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Psychological and psychiatric interventions in pain control

Chapter: Psychological and psychiatric interventions in pain control

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Introduction to psychological and psychiatric interventions in pain control

Pain is a common problem in populations with advanced illness and has been best characterized in those with cancer or AIDS. The causes, presentation, and impact of pain may be highly complex in some patients, and effective management may require the expertise of multiple specialties, including neurology, neurosurgery, anaesthesiology, and rehabilitation medicine (Foley, 1975, 1985; Breitbart, 1990b). Psychiatric and psychological interventions are integral to the comprehensive treatment of pain and distress in these populations (Breitbart, 1989, 1990b; Massie and Holland, 1987).

The scope of the problem

Approximately 70% of cancer patients experience severe pain at some time in the course of their illness (Foley, 1985) and nearly 75% of those with advanced cancer have chronic pain (Fitzgibbon, 2001). Overall, approximately 50% of terminally ill patients are in moderate to severe pain (Weiss et al., 2001) and 25% of cancer patients may die in severe pain (Twycross and Lack, 1983). Pain prevalence varies among different types of cancer, ranging from a low of approximately 5% in leukaemia to 50–75% in cancers of the lung, gastrointestinal tract, and genitourinary system, and to 85% in cancers of the bone or cervix (Foley, 1975).

Pain is frequently under-diagnosed and inadequately treated (Twycross et al., 1973). This phenomenon presumably has multiple causes, one of which is the complex presentation of pain in populations with advanced illness. In those with cancer, this complexity is partly determined by the common experience of symptoms other than pain, one or more of which may contribute to symptom distress. In one survey, cancer patients had an average of three additional troubling physical symptoms (Grond et al., 1994) and another study observed that patients with advanced disease reported a median of 11 symptoms (Walsh et al., 2000). A global evaluation of the symptom burden allows for a more complete understanding of the impact of pain (Achte and Vanhkonen, 1971).

Pain also is a significant and often neglected problem in patients with AIDS. Although its epidemiology has likely changed in the era of antiretroviral therapy, it also is likely that earlier prevalence data continue to apply to those with poorly controlled or advanced disease. Estimates of the prevalence of pain in AIDS generally range from 30% to 90%, with prevalence increasing as the disease progresses (Breitbart et al., 1996; Norval, 2004). The incidence of pain may be as high as 88%, and 69% of patients may experience moderate to severe pain-related impairment in activities of daily living (Frich and Borgbjerg, 2000). A retrospective chart review of hospitalized patients with AIDS revealed that pain heralded the onset of the illness in 30% and was second only to fever (Lebovits et al., 1989). More than 50% required treatment for pain, including chest pain in 22%, headache in 13%, oral cavity pain in 11%, abdominal pain in 9%, and peripheral neuropathy in 6%. Another retrospective study reported that abdominal pain, peripheral neuropathy, and Kaposi's sarcoma were the three most frequent pain problems, together affecting 15% of patients (Newshan, et al., 1989). Other studies report that between 5% and 30% of AIDS patients have painful peripheral neuropathy (Snider et al., 1983; Levy et al., 1985; Cornblath and McArthur, 1988; Schofferman and Brody, 1990); this disorder has many determinants and it is likely that the prevalence is changing as the use of neurotoxic treatments declines. In a hospice setting, pain was observed in 53% of patients and the main diagnoses were peripheral neuropathy, abdominal pain, headache, and skin pain due to Kaposi's sarcoma (Schofferman and Brody, 1990). Prior to the advent of effective therapies, pain was highly prevalent even in the ambulatory AIDS population, with 43% of patients reporting pain of at least 2 weeks' duration (Rosenfeld et al., 1996); painful neuropathy accounted for 50% of pain diagnoses and lower extremity pain related to Kaposi's sarcoma was found in 45%.

The aetiologies of pain in populations with cancer, AIDS or other advanced illnesses are heterogeneous. For example, a study of ambulatory patients with AIDS before the widespread availability of antiretroviral therapy observed that 33% of pain syndromes were somatic, 35% were visceral, and 33% were neuropathic (Hewitt et al., 1997). Patients often experience different types of pain concurrently.

Multidimensional concept of pain in terminal illness

In populations with serious illness, pain often involves a complex interplay between physical causes and other aspects of human functioning, including personality, affect, cognition, behaviour, and social relations (Breitbart et al., 1993). An enlightened description of pain in terminal illness—known as ‘total pain’—was proposed by Cecily Saunders (Saunders, 1967). This label describes the all-encompassing nature of pain, helps explain the inadequate effects of analgesic drugs in some patients (Hanks, 1991), and underscores the importance of psychological factors as determinants of both pain intensity and distress (Syrjala and Chapko, 1995).

The interaction of cognitive, emotional and socio-environmental factors with nociceptive aspects of pain (Fig. 9.11.1) illustrates the multidimensional nature of pain and suggests a model for multimodal intervention (Breitbart, 1990). The challenge of untangling and addressing both the physical and psychological issues involved in pain is essential to developing rational and effective management strategies. Psychosocial therapies directed primarily at psychological variables may have an impact on pain intensity or distress, while somatic therapies directed at nociception may reduce the adverse psychological aspects of pain. To manage complex chronic pain problems, both somatic and psychosocial therapies should be used in a multimodality approach (Breitbart, 1989).

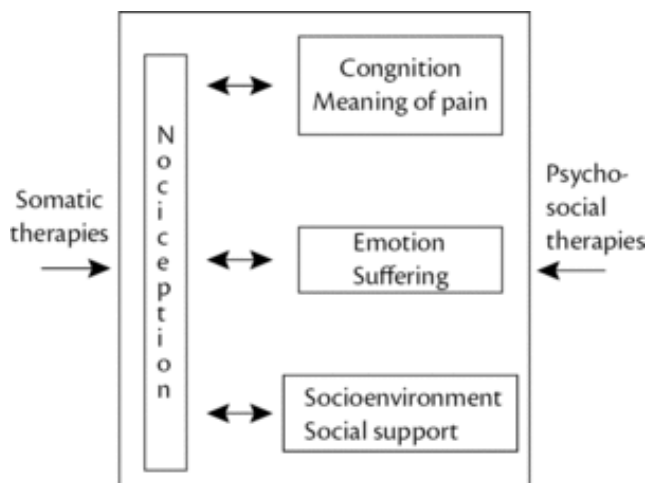


Fig. 9.11.1
The multidimensional nature of pain in terminal illness.

Reproduced from Breitbart W, and Holland JC, Psychiatric aspects of cancer pain, pp. 73–87, in K. Foley (ed.), *Advances in Pain Research*, Raven Press, New York, USA, Copyright © 1990, with permission of the author.

Psychological factors in pain experience

Pain-related distress is complex and may be influenced by stressors faced by patients with advanced disease, such as loss of independence, disability, and fear of painful death. Distress may be influenced by medical factors, cognitions, coping capacity, personality, and social

support. Daut and Cleeland (1982) showed that cancer patients who attributed a new pain to a benign cause reported less interference with their activity and pleasure than cancer patients who believed that their pain represented progression of disease. Spiegel and Bloom (1983) found that women with metastatic breast cancer experienced more intense pain if they were depressed and believed that their pain represented spreading of their cancer. The presence of a mood disturbance and beliefs about the meaning of pain are better predictors of pain levels than is the site of metastasis.

The variables that affect pain-related quality-of-life may be categorized in three domains: (1) physical well-being, (2) psychological well-being (consisting of affective factors, cognitive factors, spiritual factors, communication, coping, and meaning of pain or cancer), and (3) interpersonal well-being (focusing on social support or role functioning) (Padilla et al., 1990). The heterogeneity and prominence of these variables have been revealed in studies linking higher levels of pain or pain-related distress to impairment in activities of daily living, the experience of unpredictable painful episodes, negative thoughts about personal or social competence, cognitions about the cause of pain, greater anxiety or depressed mood, and more existential concerns such as fears about the future (Bond and Pearson, 1969; McKegney et al., 1981; Payne et al., 1994; Payne, 1995; Strang, 1997; Smith et al., 1998; Portenoy et al., 1999). A prospective study of cancer patients found that maladaptive coping strategies, lower levels of self-efficacy, and distress specific to the treatment or disease progression were modest but significant predictors of reported pain intensity (Syrjala and Chapko, 1995).

These data highlight the broad variation in the response to pain. A classification that was developed in populations with chronic pain and focuses on adaptation (described as 'dysfunctional', 'interpersonally distressed', or 'adaptive coping') also describes the population with cancer pain, further suggesting the importance of psychosocial factors in the pain experience (Turk et al., 1998). Psychological distress is strongly associated with the number of concerns reported by patients and concerns about pain and treatment have been particularly associated with depression (Heaven and Maguire, 1998).

Most of the aforementioned studies have been performed in the cancer population. Similar findings have been found in patients with AIDS. The perception of control over pain, emotional associations and memories of pain, fear of death, depression, anxiety, and hopelessness—all contribute to the experience of pain and increase suffering in this population (Breitbart et al., 1994). In ambulatory populations with AIDS, pain was associated with depression, functional impairment, and disability (Rosenfeld et al., 1996), and negative pain-related thoughts were associated with greater pain intensity, psychological distress, and disability (Payne et al., 1994). Patients with pain were twice as likely to have suicidal ideation (40%) than those without pain (20%), and those who felt that pain represented a threat to their health reported more intense pain than those who did not see pain as a threat (Rosenfeld et al., 1996). Singer and colleagues (Singer et al., 1993) also reported an association among the frequency of multiple pains, increased disability, and higher levels of depression.

Although these data underscore the importance of psychological variables in explaining continued pain or lack of response to therapy, it must be emphasized that the diagnosis of the physical factors responsible for pain is essential to treatment. It also is important to emphasize that the nature of psychological distress cannot be accurately determined when pain is severe. The psychologist or psychiatrist consulted on a patient with pain must review the medical evaluation of the pain and the adequacy of the analgesic management provided. If medical

options for therapy are available, they always should be considered. Pain control should be considered a prerequisite to both the assessment and management of other sources of distress. Indeed, personality factors may be quite distorted by the presence of pain, and relief of pain often results in the disappearance of a perceived psychiatric disorder (Marks and Sachar, 1973, Cleeland and Tearman, 1986).

Psychiatric disorders and pain in the terminally ill

In cancer populations, the prevalence of psychiatric disorders is associated with chronic pain (Ahles et al., 1983; Derogatis, 1983; Woodforde, 1989). For example, the Psychosocial Collaborative Oncology Group Study (Derogatis, 1983) found that 39% of the patients who received a psychiatric diagnosis (Table 9.11.1) reported significant pain, compared to 19% without a psychiatric diagnosis. The psychiatric disorders in those with pain were largely adjustment disorders with depressed or anxious mood (69%) and major depression (15%).

Table 9.11.1 Rates of DSM-III psychiatric disorders and prevalence of pain observed in 215 cancer patients from three cancer centers

Diagnostic category	Number in diagnostic class	Percentage of psychiatric diagnoses	Number with significant pain^a
Adjustment disorders	69	32	68
Major affective disorders	13	6	13
Organic mental disorders	8	4	8
Personality disorders	7	3	7
Anxiety disorders	4	2	4
Total with psychiatric diagnosis	101	47	39 (39%)
Total with no psychiatric diagnosis	114	53	21 (19%)
Total patient population	215	100	60 (28%)

^a Score greater than 50 mm on a 100 mm VAS pain severity.

Source: data from Derogatis, L.R. et al., The prevalence of psychiatric disorders among cancer patients, *Journal of the American Medical Association*, Volume 249, Number 6, pp.751–7, Copyright © 1983 American Medical Association. All Rights Reserved.

The prevalence and patterns of psychiatric disorders may vary systematically in subgroups of patients. For example, a study of patients receiving high-dose dexamethasone for epidural spinal cord compression (as much as 96 mg a day for up to a week, followed by a tapering course for up to 3 or 4 weeks) noted that the incidents of depression (22%) and delirium (24%) were much higher than a comparison group (4% and 10%, respectively) (Breitbart et al., 1993). Although there is limited information about patterns of disorders in other subpopulations, it is apparent that advanced disease itself, at least among patients with cancer, is associated with a relatively high prevalence of depression and delirium (Bukberg et al., 1984). The prevalence of

severe depressive symptoms increases from approximately 25% among all cancer patients to 77% in those with advanced illness, and the prevalence of organic mental disorders (delirium) requiring psychiatric consultation increases from the range of 25% to 40% to as high as 85% during the terminal stages of illness (Massie et al., 1983). The latter finding is presumably multifactorial and partly related to the use of opioids and other drugs that can cause confusional states, particularly in the elderly and terminally ill (Bruera, 1989).

Rosenfeld, Breitbart, and colleagues (Rosenfeld et al., 1996) described the psychological impact of pain in an ambulatory AIDS population. AIDS patients with pain reported significantly greater depression and functional impairment than those without pain. Psychiatric disorders, in particular the organic mental disorders such as AIDS dementia complex, can occasionally interfere with adequate pain management. The use of an opioid in this setting may worsen dementia or cause treatment-limiting sedation, confusion, or hallucinations. This observation has suggested the judicious use of psychostimulants to diminish sedation and neuroleptics to clear confusional states. Other psychiatric disorders that have an impact on pain management in the AIDS population include substance abuse and personality disorders.

Pain and suicide

Uncontrolled pain is a major factor in suicide and suicidal ideation in the medically ill (Breitbart, 1987, 1990a; Sison et al., 1991), confirming a US public opinion survey in which 69% agreed that cancer pain could cause a person to consider suicide (Levin et al., 1985). Although relatively few cancer patients commit suicide, they are at increased risk overall (Farberow et al., 1963; Levin et al., 1985) and the majority of suicides involve patients who have severe, inadequately controlled or poorly tolerated pain (Bolund, 1985). Patients with advanced illness, who are most likely to have pain, depression or delirium, are at highest risk. A review of the psychiatric consultation data at Memorial Sloan Kettering Cancer Center showed that one-third of hospitalized cancer patients who were seen for evaluation of suicide risk received a diagnosis of major depression, approximately 20% met criteria for delirium, and more than 50% were diagnosed with an adjustment disorder (Breitbart, 1987).

Thoughts of suicide probably occur quite frequently, particularly in the setting of advanced illness (Massie et al., 1994). For many patients, these thoughts actually may be reassuring, acting as a 'steam valve' for feelings: 'If it gets too bad, I always have a way out'. Patients who have a trusting and safe relationship with a health professional commonly admit to occasional thoughts of suicide as a means of escaping the threat of being overwhelmed by pain. Persistent suicidal ideation is relatively infrequent, however, and is limited to those who are significantly depressed. Silberfarb et al. (1980) found that only three of 146 breast cancer patients had suicidal thoughts, whereas none of the 100 cancer patients interviewed in a Finnish study expressed suicidal thoughts (Achte, 1971). A study conducted at St Boniface Hospice in Winnipeg, Canada, demonstrated that only ten of 44 terminally ill cancer patients were suicidal or desired an early death, and all ten were suffering from clinical depression (Brown et al., 1986). At Memorial Sloan Kettering Cancer Center, suicide risk evaluation accounted for 8.6% of psychiatric consultations, usually requested by staff in response to patients verbalizing suicidal wishes (Breitbart, 1987); all 71 patients who had suicidal ideation with serious intent had a psychiatric disorder (mood disturbance or organic mental disorder) and 30% had significant pain (Breitbart, 1987).

In the cancer population, pain has been associated with the desire for hastened death. In multivariate analyses, depression and hopelessness provided independent and unique contributions to the prediction of the desire for hastened death, while social support and physical functioning added significant but smaller contributions (Breitbart et al., 2000). In a study at Memorial Sloan Kettering Cancer Center, 17% of 185 patients with pain expressed suicidal ideation, with the majority reporting suicidal ideation without intent to act (Saltzberg, 1989). Interestingly, in this population of cancer patients who had significant pain, suicidal ideation was not directly related to pain intensity, but was strongly related to the degree of depression and mood disturbance. Pain was related to suicidal ideation indirectly in that patients' perception of poor pain relief was associated with suicidal ideation. Perceptions of pain relief may have more to do with aspects of hopelessness than pain itself.

Although pain may play an important role in vulnerability to suicide in populations with advanced cancer, these data suggest that factors other than pain, such as mood disturbance, delirium, loss of control and hopelessness, contribute to cancer suicide risk (Bolund, 1985). Frequency of suicidal ideation in one study was associated with poor well-being, depression, anxiety, and shortness of breath, but not with other somatic symptoms such as pain, nausea, and loss of appetite (Suarez-Almazor et al., 2002).

Although work in other populations has been limited, studies of patients with advanced AIDS also have found complex and variable relationships among pain, depression, hopelessness, and suicidal ideation, and suggest that the findings in cancer studies may be more universal. A study of men with AIDS in New York City (Marzuk et al., 1988) demonstrated a relative risk of suicide 36 times greater than that of males in the general population. Many of these patients had advanced AIDS, with Kaposi's sarcoma and other potentially painful conditions. However, the role of pain in contributing to increased risk of suicide was not specifically examined. In a study at Memorial Sloan Kettering Cancer Center (Rabkin et al., 1993), suicidal ideation in ambulatory AIDS patients was found to be highly correlated with the presence of pain, depressed mood (as measured by the Beck Depression Inventory), and low T4 lymphocyte counts. While 20% of ambulatory AIDS patients without pain reported suicidal thoughts, more than 40% of those with pain reported suicidal ideation. Only two of the 110 patients in this study reported suicidal intent. One of these two men was in the pain group; both scored highly on measures of depression. No correlations were observed between suicidal ideation and pain intensity or pain relief. The mean visual analogue scale measure of pain intensity for the group overall was 49 mm (range 5–100 mm), thus falling predominantly in the moderate range. Similar to cancer patients, suicidal ideation in AIDS patients with pain is more likely to be related to a concomitant mood disturbance than to pain intensity. Although AIDS patients are frequently found to have suicidal ideation, these thoughts are more often context-specific, occurring almost exclusively during exacerbations of the illness, when pain is severe, or at times of bereavement (Rabkin et al., 1993).

Inadequate pain management

The adequacy of pain management can be best judged when there is consensus about best practice and data that illuminate the likelihood of satisfactory pain control when treatment is optimal. From this perspective, studies in the cancer population and AIDS population may illuminate the prevalence and causes of undertreatment and suggest the seriousness of the

problem in other medically ill groups. Studies suggest that pain in cancer is undertreated (Cleeland et al., 1994) and pain in AIDS is dramatically undertreated (Lebovits et al., 1989; McCormack et al., 1993; Breitbart et al., 1996). In one study of a cohort of AIDS patients treated in New York City (Breitbart et al., 1996), only 6% of patients reporting pain in the severe range (8–10 on a numerical rating scale) received a strong opioid, such as morphine. This degree of undermedication far exceeds published reports of undermedication of pain in cancer populations (Cleeland et al., 1994). Similar to the cancer population, undertreatment of AIDS-related pain may be more likely in women, those with limited education or a substance abuse history, and those who express a variety of patient-related barriers to opioid treatment (Breitbart et al., 1996, 1998). It is also clear that adjuvant agents such as the antidepressants are also dramatically underused (Lebovits et al., 1989; McCormack et al., 1993; Breitbart et al., 1996). Only 6% of patients in a sample of AIDS patients reporting pain received an adjuvant analgesic drug (i.e. an antidepressant).

Inadequate management of pain often is due to the inability to properly assess pain in all its dimensions (Foley, 1985; Breitbart 1989; Twycross and Lack, 1983). Psychological variables may be ignored, or contrariwise, may be proposed to explain pain when in fact medical factors have not been adequately appreciated. Other causes of inadequate pain management include lack of knowledge about pharmacological interventions, focus on prolonging life rather than alleviating suffering, lack of communication between doctor and patient, limited expectations of patients to achieve pain relief, patients' limited capacity to communicate, unavailability of opioid drugs, doctors' fear of opioid toxicity, and doctors' fear of amplifying addiction and substance abuse. In advanced cancer, several related factors have been noted to predict the undertreatment of pain, including a discrepancy between physician and patient in judging the severity of pain; the presence of pain that physicians did not attribute to cancer, better performance status, age of 70 or over, and female sex (Cleeland et al., 1994).

The pharmacological risks associated with opioid drugs, including respiratory depression, are too often overestimated and also can limit appropriate use of opioid analgesics. Non-specialists may not appreciate the safety of opioid therapy when careful dose selection and titration are employed. The widely accepted use of morphine to treat dyspnoea in populations with serious cardiopulmonary disease, without causing a significant deterioration in respiratory function, may be useful to cite when educating colleagues about these drugs (Bruera et al., 1990).

The adequacy of cancer pain management also can be adversely influenced by other misapprehensions. Persistent cancer pain is often ascribed to a psychological cause when it does not respond to treatment attempts. Clinical observation suggests that the complaint of 'severe' pain is relatively more likely to be viewed as having a psychological contribution. Indeed, staff members' ability to empathize with a patient's pain complaint may be limited by the report of high intensity. Grossman et al. (1991) found that while there is a high degree of concordance between patient and staff ratings of patient pain intensity at the low and moderate levels, this concordance broke down at high pain levels; specifically, the clinicians' ability to assess a patient's level of pain became unreliable when pain intensity was greater than 7 on a 0–10 scale. Physicians must be educated about the limitations of their ability to objectively assess the severity of a subjective pain experience. Additionally, patient education may be useful given the observation that patients are more likely to be believed and adequately treated if they are taught to request pain relief without behaviours that would be interpreted as emotional over-reaction.

A history of drug abuse has been repeatedly associated with the undertreatment of pain. Clinicians may overestimate the prevalence of drug abuse in populations with serious medical illness. At Memorial Sloan Kettering Cancer Center, for example, only eight (1.7%) of 468 inpatients referred for cancer pain had a history of intravenous drug abuse, and none had been actively abusing drugs during the previous year. All eight of these patients were intentionally undermedicated because of concern by staff that drug abuse was active or would recur, and adequate pain control was ultimately achieved in these patients by using appropriate analgesic dosages and intensive staff education. Although populations in other settings may have far higher prevalence of substance use disorders—for example, the base rate of substance use disorders is clearly higher in the younger HIV population (Breitbart, 2003)—clinicians should be able to reassure colleagues and others through knowledge of the true prevalence rates. Derogatis et al. (1983) assessed 215 ambulatory cancer patients for psychiatric diagnoses and found that fewer than 5% met the criteria for a substance use disorder.

Limited knowledge about the presentation, assessment, and management of tolerance, physical dependence, drug abuse and addiction may contribute to an overestimation of risk, which may, in turn, discourage the appropriate use of opioids to treat pain (Charap, 1978; Kanner and Foley, 1981; Twycross and Lack, 1983; Macaluso et al., 1988; Breitbart, 1990). For example, a patient's request for a higher dose to treat worsening pain may be perceived as a strong indicator of, tolerance, abuse, or addiction. In populations with advanced illness, however, most patients stabilize on a dose for a prolonged period, and when dose escalation is needed, it usually is linked to observable progression of disease. If pain increases as a result of disease progression, the loss of drug effect cannot be ascribed to the development of tolerance; in the absence of other findings, it should not be attributed to abuse or addiction. Like physical dependence, which is defined as the potential for abstinence if the dose is abruptly reduced or an antagonist is administered, tolerance usually is not perceived to be a clinical problem unless there is repeated loss of analgesic efficacy in the absence of disease progression.

Addiction is a neurobiological disease with a strong genetic basis, which is defined by the occurrence of craving, loss of control over drug use, compulsive use, and continuing use despite harm. Understanding the assessment strategies needed to identify these characteristics, and acknowledging the key differences between addiction and both tolerance and physical dependence, are essential to accurately judge the true risks of opioid therapy in an individual patient.

Patients who require pain treatment with opioids or other potentially abusable drugs and either have a history of significant alcohol or drug abuse or meet criteria for a substance use disorder do pose a challenge for clinicians. This is exemplified by the management of pain in the growing segment of the AIDS population that is actively abusing intravenous drugs (Breitbart, 2003). Active drug use, particularly intravenous opioid abuse, may compromise pain therapy through (a) high tolerance to opioid analgesics needed for disease-related pain, (b) drug-seeking and manipulative behaviour, (c) lack of adherence or reliability of patient history, and (d) the risk of spreading HIV. Because subjective report may be the only indication of the presence and intensity of pain, or the degree of pain relief achieved by an intervention, patients who are assumed to lie as an element of addictive disease are at high risk to generate concern among clinicians, whose reluctance to believe the patient may lead to anger and

limited pain therapy. Undertreatment is clearly a risk in this context.

Most clinicians experienced in working with medically ill patients with substance abuse history recommend clear and direct limit setting. To the extent possible, clinicians should attempt to eliminate the issue of drug abuse as an obstacle to pain management by dealing directly with the problems of opioid withdrawal and drug abuse treatment. Often, specialized substance abuse consultation services are available to help manage such patients and initiate structured drug administration, or other elements of drug treatment, at the same time that pain management is occurring. If analgesic drugs are the focus of a battle for control between the patient and physician, therapy will be compromised, especially in terminal stages of illness. In this setting, it is appropriate for clinicians to err on the side of believing a patient when they complain of pain, and present a bias toward treatment, as long as there is no clear evidence of self-destructive behaviours or drug diversion to the illicit market (see Chapter 9.5).

Psychiatric and psychological management of pain in advanced disease

Optimal treatment of pain associated with advanced illness often requires a multimodality strategy, including pharmacological, psychological, rehabilitative, and interventional approaches. The numerous psychological approaches include psychotherapeutic, cognitive behavioural, and psychopharmacologic interventions, usually in combination.

Psychotherapy and pain

When patients experience pain in the context of serious medical illness, the goals of psychotherapy are to provide support, knowledge, and skills (Table 9.11.2). Short-term supportive psychotherapy focused on the crisis created by the medical illness is a common strategy, through which the therapist provides emotional support, continuity and information, and assists in adaptation. The therapist has a role in emphasizing past strengths, supporting previously successful coping strategies, and teaching new coping skills. These new skills may include relaxation training, cognitive behavioural approaches to improve coping, self-monitoring skills, and assertiveness and communication skills. Patients can be taught about documentation, such as the effective use of a pain diary, and about the safe and effective use of analgesics. In some cases, existential issues arise and require exploration. Communication skills are of paramount importance for both patient and family, particularly around pain and analgesic issues. The patient and family is the unit of concern, and there is a need to support a more general, long-term supportive relationship within the health-care system, in addition to providing specific psychological approaches.

Table 9.11.2 Goals and forms of psychotherapy for pain in patients with advanced disease

Goals	Form
Support—provide continuity	Individuals—supportive/crisis intervention
Knowledge—provide information	Family—patient and family are the unit of concern
Skills—relaxation, cognitive coping, communication, use of analgesics	Group—share experiences, identify successful coping strategies

Psychotherapy with the patient who has advanced illness and pain consists of active listening with supportive verbal interventions and the occasional interpretation (Cassem, 1987). Despite the seriousness of the patient's plight, it is not necessary for the psychologist or psychiatrist to appear overly solemn or emotionally restrained. Often, the relationship is strengthened by the ability of the psychotherapist to converse lightheartedly and allow the patient to talk about his life and experiences, rather than focus solely on impending death. The patient who wishes to talk or ask questions about death and pain and suffering should be allowed to do so freely, with the psychotherapist maintaining an interested, interactive stance. This work may ensue in parallel with discussions between the patient or family and other members of the treatment team, including the chaplain.

As the illness progresses, psychotherapy with the individual patient may become limited by cognitive or speech deficits. It is at this point that the focus of supportive psychotherapeutic interventions shifts primarily to the family. A common issue for the family at this point is the level of alertness of the patient. Attempts to control pain are often accompanied by sedation that can limit communication between patient and family. This can sometimes become a source of conflict, with family members disagreeing among themselves or with the patient about what constitutes an appropriate balance between comfort and alertness. It can be helpful for the physician to clarify the patient's preferences as they relate to these issues early so that conflict can be avoided and work related to bereavement can begin.

Group interventions with individual patients (even in advanced stages of disease), spouses, couples, or families are a powerful means of sharing experiences and identifying successful coping strategies. The limitations of using group interventions for patients with advanced disease are primarily pragmatic. The patient must be physically comfortable enough to participate and have the cognitive capacity to be aware of group discussion. It is often helpful for family members to attend support groups during the terminal phases of the patient's illness.

Family caregivers often assist in pain management and interventions may be targeted to enhance these efforts. In a novel intervention, Keefe (2005) tested the efficacy of a partner-guided cancer pain management protocol consisting of a three-session intervention conducted in patients' homes that integrated educational information about cancer pain with systematic training of patients and partners in cognitive and behavioural pain coping skills (see 'Cognitive behavioural techniques'); this approach produced significant increases in the partners' ratings of their self-efficacy for helping the patient control pain and self-efficacy for controlling other

symptoms.

Psychotherapeutic interventions that have multiple targets may be the most useful. Based upon a prospective study of cancer pain, cognitive behavioural and psychoeducational techniques based upon increasing support and self-efficacy, as well as providing education, may help patients deal with increased pain (Syrajala et al., 1992). Distress related to the illness, self-efficacy, and coping may be associated with pain and be specifically addressed by these interventions.

Psychotherapy to diminish symptoms of anxiety and depression, factors that can intensify pain, also may be an important strategy. In a randomized controlled study, Spiegel and Bloom (1983) demonstrated that both supportive group therapy and training in hypnotic pain control exercises benefited patients with pain related to metastatic breast cancer. The supportive group focused not on interpersonal processes or self-exploration, but rather on a series of themes related to the practical and existential problems of living with cancer.

While psychotherapy in populations with advanced illness is primarily non-analytical and focuses on current issues, exploration of reactions to illness often involve insights into earlier, more pervasive life issues. Some patients choose to continue a more exploratory psychotherapy during extended periods of stable disease, or during survivorship.

Cognitive behavioural techniques

Cognitive behavioural techniques can be useful as adjuncts to the management of pain in the setting of serious medical illness (Box 9.11.1). The goal of these techniques is to guide the patient towards a sense of control over pain. Some of the specific interventions are primarily cognitive in nature, focusing on perceptual and thought processes, and others are directed at modifying patterns of behaviour that may help patients cope with pain. Specific strategies include passive relaxation with mental imagery, cognitive distraction or focusing, progressive muscle relaxation, biofeedback, hypnosis, and music therapy (Cleeland, 1987; Fishman and Loscalzo, 1987; Loscalzo and Jacobsen, 1990; Singer et al., 1993). Behavioural techniques may seek to modify physiologic pain reactions, respondent pain behaviours, or operant pain behaviours (see Table 9.11.3 for definitions).

Box 9.11.1 Cognitive behavioural techniques used by pain patients with advanced disease

- ◆ Psychoeducation:
 - preparatory information
 - self-monitoring

- ◆ Relaxation:
 - passive breathing
 - progressive muscle relaxation

- ◆ Distraction:

- focusing
- controlled by mental imagery
- cognitive distraction
- behavioural distraction

◆ Combined techniques (relaxation and distraction):

- passive/progressive relaxation with mental imagery
- systematic desensitization
- meditation
- hypnosis
- biofeedback
- music therapy

◆ Cognitive therapies:

- cognitive distortion
- cognitive restructuring.

Behavioural therapies:

Modelling
Graded task management
Contingency management
Behavioural rehearsal

Table 9.11.3 Cognitive behavioural techniques: definitions and descriptions

Behavioural therapy	The clinical use of techniques derived from the experimental analysis of behaviour, i.e. learning and conditioning for the evaluation, prevention, and treatment of physical disease or physiological dysfunction
Cognitive therapy	A focused intervention targeted at changing maladaptive beliefs and dysfunctional attitudes. The therapist engages the patient in a process of collaborative empiricism, where these underlying beliefs are challenged and corrected
Operant pain	Pain behaviours resulting from operant learning or conditioning. Pain behaviour is reinforced and continues because of secondary gain, i.e. increased attention and caring
Respondent pain	Pain behaviours resulting from respondent learning or conditioning. Stimuli associated with prior painful experiences can elicit increased pain and avoidance behaviour
Cognitive restructuring	Redefinition of some or all aspects of the patient's interpretation of the noxious or threatening experience, resulting in decreased distress, anxiety, and hopelessness
Self-monitoring (pain diary)	Written or audiotaped chronicle that the patient maintains to describe specific agreed-upon characteristics associated with pain
Contingency management	Focusing the patient and family member responses that either reinforce or inhibit specific behaviours exhibited by the patient. Method involves reinforcing desired 'well' behaviours
Grade task assignments	A hierarchy of tasks, i.e. physical, cognitive, and behavioural, are compartmentalized and performed sequentially in manageable steps ultimately achieving an identified goal
Systematic desensitization	Relaxation and distraction exercises paired with a hierarchy of anxiety-arousing stimuli presented through mental imagery, or presented <i>in vivo</i> , resulting in control of fear

The cognitive interventions that are used to reduce pain intensity or associated distress may attempt to modify the thoughts about the pain, introduce more adaptive coping strategies, or provide instruction through various types of relaxation techniques. Cognitive modification (cognitive restructuring) is an approach derived from cognitive therapy for depression or anxiety and is based on how one interprets events and bodily sensation. It is assumed that patients have dysfunctional automatic thoughts that reflect underlying assumptions and beliefs. In both cancer and AIDS populations, negative thoughts about pain have been shown to be

significantly related to pain intensity, degree of psychological distress, and level of interference in functional activities (Payne et al., 1994; Payne, 1995). By identifying and challenging dysfunctional automatic thoughts and underlying beliefs by restructuring or modifying thought processes, a more rational response to pain can occur (Fishman and Loscalzo, 1987).

Examples of such automatic thoughts that have been shown to worsen pain experience are: 'The intensity of my pain will never diminish' or 'Because my pain limits my activities, I am completely helpless.' Patients can be taught to recognize and interrupt such thoughts and proceed to develop a view of the pain experience as time-limited and themselves as functional despite periods in which they are limited.

The use of cognitive restructuring may shift as the goals change in the palliative care context. In the setting of advanced illness, the goal may not be to change the patient's maladaptive thoughts, but rather, to utilize techniques designed to diminish the patient's anxiety, frustration, and anger. Helping patients to employ more adaptive coping strategies, allowing for decreased catastrophization and increase problem-solving skills, may be helpful at this stage (Fishman, 1990; Turk and Fernandez, 1990; Jensen et al., 1991).

Aside from modifying dysfunctional thoughts and attitudes, the most fundamental behavioural technique is self-monitoring. The development of the ability to monitor one's behaviours allows a person to notice their dysfunctional reactions to the pain experience and learn to control them.

Another approach, systematic desensitization (see Table 9.11.3), may be useful in extinguishing the anticipatory anxiety that can lead to avoidant behaviours, and in remobilizing inactive patients. Graded task assignment may be viewed as a type of systematic desensitization, by which function is improved by teaching patients to take small steps gradually and thereby initially avoiding the anxiety associated with the specific task until more effective coping mechanism and self-efficacy is achieved. Finally, contingency management is a method of reinforcing 'well' behaviours only; this may modify dysfunctional operant pain behaviours associated with secondary gain (Cleeland, 1987; Loscalzo and Jacobsen, 1990).

The range of cognitive behavioural interventions that may be useful in the setting of advanced illness is very broad (Breitbart and Holland, 1988) and there is some evidence that all methods are not equally effective. Cognitive strategies, including relaxation, suggestion, and distracting imagery, appear to hold the greatest promise, although research on the usage of these techniques to control pain is scant (Sellick and Zaza, 1998; Montgomery et al., 2002). The mechanisms by which these techniques relieve pain are not known and it widely accepted that a favourable response to a psychological technique should not be viewed as evidence that pain is psychogenic. All these techniques share the elements of relaxation and distraction, and this common pathway may help reduce awareness of pain, muscle tension and sympathetic arousal (Cleeland, 1987). Although studies of these interventions in populations with advanced illness are limited, the recommendation to consider a combined non-pharmacological and pharmacological pain management strategy is common, and is especially promoted with paediatric populations (Kazak et al., 1998). These interventions may be a particularly attractive part of a multimodality approach because they produce no side effects.

Patient selection for cognitive behavioural interventions for pain

The selection of patients with advanced illness and pain for trials of cognitive behavioural

strategies should take into account the intensity of pain and the mental clarity of the patient. Ideal candidates have mild to moderate pain, either at baseline or as a result of analgesic drug therapy. Confusional states interfere dramatically with a patient's ability to focus attention and thus limit the usefulness of these techniques (Loscalzo and Jacobsen, 1990). Occasionally, however, these techniques can be modified so as to include mildly impaired patients. This may involve the therapist taking a more active role by orienting the patient, creating a safe and secure environment, and evoking a conditioned response to the therapist's voice or presence.

Barriers to engaging patients in cognitive behavioural therapies can be divided into physician/nurse-based barriers and patient-based barriers. Many health professionals are uncomfortable with the use of behavioural therapies. Pharmacotherapy is highly effective in the management of pain and seems simpler and easier to use than labour-intensive and time-consuming non-pharmacological interventions. Physicians and nurses have typical concerns about the practice of behavioural interventions such as: 'What if the patient laughs, doesn't buy it?' or 'It seems too theatrical, unscientific, non-medical; too New Age!' Overcoming such obstacles may yield gratifying results. Physicians working with patients with advanced illness should become aware of the effective non-pharmacological interventions and be able to make appropriate referrals to practitioners who can provide them.

Patients may be uncertain about the utility of these therapies. Some may ask, 'How can breathing take away my pain?' They may be frightened by the word 'hypnosis' and its connotations. Although hypnosis is often associated with powerful and magical properties, some patients become frightened at the prospect of losing control or being under the influence of someone else. It generally is best to introduce cognitive behavioural interventions after some rapport has been established with a patient. Although some patients may benefit from a discussion of the theoretical basis of these interventions, it is important to stress that an understanding of the mechanism is not needed for effectiveness and the outcome is most important. Apprehensions must be addressed, and patients must feel in control of the process at all times and be reassured that they can stop at any time.

Practical considerations in the use of cognitive-behavioural approaches

A general approach to using cognitive behavioural interventions with patients with advanced illness and pain involves the following: (1) assessment of the symptom, (2) choosing a cognitive behavioural strategy, and (3) preparing the patient and the setting.

The main purpose of conducting a cognitive behavioural assessment of pain is to determine what, if any, interventions are indicated (Kanner and Foley, 1981). One must initially engage the patient and establish a therapeutic alliance. A history of the pain symptom must be taken. One should review previous efforts to treat the patient's pain, and collect data regarding the nature of the pain and its impact on the patient and their family. Choosing the appropriate behavioural strategy should consider the patient's medical condition, physical and cognitive limitations, time constraints, and practical matters. For instance, patients with cognitive impairment or delirium will probably be unable to keep a pain diary or employ techniques that involve cognitive manipulation.

Muscular tension, autonomic arousal, and mental distress exacerbate pain (Cleeland, 1987; Loscalzo and Jacobsen, 1990), and a variety of techniques can be used to achieve a state of relaxation. These include passive relaxation through the focusing of attention on sensations of

warmth and decreased tension in various parts of the body, progressive muscle relaxation involving active tensing and relaxing of muscles, and meditation. Other techniques that employ relaxation, as well as other cognitive therapies, include hypnosis, biofeedback, and music therapy (discussed later). Although studies of relaxation do not confirm a positive effect on chronic pain, but indicate that relaxation training can reduce some pain scores and more clearly has a positive effect on anxiety (Wallace, 1997; Carroll and Seers, 1998; Luebbert et al., 2001).

Passive relaxation, focused breathing, and passive muscle relaxation exercises involve the focusing of attention systematically on one's breathing, on sensations of warmth and relaxation, or on release of muscular tension in various body parts. Verbal suggestions and imagery are used to help promote relaxation. Muscle relaxation is an important component of the relaxation response and can augment the benefits of simple focused breathing exercises, leading to a deeper experience of relaxation and self-control.

Progressive or active muscle relaxation involves the active tensing and relaxing of various muscle groups in the body, focusing attention on the sensations of tension and relaxation. Clinically, in the hospital setting, relaxation is most commonly achieved through the use of a combination of focused breathing and progressive muscle relaxation exercises. Once patients are in a relaxed state, imagery techniques can then be used to induce deeper relaxation and facilitate distraction from or manipulation of a variety of cancer-related symptoms.

Script for passive relaxation (focused breathing)

The following script is a generic relaxation exercise, utilizing passive relaxation or focused breathing, that is based on and integrates the work of Erickson (1959), Benson (1995), and others (Loscalzo and Jacobsen, 1990).

'Why don't you begin by finding a comfortable position. Slowly allow your body to unwind and just let it go. That's it . . . I wonder if you can allow your body to become as calm as possible . . . just let it go, just let your body sink into that bed (or chair) . . . feel free to move or shift around in any way that your body needs to, to find that comfortable position. You need not try very hard, simply and easily allow yourself to follow the sound of my voice as you allow your body to find itself a safe, comfortable position to relax in.

If you like, you can gently allow your eyes to close, just let the lids cover your eyes . . . allow your eyes to sink back deeply into their sockets . . . that's it, just let them go, falling back gently and deeply into their sockets as your lids begin to feel heavier and heavier. As you allow your head to fall back deeply into the pillow, feeling the weight of your head sinking into the pillow as you breath out, just breath out, one big breath. Slowly, if you can begin to turn your attention to your breathing. Notice your breath for a few moments, how much air you take in, how much air you let out, and just breath evenly and naturally, and with the sound of my voice I wonder if you can begin to take in more air, breathing in and out, in and out, that's it, gradually breathing in and out . . . in and out . . . breathing in calmness and quietness, breathing out tiredness and frustration, that's it . . . let it go, it's not important to you now . . . breathing in quietness and control, breathing out fear and tension . . . breathing in and out . . . in and out . . . you can enjoy breathing in this relaxed way for as long as you need to. You are peaceful now as you continue to observe your

even and steady breathing that is allowing you to feel gentle and calm, breathing that is allowing you to feel a gentle calm, that's it, breathing relaxation in and tension out . . . in and out . . . breathing in quietness and control, breathing out tiredness and tension . . . that's it (patient's name here) as you continue to notice the quietness and stillness of your body, why don't you take a few quiet moments to experience this process more fully.'

It may be helpful for the clinician to mark the end of an exercise by increasing the pace, raising the volume of voice, and shifting position. Additionally, it is helpful for the clinician to both pace and model for the patient. This includes positioning yourself as similarly to the patient as possible (e.g. closing eyes, assuming a position of relaxation, and breathing at the same rate). If the patient exhibits any visible anxiety or agitation, this can be briefly explored verbally, and then, if appropriate, the exercise can be continued.

Script for active or progressive muscle relaxation

This exercise involves the patient actively tensing and then relaxing specific body parts. Once again, it may be helpful if the clinician paces and models for the patient.

'Now, I wonder if you can tense up every muscle in your body . . . that's it, squeeze in the muscles . . . hold it, and then just let it go . . . once more, tense up your muscles . . . make them very tight and tense, hold it, hold it . . . and then breath out, and let your muscles relax, just let them go . . . Now, as your body begins to feel more and more relaxed, clench your jaw, squeeze it tight, clench it and then let it go . . . now open your mouth wide, as wide as it will go, stick out your tongue, stick it way out, hold it and then let it go. Feel your head becoming more and more relaxed, as it sinks down into the pillow, allowing all the tension and tightness to drift out of it . . . Now, I wonder if you can lift up your shoulders, lift them up, up to your ears, hold them there, squeezing them tightly, squeeze, and then let them drop down, just let them go . . . and then once more lift them up . . . hold it . . . then let them go . . . as you feel all the tightness and tension in your shoulders begin to drain away . . . Now, I wonder if you can clench your hands into a fist, make a tight fist as your whole arm tightens, tense your arms as you squeeze in your fingers tighter and tighter . . . and now just let them go, once more now make a fist, a tight fist, hold it, and then let it go.'

As with passive muscle relaxation, the clinician guides the patient through the exercise, requesting the patient to tense and release specific muscles in a progressive order.

Imagery/distraction techniques

Clinically, relaxation techniques are most helpful in managing pain when combined with distraction or pleasant imagery. The use of distraction or focusing involves control over the focus of attention and can be used to make the patient less aware of the noxious stimuli (Broome et al., 1992). Keeping oneself busy is a form of behavioural distraction. Mental distraction can be used and is similar to the practice of counting sheep to aid sleep. Imagery—using one's imagination while in a relaxed state—can be used to transform pain into a warm or cold sensation. One can employ imaginative inattention by picturing oneself on a beach. One can also imaginatively transform the context of pain; for example, one could imagine oneself in

battle on the football field instead of the hospital bed. Dissociated somatization, which can be employed by some patients, involves imagining that a painful body part is no longer part of their body (Fishman and Loscalzo, 1987; Breitbart, 1989, 1990; Loscalzo and Jacobsen, 1990). It is important to note that not every patient finds these techniques acceptable, and the therapist must try out a number of approaches to determine which are consistent with the patient's style.

Imagery (often referred to as guided imagery) is most effective when the specific image is obtained from the patient. The clinician may ask the patient to close his or her eyes and think of a place, an activity, or an experience where the patient felt most safe and secure. The clinician may provide suggestions for the patient such as a favourite beach scene, or a room in a house, or riding a bicycle in a state park. Once the patient identifies the scene, the clinician may ask the patient to elaborate upon the scene, asking for specific details such as the temperature, season, time of day, type of ocean (calm, or with big waves), etc. The clinician then utilizes this information and describes an image for the patient in detail. The clinician should be as flexible and as creative as possible, and elaborate upon the scene, utilizing all aspects of the senses and bodily sensations such as 'feel the sun's rays touch your skin, allow your skin to feel warm and tingly all over . . . ' or, 'breathe in the fresh, clear air, allow it to fill your lungs with its freshness . . . ' or, 'feel the fresh dew of the grass under your feet'. The clinician can focus on 'aromas in the garden' or the 'sounds of birds singing', always reminding the patient to breathe evenly and steadily as he or she feels more and more relaxed and more and more in control. If possible, the clinician should avoid volunteering an image or scene for the patient because the clinician is unaware of the association or meaning the image may have for the patient. For example, a patient may have a fear of the water, and therefore a beach scene may invoke feelings of fear and loss of control.

Script for pleasant distracting imagery

The following is a generic script for a imagery exercise:

'Once you are in a comfortable position, I wonder if you can continue lying there with your eyes closed, continuing to breathe in out . . . in and out to the sound of my voice. Let your mind wander . . . just let it go . . . and if any unwanted thoughts come into your mind, you can allow them to pass out as easily as they came in . . . You don't need them now . . . they are not important to you now. You have the ability to control your thoughts. You have the ability to be in control.

Slowly, I wonder if you can allow your mind to travel . . . to travel far away to your favourite beach. The beach that you have many fond memories of. I wonder if you can imagine that it's almost the end of the day and the beach is deserted . . . and the sun, while setting, is still warm, as it beats down . . . and makes your skin feel tingly and warm all over. As you begin to walk on the sand, you can feel the granules underneath your feet. Step evenly and steadily along the sand. As you look around, you can see the different colours in the sky. You can see for miles off into the distance and you feel exhilarated and free because no one is around you. You are alone and in control. As you walk closer to the edge of the ocean the sand is becoming a little damp and you can feel the dampness underneath your feet—it feels refreshing. As you continue walking, you may notice a few odds and ends on

the sand maybe something that the ocean brought in . . . some shells perhaps. They may be broken from being knocked against the rocks . . . or there may be a few bits of seaweed or some jellyfish. You stop to notice them as you walk past . . . marvelling at the wonders of nature. As you get to the edge of the ocean, you can feel the tiny little ripples of water washing over your feet . . . bouncing over your feet making you feel light and fresh. The water is warm—it soothes your feet. Washing back and forth . . . back and forth. As you keep walking you see your rubber raft. This is your old dependable rubber raft. You get to the raft and you secure it in your hands and lie down on it letting your whole body sink into the raft—just let it go . . . that's it. Slowly you kick off as the raft begins to take you away. The ocean is very calm and very gentle. Your whole body begins to unwind and sink deeper and deeper into the raft as you feel more and more relaxed. This raft allows you to drift off . . . and underneath you can feel the ripples of the ocean . . . rocking back and forth . . . back and forth as you continue to float away evenly and gently. You can become aware of the sun beating down on your skin. You are aware of the sounds around you—you can hear the ocean washing against the rocks as the waves rock back and forth . . . back and forth. You can hear the gulls crying in the distance. There is a very tiny protected bay that you are floating away in. It is a very calm and peaceful day, and you are feeling more and more relaxed. You are in control now . . . and as you continue to sail away, all your troubles and problems wash right out of you. They're not important to you now. You don't need them now. What's important is that your whole body, from the tip of your toes all the way up to the top of your head, is relaxed and calm in this very safe and private place that is your own. You can continue to lie here as you rock back and forth . . . back and forth for as long as you need to.

When you are ready, you can slowly readjust yourself to the sound of my voice and I am going to count slowly backwards from ten and with each count backwards, you can become more and more familiar with where you are. Perhaps when I get to number five you may want to open your eyes or you can keep them closed for as long as you need to. Ten, nine . . . —become aware of the sounds around you . . . eight, seven . . . become aware of the temperature of the room—how does it feel?, how does your body feel? . . . six, five . . . —you can open your eyes now if you want to or you can keep them closed . . . four, three, two, one. You can stay in this relaxed position for as long as you need to. When you feel ready you may slowly prepare to sit up.'

Hypnosis

The American Society of Clinical Hypnosis defines hypnosis as 'a state of inner absorption, concentration, and focused attention' (American Society of Clinical Hypnosis., 2013). Hypnosis can foster a way of processing information in which analytic cognition and peripheral awareness is suspended. This can lead to involuntary changes in the perception of mood and memory, which in turn can lead to biological and behavioural changes (Wickramaskera, 2003).

The hypnotic trance is essentially a state of heightened and focused concentration, and thus it can be used to manipulate the perception of pain. The depth of hypnotizability may determine the effectiveness of this approach, as well as the strategies employed during hypnosis. One-third of patients are not hypnotizable, and it is recommended that other techniques be employed for them. Of the two-thirds of patients who are identified as being less, moderately,

and highly hypnotizable, three principles underlie the use of hypnosis in controlling pain (Broome et al., 1992): (1) use self-hypnosis, (2) relax, do not fight the pain, and (3) use a mental filter to ease the hurt in pain. Patients who are moderately and highly hypnotizable can often alter sensations in a painful area by changing temperature sensation or experiencing tingling. Less hypnotizable patients can often utilize an alternative focus by concentrating on a sensation in a non-affected body part or on a mental image of a pleasant scene.

Hypnosis can be a useful adjunct in the management of pain (Spiegel and Bloom, 1983; Spiegel, 1985; Levitan, 1992; Syrajala et al., 1992; Tan, 1997; Douglas, 1999; Lioffi and Hatira, 1999; Montgomery et al., 2000; Rajasekaran et al., 2005) including acute pain from mucositis, procedures, or surgery (Syrajala et al., 1992; Lioffi and Hatira, 1999; Montgomery et al., 2000, 2002; Floryn et al., 2007; Wobst, 2007) and pain related to wounds, burns, and various chronic conditions (Jensen and Patterson, 2006; Hammond, 2007; Neron and Stephenson, 2007; Gevirtz, 2009; Abrahamsen et al., 2011). In 1996, the National Institutes of Health in the United States assembled a Technology Assessment Panel that reviewed the evidence to date and concluded that relaxation and hypnosis are effective in reducing chronic pain (NIH Technology Assessment Panel, 1996). The main disadvantage of hypnosis for cancer patients is that the technique frequently requires more attentional capacity than these patients generally have.

Biofeedback

Biofeedback is a behavioural therapy that teaches patients how to gain awareness and control over physiological functions for the purpose of improving health and performance. Instruments are used to measure physiological activity, such as heart function, breathing, skin temperature, muscle activity, carbon dioxide partial pressure (PCO₂), or brainwave pattern. This information is then presented, rapidly and accurately, back to the patient. Patients use this information to change their thinking, emotions, and behaviours, which in turn support the desired physiological changes. Over time, these changes can be continued without the use of the biofeedback instruments.

Myrvik et al. studied single-session biofeedback-assisted relaxation training in patients with sickle cell disease. Ten participants completed a 1-hour session and showed changes in body temperature after the training session and at 6-week follow-up. Reductions in pain frequency, even though very small, were also reported (Myrvik et al., 2012). Shapiro and Shanani showed that six of nine participants who underwent biofeedback treatment for 1–4 years showed significant improvements in functional chest pain compared with those who were not treated (Shapiro and Shanani, 2012). In a meta-analysis, reductions in frequency, duration, and intensity of tension type and migraine headaches was accomplished in children with biofeedback techniques (Trautmann et al., 2006). Fotopoulos et al. (1979) noted significant pain relief in a group of cancer patients who were taught electromyographic (EMG) and electroencephalographic (EEG) biofeedback-assisted relaxation. However, only two of 17 were able to maintain analgesia after the treatment ended. The latter finding suggests that this biofeedback technique may lack generalization to other settings, and this is viewed as a problem with biofeedback techniques. Although physical condition may make a prolonged training period impossible, especially for the terminally ill, most cancer patients could utilize EMG and temperature biofeedback techniques for learning relaxation-assisted pain control (Kazak et al., 1998).

Music, aroma, and art therapies

Music is often used to enhance well-being, reduce stress, and distract patients from unpleasant symptoms. Munro and Mount (1978) have written extensively on the use of music therapy with cancer patients, documenting clinical examples and suggesting mechanisms of action. Although there are wide variations in individual preferences, music appears to exert direct physiologic effects through the autonomic nervous system and can be particularly helpful in managing the discomfort associated with procedures (Chlan et al., 2000). Music can often capture the focus of attention like no other stimulus, offers patients a new form of expression, and helps patients distract themselves from their perception of pain, while expressing themselves in meaningful ways (Schroeder-Sheker, 1993; Magill, 2001). Some studies suggest that music may decrease the overall intensity of the patient's pain when used with analgesics, and although studies have shown mixed results, music can result in a decreased need for pain medicine in some patients (Cepeda et al., 2006).

As a general relaxation technique, aromatherapy may have an application for pain management, but studies are limited and the technique warrants further investigation.

Utilizing the scent, heliotropin, Manne et al. (1991) reported that two-thirds of the patients found the scent especially pleasant and reported much less anxiety than those who were not exposed to the scent during magnetic resonance imaging. Wilkinson et al., (2007) found short-term but not persistent benefits from aromatherapy in a group of cancer patients with depression, and Anderson and Johnson found that aromatherapy did not significantly change perineal discomfort after childbirth (Anderson and Johnson, 2005)

Art therapy can be used to reduce fear, anxiety, stress and pain, and help enhance overall sense of well-being (Nainis et al., 2006). Palliative care clinicians may use art therapy to explore issues relating to loss of control, helplessness, and hopelessness (Trauger-Querry, 2001). In addition, art therapy allows the less verbally skilled adult or children to express the fears and concerns that they have in a more comfortable fashion. The creative experience can be used as both an important means of providing support and also as an avenue for providing patients with psychological insights into their experience (Connell, 1992).

Psychotropic adjuvant analgesics for pain in the patient with advanced illness

Although randomized controlled trials of psychotropic medications have largely been done in subjects who are generally healthy, there appears to be increasing evidence that they may offer some benefit for patients requiring palliative care in the advanced stages of illness.

Antidepressants

Antidepressants may improve depression in patients with advanced cancer (Holland et al., 1998). Some of these drugs are established analgesics. Although positive effects on mood, should they occur, may be beneficial for pain, the analgesic effects produced by the latter drugs may be independent of their mood-enhancing potential (Dharmshaktu et al., 2012).

Serotonin selective reuptake inhibitors (SSRIs)

SSRIs inhibit serotonin reuptake into the presynaptic neuron, which ultimately increases synaptic concentrations of serotonin. This group includes a number of commonly used agents,

such as fluoxetine, citalopram, and paroxetine. They are generally considered first-line treatments for depression, anxiety, and eating disorders. This is largely related to tolerability when compared to other agents, although they are capable of causing significant gastrointestinal side effects (which tend to be a time limited side effect), as well as increased anxiety and sexual side effects. A recent meta-analysis demonstrated the efficacy of these agents in the management of mood symptoms in palliative care patients but found limited evidence to support the superiority of any one agent when compared to others within the class (Rayner et al., 2011). There are few data supporting their efficacy as analgesics (Otto et al., 2008; Dharmshaktu et al., 2012). The SSRIs are not preferred when the primary goal of treatment is to mitigate pain.

Serotonin norepinephrine reuptake inhibitors (SNRIs)

SNRIs inhibit the neuronal reuptake of both serotonin and norepinephrine (noradrenaline), similar to the tricyclic antidepressants. Among others, they include venlafaxine and duloxetine, which are widely used as first-line agents in the treatment of depression and anxiety disorders. These drugs are generally well tolerated and have a side effect profile comparable to the SSRIs. Venlafaxine may worsen hypertension, however, and is more likely to produce withdrawal symptoms when discontinued than other drugs. In contrast to the SSRIs, this antidepressant class has substantial evidence of analgesic efficacy (Sindrup et al., 2003; Eisenberg, 2007; Attal et al., 2010; Bachman et al., 2011; Kaur, 2011); both duloxetine and another agent in this group, milnacipran, are approved in the United States as analgesics for specific disorders. Although large studies are lacking in the use of these agents in patients with pain related to cancer, there are some smaller studies that demonstrate efficacy of these agents in the treatment of neuropathic syndromes following chemotherapeutic and surgical interventions for patients being treated for cancer (Tasmuth et al., 2002; Amr and Yousef, 2010; Henry et al., 2011; Durand, 2012; Yang et al., 2012).

Tricyclic antidepressants (TCAs)

TCAs also inhibit the reuptake of serotonin and norepinephrine. The various agents in this group differ in their potency at each of these sites, as well by their affinity at the receptor sites for other neurotransmitters. There are two broad categories: the tertiary amine drugs, such as amitriptyline and imipramine, tend to cause more side effects (particularly anticholinergic effects) than the secondary amine drugs, such as nortriptyline and desipramine. All the TCAs now tend to be used as second-line agents due to the relatively better side effect profiles of the SSRIs and SNRIs. Nevertheless, there is substantial evidence that these drugs have primary analgesic effects for diverse painful conditions (Raja et al., 2002; Sindrup et al., 2003; Rahimi et al., 2009; Attal et al., 2010; Bachman et al., 2011; Kaur, 2011; Brian et al., 2012; Dharmshaktu et al., 2012). Specific evidence in populations with cancer or other serious illnesses is limited, however (Kautio et al., 2009; Arai et al., 2010; Mishra et al., 2012).

Some TCAs have been employed in non-oral formulations. An oral doxepin rinse is available that appears to offer some benefit for pain related to mucositis, although studies have been small (Epstein JP et al. 2001; Epstein JB et al. 2008). Topical doxepin is used for itch.

Monoamine oxidase inhibitors (MAOIs)

MAOIs inhibit the enzyme monoamine oxidase and include such drugs as phenelzine and

selegiline, which has a transdermal preparation. These agents have largely been relegated to the treatment of refractory depression due to their potential complications, including orthostatic hypotension, interactions with other serotonergic agents leading to serotonin syndrome, and the potential for hypertensive crisis if exposed to certain medications and tyramine-containing foods. There is no support for their use as analgesics.

Other antidepressants

Mirtazapine is an antagonist at presynaptic alpha-2 receptors on noradrenergic neurons and has gained some popularity in medically ill populations due to its propensity to enhance appetite and promote sedation at lower doses (effects that tend to decrease as the dose increases), and its potential for reducing nausea. There is little evidence to support its use as an adjuvant treatment for pain.

Bupropion enhances the effects of norepinephrine and dopamine. It has current indications for the treatment of depression, smoking cessation, and attention deficit/hyperactivity disorder. It is usually activating and is well tolerated as compared to other antidepressants; it has fewer sexual side effects than the SSRIs and SNRIs. However, there is evidence of dose dependent increases in seizures, especially in patients with eating disorders. There is little evidence of analgesic efficacy, but it is sometimes tried when its profile of effects would be beneficial.

Trazodone's primary mechanism of action involves antagonism of the serotonin receptor. It has indications for the treatment of depression and anxiety, but has been relegated to the treatment of primarily insomnia due to its tendency to cause sedation. There is limited evidence supporting its use as an adjuvant for pain management.

Stimulants

Stimulant drugs such as methylphenidate and dextroamphetamine/amphetamine, are typically used in the treatment of conditions such as attention deficit/hyperactivity disorder. However, in the medically ill, they do have a role in the treatment of depression (Kaufmann et al., 1982; Bruera et al., 1987; Fernandez et al., 1987) and they be beneficial for fatigue (Bruera et al., 1987, 1989). They are not used for pain.

Mood stabilizers

Mood stabilizers describe a group of medications typically intended to treat bipolar spectrum disorders. Broadly, this group consists of lithium, antiepileptic drugs, and medications generally utilized in the treatment of psychotic disorders. The mechanisms by which these medications are effective are not entirely known. Lithium is a first-line treatment for mania and bipolar disorder, notwithstanding a narrow therapeutic window and the need for close follow-up to avoid potentially fatal toxicities, particularly in the elderly and those with chronic medical illness. It also has limiting side effects including tremor, gastrointestinal disturbance, and nephrotoxicity, amongst other issues. It is not used for the purpose of pain management.

Some antiepileptics are approved for bipolar disorder and may have utility in the treatment of neuropathic pain. These include the gabapentinoids, gabapentin (Arai et al., 2010) and pregabalin (Bril et al., 2011), and topiramate (Attal et al., 2010; Howard et al., 2011; Callaghan et al., 2012). The gabapentinoids are considered first-line agents for neuropathic pain. Other antiepileptic medications used for psychiatric indications also are occasionally considered for

pain. Valproic acid and its derivatives, such as divalproex sodium, are older drugs with well-established indications for a range of neurological and psychiatric conditions. Although they are generally considered to be a first-line treatment for mania, their broader use is limited by a side effect profile that includes gastrointestinal disturbances and the potential for hepatotoxicity and hyperammonaemia. There is evidence of efficacy in neuropathic pain syndromes (Howard et al., 2011; Callaghan et al., 2012). Carbamazepine also has efficacy in the treatment of mania, but generally is not considered first line because of the potential for bone marrow suppression and hepatotoxicity, and concern about drug–drug interactions. It, too, may have efficacy in neuropathic pain, and is indicated for the treatment of trigeminal neuralgia (Eisenberg, 2007; Howard et al., 2011). Oxcarbazepine is similar to carbamazepine, but has less risk of toxicity; evidence in bipolar disorder is limited, as is evidence in pain syndromes such as trigeminal neuralgia (Eisenberg, 2007). Lamotrigine has demonstrated efficacy primarily in the management of depressive symptoms in bipolar disorder, but its use is hindered by the risk of cutaneous hypersensitivity syndromes, which necessitate a slow increase in the dose when starting therapy and avoidance of the drug in children. There is limited evidence for efficacy in neuropathic pain (Howard et al., 2011; Shaikh et al., 2011; Smith and Argoff, 2011).

Anxiolytics

Medications used for anxiety include antidepressants (as mentioned previously) and drugs that modulate the function of gamma-aminobutyric acid type A (GABA_A) receptors, most importantly the benzodiazepines. The latter drugs include alprazolam, clonazepam, lorazepam, diazepam, and others. Buspirone is a non-benzodiazepine serotonin agonist also indicated for anxiety. The only anxiolytic used commonly for pain in some countries is clonazepam. Evidence of efficacy is very limited, and it is reasonable to consider this agent primary for those circumstances in which anxiety complicates significant neuropathic pain.

Antipsychotics

Antipsychotic drugs are used to manage psychotic disorders, such as schizophrenia; problems such as agitation and aggression that may be complicating other psychiatric disorders; and manifestations of organic brain disorders, including frank delirium. Broadly, the group can be divided into low-potency typical, high-potency typical, and atypical. The low-potency typical drugs are typified by chlorpromazine. These drugs have low affinity for the D₂ receptor, which is seen as their primary site of action. As a result, they have a decreased likelihood of causing extrapyramidal side effects, but are more likely to cause anticholinergic side effects, which limit their utility in many chronically ill patients. The high-potency typical drugs are typified by haloperidol. They have a high affinity for the D₂ receptor and as a result tend to cause more difficulties with extrapyramidal side effects. However, they tend to cause fewer anticholinergic side effects than the low-potency agents, and fewer metabolic side effects than the atypical antipsychotics. The atypical drugs, including olanzapine and risperidone, have a variety of mechanisms and generally cause fewer extrapyramidal side effects than the typical agents. However, as a group, they tend to cause more metabolic side effects, such as glucose intolerance.

The antipsychotic drugs have a variety of indications that are beneficial in medically ill populations, including nausea (Patt et al., 1994) and delirium (Patt et al., 1994; Grover et al., 2011a, 2011b) although additional studies are needed to better support the latter (Lonergan et

al., 2007; Flaherty, 2011). Their benefit in the management of pain, including cancer-related pain, is not well supported by available data (Loneragan et al., 2007; Lussier et al., 2004; Seidel et al., 2008, 2010). The exception is methotrimeprazine, which has been used as adjuvant therapy for pain with some demonstrated benefit (Patt et al., 1994).

Online materials

Complete references for this chapter are available online at <<http://www.oxfordmedicine.com>>.

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