations are particularly important with this patient group. Many may be going through an adjustment process and the therapist needs to achieve a balance between encouraging and supporting adjustment and promoting effective problem solving. Identifying and managing maladaptive interactions with others and fostering adaptive social support is a significant factor in working with these patients. In addition, it may need to be delivered in healthcare settings or patients’ homes rather than in the traditional outpatient clinic. Thus recent models have conceptualized specific adaptations with sessions being less formal, more flexible, and more supportive, briefer sessions that are adjusted to patient’s physical status., and tailor-made to be delivered in healthcare settings or patients’ homes (Moorey, 2010). Other modifications include adjustment of therapy techniques according to patients’ physical status, Inclusion of family and health professionals in the therapy. Setting more circumscribed goals and promotion of maximum change with minimum intervention.