



# Role of Multidisciplinary Approach in the Management of Cancer Pain

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## Introduction

The continuum of cancer pain, the most feared complication of cancer, begins with the diagnosis and happens to be with patient as well as their families throughout the treatment, post-treatment, and till the end of the life. Chronic cancer pain not only bothers the patient physically leading to reduced physical activity and function, fatigue, lethargy, and peripheral neuropathy, but also interacts with his emotions and may result in anxiety, mood disorder, psychological stress, depression, hopelessness, insomnia, dejection, uncertainty, fatigue, tiredness, apprehension, attention deficit, memory lapses, and irritability, having a devastating effect on his life. Cancer pain affect patient's psychological, cognitive, social, and spiritual domains of patients' lives and this, in turns, may lead to a desire to end life. Hence, relieve from chronic pain is a must in cancer patients to improve the quality of life [1]. Twenty to more than fifty percent patients with cancer have pain during the time of illness/ treatment (59%) as well as post-treatment (33%). 80% of the advanced-stage cancer patients have moderate to severe pain. Pain and flare-ups of pain are more in younger patients as compared to the old patients. Pain in cancer patients may be due to cancer therapies, including radiation (brachytherapy, tissue damage and delayed repair, mucositis, dermatitis, inflammation), chemotherapy (infusion related venous spasm, chemical phlebitis, vesicant extravasation, anthracycline-associated flare, venous flare reaction, severe mucositis due to myeloablative chemotherapy and standard-intensity therapy, musculoskeletal pain, pain due to dermatological conditions), surgery, targeted therapy, supportive care therapies (use of bisphosphonate and steroids), diagnostic procedures and metastasis [2]. Ninety percent of patients with pain are supposed to be managed by medical interventions [3]; however, truly, less than 50% experience effective pain relief [4]. Thus, there is a need of better understanding and intensive approach to understand and intervene, to provide a better quality of life to cancer patients in pain.

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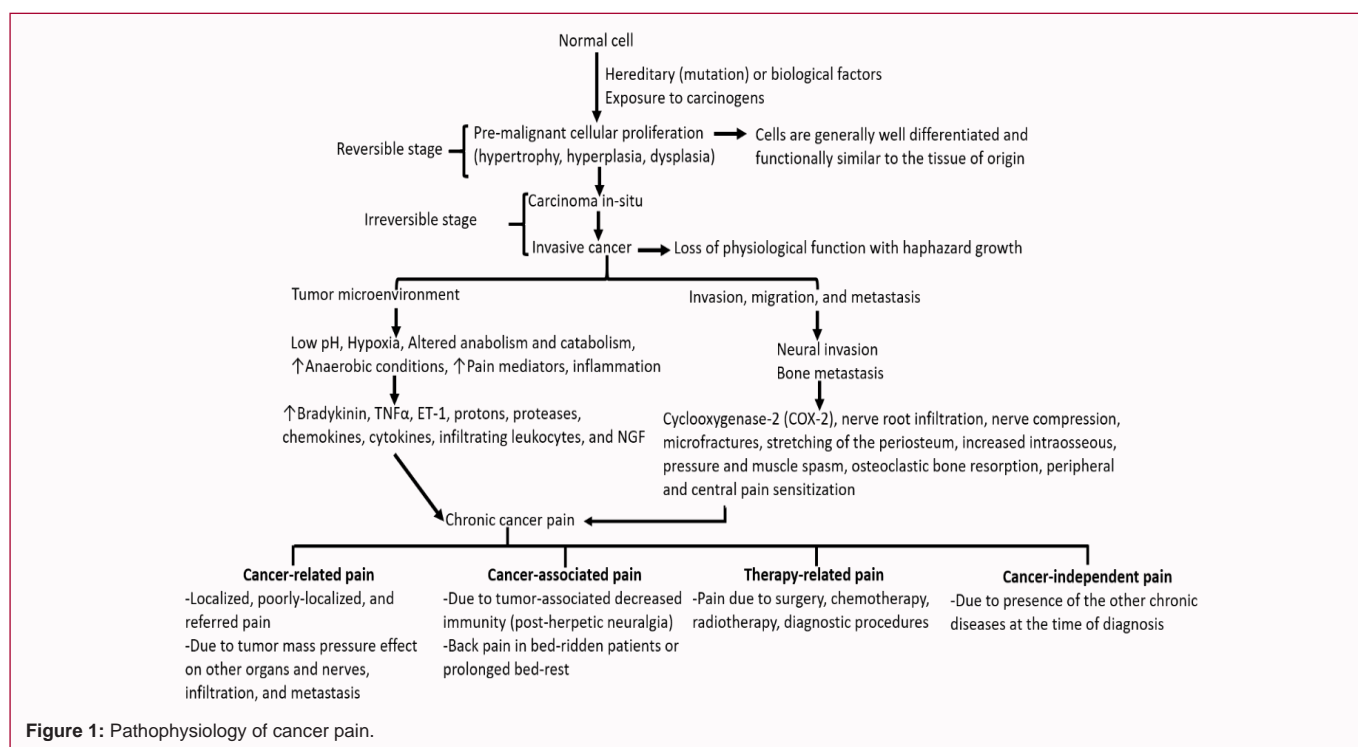
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## Need of a Multidisciplinary Approach

The common causes of under-treatment of the chronic cancer pain are patient's reluctance to report the pain and continuing taking the opioids or NSAID's for pain and poor assessment by the physician. Pain remains under-treated despite the current practice of patients rating the pain and adjusting the dosage of analgesic medication by the physician [5]. Müller-Schwefe et al. have reviewed the various aspects of pain and stressed that, while managing the chronic pain in cancer patients, the therapy should address the underlying mechanisms of pain rather than only based on intensity of pain; need of the multidisciplinary approach combining pharmacological and non-pharmacological therapy including psychotherapy, exercise therapy and electro stimulation; the choice of analgesics and the route of administration; palliative care; and the need of including the "management of pain" in the curriculum of undergraduate and postgraduate medical students [5]. The tumor micro-environment consisting of primary afferent nociceptors, immune cells and the cancer cells secretes mediators of pain including bradykinin, Tumor Necrosis Factor Alpha (TNF $\alpha$ ), Endothelin-1 (ET-1), protons, proteases, chemokines, cytokines, infiltrating leukocytes, and Nerve Growth Factor (NGF) modulate the nociception. This results in chronic cancer pain which further have four categories (Figure 1). The different etiology of cancer pain for each type of pain (Figures 1,2) poses a challenge for assessment, diagnostics, and therapeutics. Thus, while deciding the analgesic medication or the therapeutic options, etiology of the pain should be a deciding factor. The Edmonton Classification System for Cancer Pain (ECS-CP) including and integrating the pain mechanism, incident pain, psychological distress, addictive behavior and cognitive function guides the management of this complex pain syndrome [6]. The general principals and treatment



strategies for each category of pain in cancer have been discussed by Müller-Schwefe et al. [5]. Despite the improvement in strategies and the presence of WHO guidelines for pain management in cancer, the treatment for cancer pain is suboptimal and need of the time to focus. Currently, pharmacological, psychological, behavioral, and rehabilitative approach of pain management in cancer patients is the standard of care for pain [7].

## Psychological Therapies

Since, cognition plays a key role in mood, anxiety, and other psychological disorders, continued research in the field of chronic pain management has focused and suggested the significant role of Cognitive and Behavioral Therapy (CBT) in the management of cancer-related chronic pain. CBT aims to reduce pain, psychological distress, maladaptive behaviors and improving the physical function, increasing adaptive behaviors, beliefs, and self-efficiency for better pain management and treatment of associated disorders [8,9]. CBT includes changing the emotions not directly but by changing the thoughts and behaviors by cognitive restructuring, relaxation training, problem-solving training, pain education, visual imagery, systematic increases in exercise and other activities (behavioral goals), behavioral activation, between-session activities practicing and applying new skills, setting goals and guidance in activity pacing to achieve them, changing the patient's perceptions regarding his thoughts and beliefs. CBT (Imager or hypnosis based and comprehensive) starts with gathering the patient's information, what bothers him most, and using the right therapy for each problem [1,9-13]. Multiple studies including meta-analyses and high-quality randomized controlled trials suggest the role of psychological and cognitive behavioral therapy in reducing pain severity and its interference in day to day activities. Educating the patient, exercise, yoga, meditation, hypnosis, cognitive behavioral approaches, skill training, and relaxation with imagery has been proven beneficial in active disease but more testing is needed in post-treatment survivors and at the end of life. Further,

the need of more studies for which psychological strategy is better for which pain syndrome has also been highlighted [1]. Although, the efficacy of CBT in treating chronic pain has been documented by various randomized controlled trials and meta-analysis, there is a need of further research to elucidate the moderators and mechanisms of CBT in the treatment of chronic pain including cancer patients. The gaps in using CBT for chronic pain and recommendations for further research have been discussed in the literature [8,11,14]. Thus, treating the chronic cancer pain or cancer pain syndrome with a multidisciplinary approach involving the physician, psychologist, researchers, and family members with patient seems to be a promising approach and renders better mental health with less depression and post treatment fatigue and an improved and better quality of life [11].

## Pharmacological Therapy

Pharmacological therapy consists of analgesics, opioids, and adjunct analgesics. The choice of therapeutic agent should be based on the severity, intensity, and duration of pain along with reassessing the patient frequently to titer the dosage (Figure 3).

## Current Algorithm of Pain Management

Chronic cancer pain or the cancer pain syndrome is strenuous and exhausting. The combination of pharmacological and non-pharmacological strategies including analgesics, psych education, supportive psychotherapy, Cognitive-Behavioral Interventions (CBT) with familial support is effective in treating the patients. This multidisciplinary approach has not only empowered the patients to actively participate in pain control but has also endowed the healthcare team with a better outcome. Psychotherapy and CBT helps the patient in managing the stress associated with cancer pain, understanding and relieve from the stressors, recognizing and modifying the factors causative to physical and emotional distress [15,16]. Newer approaches such as mechanistic based approach (treatment strategy depending on the pathophysiology of pain), opioid rotations, use of

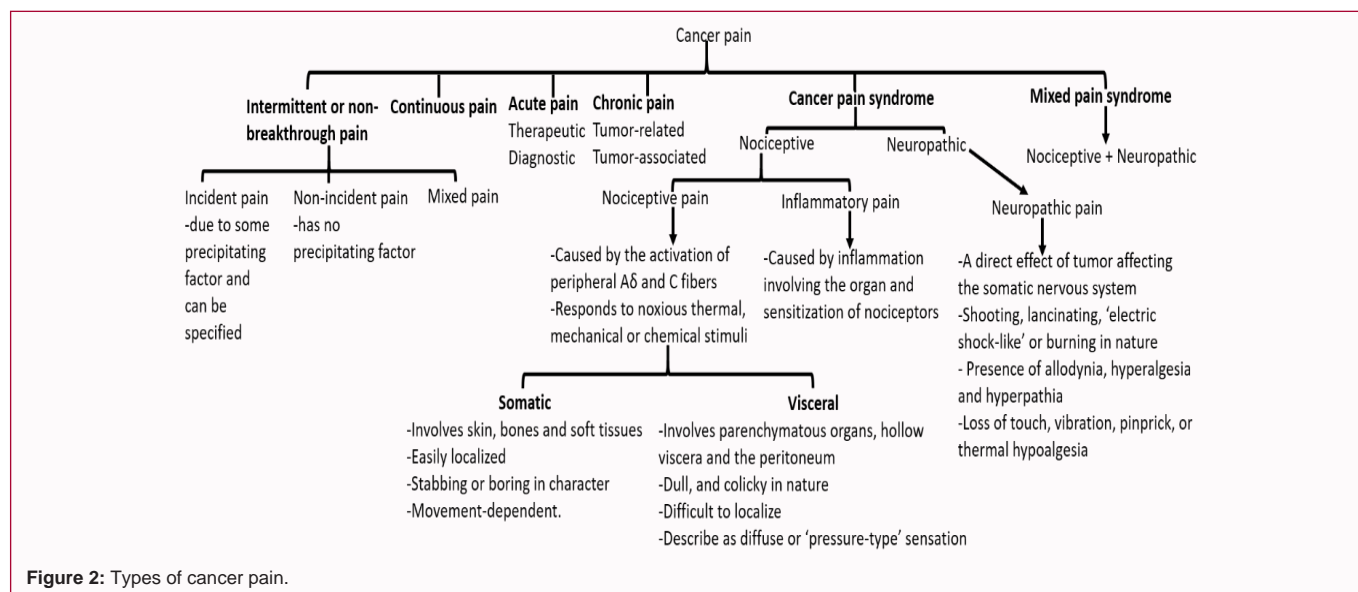


Figure 2: Types of cancer pain.

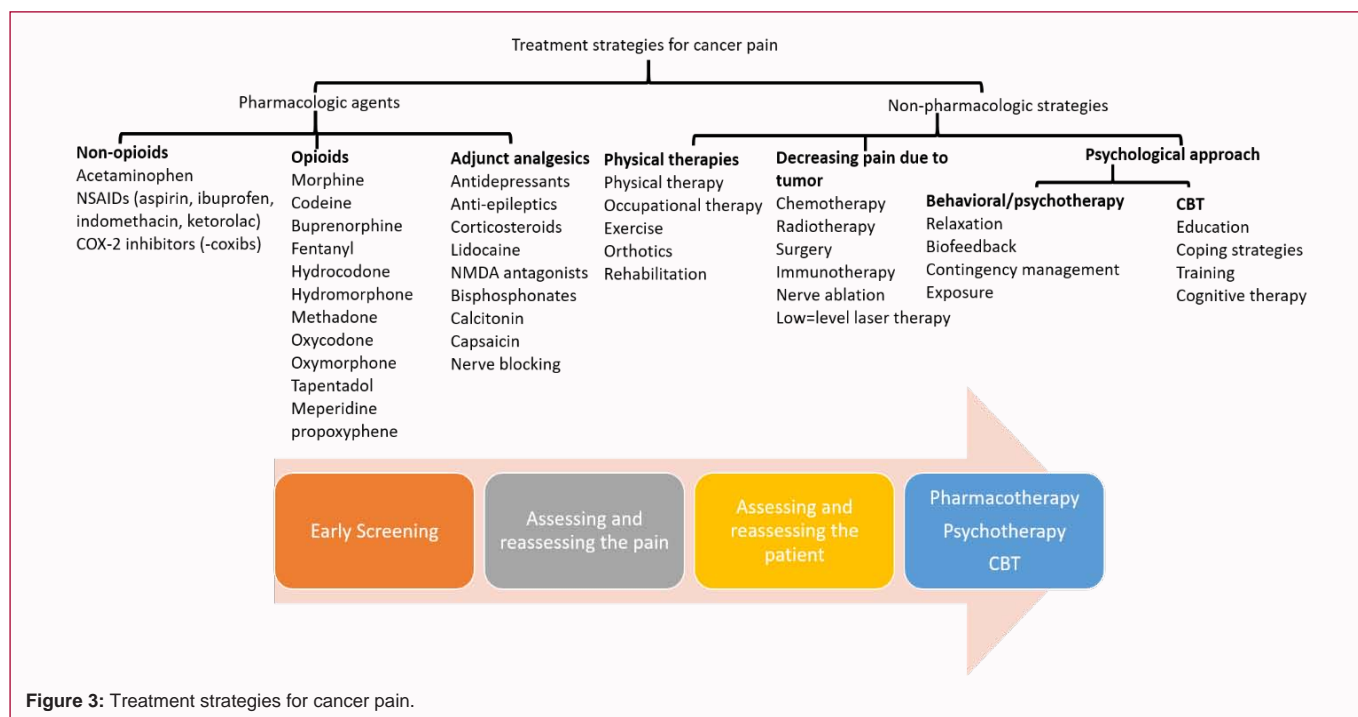


Figure 3: Treatment strategies for cancer pain.

topical opioids, gene therapy (under research), use of antidepressants, local radiotherapy, newer FDA approved drugs, breakthrough pain technique, and use of neuro-ablative procedures have significantly improved the care of the patient and helped in pain management [17]. Following the ESMO-guidelines for pain assessment and treatment could of significant help in management of mild, moderate, and severe cancer pain [18]. Low-level laser therapy is a widely evolving strategy used as an adjunct therapy in cancer patients. LLLT reduces the pain (severity, intensity, and duration), inflammation, swelling, lymphedema, and adverse effects related pain of radiotherapy and chemotherapy such as pain in mucositis and dermatological pathologies in patients and have analgesic, anti-inflammatory and bio stimulating effects [19-21]. LLLT initially has a direct effect at the epidermal neural network level and then moves to the nerves in subcutaneous tissues, sympathetic ganglia, and the neuromuscular

junctions with a suppressed synaptic activity post LLLT [22]. Regular screening for early recognition, proper characterization of pain for its type, severity, and pathophysiology, determining the type of treatment needed (pharmacological or non-pharmacological), Identifying the optimal treatment options, previously used option and its outcome, proper patient education regarding pain and medication and monitoring the patient could significantly help in treating the chronic cancer pain [2,23]. Staying active, knowing the physical limitations for physical activities, mild exercise, social interactions, attending the group discussions, distracting self with other hobbies, be positive and not losing the hope with following the instructions of physician and psychologist are the key to have a good quality of life [24]. Further, more rigorous and focused research and focusing on the multifactorial model of pain and understanding the interactions between physical, emotional, cognitive, behavioral, and interpersonal

responses to internal and environmental stress may play a significant role [25,26].

## Conclusion

The multidisciplinary approach for the treatment of cancer pain is effective and the significant role and efficacy of CBT has been documented in myriad studies. However, the discrepancies in results and the inadequate treatment of cancer pain warrants future studies having a simpler design, better and specific treatment strategies, adequately powered, improved quality of critical delivery variables, standardized outcome variables, streamlined and critical description of the study, and with out of the box thinking including psychologist, patient, and the physician [25]. Finally, better interaction and involvement between patient, psychologist, and physician might be fruitful.

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