

Chapter 6

Pain in Older Adults with Neuropsychiatric Symptoms



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Introduction

Patsy, a 64-year-old female, walks the halls screaming. Patsy has advanced neurocognitive disorder due to early-onset Alzheimer's disease. She was admitted to the emergency department (ED) after assaulting her husband. During her brief tenure in the ED, she assaulted two nursing assistants and bit a security guard. Patsy has been admitted to the geriatric psychiatry hospital for stabilization.

The interdisciplinary team meets to develop a treatment plan for Patsy. The geriatric psychiatrist verifies the diagnosis of early-onset Alzheimer's dementia (EOAD) and updates Patsy's history to include osteoarthritis and diastolic heart failure. The nursing staff describe Patsy as emotionally labile, with a poor attention span, frowning expression, and poor self-care. The wound specialist reports that Patsy has edema of her feet, with cracked bleeding skin. The chaplain mentions that Patsy frequently talks to herself, often stating "He beat me up." The occupational therapist has evaluated Patsy and reports poor memory, limited insight, decreased executive functioning, and decreased expressive language skills. The physical therapist reports that Patsy is at a high risk of falling. The recre-

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ational therapist mentions that Patsy used to enjoy needlepoint but stopped when it became too painful. The social worker reports that Patsy has been evicted from several long-term care facilities due to agitated and aggressive behaviors. Patsy's husband expresses a concern that she will outlive their finances. He also mentions that Patsy "never complains about pain, even when she worked long hours as a housekeeper."

The team suspects that Patsy's behaviors are communicating pain and distress. Patsy's prior experience of persistent pain may be contributing to under-recognition of pain, consistent with the literature that supports older adults' perception of pain as inevitable. They suspect that Patsy's baseline pain from her osteoarthritis has increased in the context of recent physical aggression with the staff, as well as the influence of her edema and skin breakdown.

Over 100 million Americans suffer from acute or chronic pain every year [1]. The prevalence of persistent pain increases with age, and the majority of older adults have untreated significant pain problems [22]. Statistics on the prevalence of pain among older adults vary considerably, ranging from 25% to 80%. Prevalence of chronic pain after traumatic injury may be as high as 62% [31], and it is estimated that 45% to 80% of individuals residing in nursing homes experience persistent pain [5]. By some estimates, more than 60% of persons aged 75 years and older are afflicted with persistent pain. In individuals with major neurocognitive disorders (NCDs) or dementia, severe pain is chronically undertreated [34].

The most widely used definition of pain comes from the International Association for the Study of Pain, who describe it as an unpleasant sensory *and* emotional experience that is associated with actual or potential tissue damage [12]. However, Kaasalainen [21] offers a useful operational definition of pain that can be applied to the individual with neurocognitive deficits: "Pain is an unpleasant, subjective experience that can be communicated to others either through self-report when possible or through a set of pain-related behaviours (p 7)." As with other chapters in this

book, we will focus on those behaviors, as they provide insight into the neuropsychiatric suffering of individuals with neurocognitive deficits.

The terms persistent pain and chronic pain are often used interchangeably in medical literature. The American Geriatrics Society (AGS) endorses *persistent pain* as the preferred terminology, as it is not associated with the negative attitudes and stereotypes often linked to the chronic pain label. The authors also endorse the term persistent pain in this textbook.

Barriers to Effective Pain Management

Before embarking on a discussion of barriers to effective pain management, one must first decide why barriers exist. Barriers can be stratified into layers of provider-centric and system-focused, patient, financial, and ethnicity-centric.

There are several barriers to adequate pain management that can be attributed to the healthcare provider, such as inadequate assessment of pain or pain relief, inadequate knowledge and training in pain management, lack of accountability for pain control, and timidity in prescribing. Klerman's salient [23] article aptly described prescribers along a continuum, from psychotropic hedonism (if it feels good, prescribe it) to pharmacologic Calvinism (restricted and repressive opioid-phobic). Placing that continuum in the context of caring for individuals with neurocognitive deficits, the intricacies of assessment and treatment add another layer of complexity.

Systemic and regulatory barriers include federal and state regulations governing the use and abuse of opioids, as well as organizational guidelines from a plethora of legal and regulatory agencies. The fear of regulatory scrutiny and sanctions casts a shadow on prescribers of controlled substances.

Reduced access to specialist or pain management facilities provides additional barriers.

Financial barriers include the obvious barriers of lack of insurance and cost of medications but also include poorly explained reimbursement decisions that add another layer of complexity to care. For example, despite the numerous warnings and diligence surrounding the use of opioids in elders, it remains significantly cheaper to prescribe an oral narcotic than a topical analgesic. Further, some medications are cheaper in higher doses, and using a lower and safer dose may be cost-prohibitive.

Patient-associated barriers may include a reluctance to report pain; a belief that one can “see the pain through”; underestimation of the level of pain; unwillingness to accept pills or injections; fear of addiction, tolerance, or side effects; or poor clinician/patient communication. A prevailing belief that pain is an inevitable part of life can also be contributory; in fact, it is not uncommon for pain to serve as a metaphor for death in older adults who fear that pain indicates a serious illness or poor diagnosis. Barriers to effective pain control are portrayed in Table 6.1.

Adding to the complexity are cognitive deficits, the severity of which contributes to a wide range of problems. Individuals with mild NCDs may have difficulty understanding an intricate pain management regimen. Individuals with major NCD may have difficulty describing or even recognizing pain. Commonly, psychomotor agitation may

TABLE 6.1 Barriers to effective pain control

Physical	Hearing loss precludes hearing instructions about how to ask for or use the medication Visual impairment; reading the bottle Difficulty opening the bottle
Cultural	Some pharmacies are unable to label a bottle in the patient’s preferred language; some prescriptions can only be filled in English
Cognitive	Difficulty understanding a complex tapering regimen Difficulty understanding how to use a pain pump

be the sole observable evidence of pain in an individual with cognitive impairment.

Sensory impairments may preclude an individual from seeing well enough to read directions on the bottle, not to mention getting the bottle open. Egan & Cornally [7] discuss the extent to which sensory deficits, such as hearing loss, interfere with pain management in older adults. Possible issues include not hearing and understanding how to use a PCA pump, or not hearing explanations on how to ask for pain medication, or misunderstanding questions about the nature and extent of pain.

Generational differences add an additional layer of complexity, as discussed in Table 6.2 below.

Of all the barriers, ethnic and racial disparities are the most disheartening. A 1997 study published in *Annals of Internal Medicine* found that 65% of minority patients did not receive guideline-recommended analgesic prescriptions compared with 50% of nonminority patients. These disparities continue to exist. A 2002 study among patients with isolated long bone fractures found that individuals of Hispanic descent were twice as likely to receive no analgesics as those of non-Hispanic descent and African-American individuals

TABLE 6.2 Generational differences toward pain

Generation	Attitude toward seeking medical assistance for pain control	Tendencies around self-medicating or prevalence of drug use	Pain-reporting behavior
Traditionalists	High trust of doctors Follow orders specifically	Trust OTC Alcohol use	Low “Just how being old feels”
Baby boomers	Autonomy; do own research, trust WebMD	Trust complementary and alternative medicine	High Aversion to tolerating pain

were found to be less likely to receive emergency department analgesia than Caucasian individuals. A 2017 analysis of physician patterns of analgesic prescribing for patients with non-cancerous chronic pain found that Hispanic patients were less likely to be prescribed opioids [24].

Harrison, Lagisetty, and Sites et al. [14] found that the greatest increase of opioid use over the past several years has been among non-Hispanic White individuals, after adjusting for age and gender.

These disparities are even more egregious when viewed against intercultural differences in cell metabolism. Exploration of membrane-associated proteins located in the mitochondria or endoplasmic reticulum of cells highlights ethnodisparities in cytochrome oxidation. For example, ethnic differences have been identified in studies demonstrating that Asians and African Americans metabolize opioids differently than Caucasians, yet these differences are rarely discussed [17].

Physiology

Patsy was started on scheduled acetaminophen, since her cognitive deficits interfered with her ability to ask for pain medication. Low-dose oxycodone was prescribed on an as-needed basis. The nursing staff used a behavioral scale for assessing pain, instead of using a verbal questionnaire for Patsy.

The pain threshold increases with aging. A meta-analysis of 50+ studies indicated a definite evidence of an increase in pain threshold with advancing age [13]. Compared with younger adults, persistent pain appears to be more common, and of longer duration, in those older than 65 years. In fact, almost 60% of older adults have pain that persists for 1 year or more, compared to 37% of young adults.

Pain also has less psychosocial impact, compared to younger adults. Older adults with chronic pain experience better mental health than younger counterparts, including less avoidance of fear, and tend to be less passive with cop-

ing skills and exhibit more control over life events. The good news is that older individuals tend to cope better with pain. The bad news, however, is that older individuals tend to cope by decreasing function and accepting pain as a consequence of aging. This stoicism and acceptance of pain as inevitable leads to a vicious cycle of needless suffering [35].

Physiological Considerations

The prevalence of chronic medical conditions increases with age. Eighty-two percent of older adults have at least one chronic health condition; and 65% have more than one. Seventy-two percent of older adults have musculoskeletal disorders that are most often associated with persistent pain, including osteoarthritis, ankylosing spondylitis, and rheumatoid arthritis [26].

The most significant pharmacokinetic effect in aging has to do with reduction in renal clearance. Kidneys decrease in size, as well as function, throughout the lifespan. The decline in renal function begins after the age of 40 at a rate of approximately 1% per year, or a 1 mL/min per year decline in creatinine clearance. By the time an individual celebrates their 80th birthday, their blood flow to the kidneys is only 40–50% of those individuals celebrating their 50th.

The second most significant effect is on the brain. Brain volume decreases, both in size and weight. Generally speaking, older adults have increased sensitivity to centrally acting drugs such as benzodiazepines and opioids. The adrenergic and cholinergic autonomic nervous systems, however, generally have decreased sensitivity to receptor-specific drugs such as beta-blockers.

Liver function also slows down as we age; in fact, most estimates place liver function at almost 50% of normal function after age 65. An aging liver is associated with prolonged drug clearance due to decreased first-pass and blood extraction, which is due to lower gastrointestinal absorption or decreased portal and arterial blood flow. Hepatic phase I reactions

involving oxidation, hydrolysis, and reduction appear to be more altered by age than phase II conjugation such as acetylation, glucuronidation, sulfation, and glycine conjugation. Unfortunately, liver function tests (LFTs) are often normal despite these changes in the elderly liver [22].

Elderly patients present with increased fat mass, decreased muscle mass, and decreased body water, which have important ramifications on drug distribution. Lipophilic medications such as fentanyl and lidocaine may have an increased duration of effect as more of these medications are absorbed by fat mass and will have an increased volume of distribution. Water-soluble drugs are less efficiently distributed and result in higher plasma concentrations at equivalent doses and therefore result in a higher frequency of side effects.

Patsy's initial pain regimen was ineffective, and she exhibited functional decline. She refused to leave her bed, her feet became swollen, and her verbalizations became more inconsolable.

Clinical Pearl

Decreased liver and kidney clearance cause an increase in drug half-life for analgesics that undergo significant first-pass metabolism. These drugs, such as lidocaine and opioids, should be initiated slowly and at lower doses to avoid complications. Benzodiazepines and tricyclic antidepressants will also have greater likelihood of side effects.

Undertreated Pain

Pain is disproportionately undertreated in individuals with severe neurocognitive deficits due to the difficulty assessing symptoms of pain. The behavioral impact of undertreated pain is significant. Common neuropsychiatric symptoms of pain include physical agitation or aggression. Combativeness is commonly experienced during episodes of personal care, such as bathing or toileting. Protective posturing ranges from

withdrawal into a fetal position to taking a threatening boxer's stance. Grimacing may be subtle or accompanied by distraught vocalizations that can range from repeatedly calling out or perseverative phrasing to crying and screaming.

Undertreatment of pain may be due, in part, to the use of subjective evaluations of pain rather than validated clinical scales [2]. Individuals with NCD are often impaired in their ability to provide reliable subjective pain ratings [28], particularly as the disease progresses, and they report pain less frequently and at a lower intensity in clinical settings than healthy seniors [3]. Regular pain assessment has not always correlated pain score or with analgesic use [34].

The sequelae of undertreated pain is concerning. Excessive pain decreases functional status, which begets deconditioning, which begets death. Undertreated pain leads to iatrogenic events, such as inhibited respiratory effort, pneumonia, deep vein thrombosis, and other perils of immobility.

Management of pain is crucial, as undertreated pain is a precipitating factor for delirium. While postoperative pain may be a more recognizable condition, pain can occur from a variety of sources. Fundamentally, one of the most common sources of pain in hospitalized older adults is musculoskeletal pain related to immobility. Complicating things further, many clinicians incorrectly assume opioids are the cause of delirium in patients with pain, leading to a reduction in dosage or discontinuation of pain medications altogether. In fact, undertreated pain may be a stronger risk factor for delirium than pain medications [32]. Pain management regimens that involve scheduled analgesia are associated with lower incidence of delirium.

One of the more circuitous pathways in which pain contributes to delirium has to do with inappropriate and continued secretion and/or action of antidiuretic hormone (ADH). Undertreated pain contributes to the syndrome of inappropriate antidiuretic hormone secretion (SIADH), which in turn contributes to hyponatremia, which in turn contributes to delirium. In older adults, even the mildest dip in sodium can result in delirium. Hyponatremia-related deliriums also

have a fairly pronounced anxiety component. Additionally, hyponatremia-related deliriums tend to take a long time to resolve, and symptoms often persist long after the sodium normalizes. Therefore, thorough and vigilant monitoring for pain can go a long way toward reduction of delirium risk factors [33].

Assessment

The PAINAD was used to assess Patsy's symptoms.

PAINAD Score:

- *Breathing: Patsy's breathing is normal. Scored as 0.*
- *Negative vocalization: Patsy repeatedly calls out; her tone is distressed, and volume frequently escalates to screaming. Scored as 2.*
- *Facial expression: Patsy frequently grimaces and looks troubled. Scored as 2.*
- *Body language: Patsy has distressed pacing. Initially scored as 1 and then increased to 2 as she started to become physically aggressive with care.*
- *Consolability: Patsy is frequently inconsolable. Scored as 2.*
- Score: *PAINAD score is 8, indicating severe pain.*

Clinical manifestations of persistent pain are often complex and multifactorial in the older population and may be difficult to assess. Subjective reports are not always accurate. Pain may be underreported due to an incorrect belief that pain is a normal process of aging. Cancer pain tends to be underreported because of fear of disease progression [8]. Autonomy and independence are also factors: it is not uncommon for individuals to deny pain if there is a concern that they may be placed in a higher level of care such as a nursing facility.

Assessing pain in individuals living with neurocognitive disorders can be particularly challenging. A label of dementia may bias the interpretation of pain cues of patients with

dementia. Nygaard [27] found that cognitively intact nursing home residents were more likely to receive unscheduled pain medication (33%), compared with cognitively impaired residents (27%), and those with a diagnosis of dementia (12%). Similarly, a 2008 study of 551 pts. in long-term care (LTC) found that reports of pain decreased as cognitive abilities declined. While 80% of residents who were cognitively intact received pain medications, only 56% of those with severe impairments were medicated [29]. Even though the diagnoses likely to cause pain were similar among all residents, those with severe cognitive impairments had fewer orders for scheduled pain medications.

There are numerous rating scales that can be used to assess pain. The most common numeric rating scale (NRS) simply rates pain on a scale from 0 to 10. While this may be the most popular tool, it does not provide a comprehensive evaluation of pain [15].

Verbal descriptor scales (VDS) ask the individual to describe pain from “no pain” to “pain as bad as it could be.” Although VDS can have fairly robust reliability, they are influenced by language deficits and limitations in abstract thinking. Pain may be manifested in multiple ways, so a variety of terms should be used to screen for symptoms in older patients, such as burning, aching, soreness, tightness, discomfort, sharp, dull, and throbbing.

The Faces Pain Scale-Revised (FPS-R) (source) was developed as tool for nonverbal individuals; however it can be misinterpreted [20].

The Pain Assessment in Advanced Dementia (PAINAD) scale has been designed to assess pain in this population by looking at five specific indicators: breathing, vocalization, facial expression, body language, and consolability [18, 37]. Reliability of the PAINAD has been reviewed favorably [6, 16], although a panel review of studies examining individual items within the PAINAD identified two variables with unfavorable results. For example, the construct of breathing had low internal consistency [38] and construct validity [36]. Additionally, consolability has not been universally accepted as a robust indicator of pain; the

construct may reflect an intervention, rather than a measure of pain, and may be biased due to perceptions of vulnerability [3].

Instead, a behavioral approach to assessment of pain is recommended. Pain behaviors are increased in individuals with NCD due to AD, regardless of severity [3]. For example, crying out is commonly associated with pain, and repeated monosyllabic verbalizations are strongly associated with undertreated pain. Behavioral challenges, such as resistance and fighting with care, are common ways in which individuals communicate pain.

Pasero [25] describes the utility of using (1) nonverbal facial expressions, such as grimacing, frowning, and clenching teeth, in combination with (2) verbal expressions such as moaning, crying, yelling, screaming, or being unusually quiet. Pasero's third factor includes an assessment of body posturing variables, such as guarding, a stiff, rigid, or withdrawing body posture when moving, or extreme postural poses such as having legs or arms drawn up in a fetal-type position.

The team decided to treat Patsy's pain more aggressively. Oxycodone was switched to a fentanyl patch. Stool softeners were used to prevent constipation. Soothing lotions were applied to her feet.

Once Patsy's pain was partially treated, she became less resistant to care. Once her pain was adequately treated, her vocalizations improved, and she no longer paced around the unit. She was able to participate in some social activities, and her affect and demeanor improved.

Treatment

Pharmacological Interventions

One of the most salient pharmacological interventions is the use of plain old acetaminophen. The American Geriatric Society recommends acetaminophen for consideration of initial and ongoing pharmacotherapy in the treatment of persistent pain, particularly musculoskeletal pain, owing to its

demonstrated effectiveness and good safety profile [19]. Acetaminophen is contraindicated in individuals with liver failure and should be used with caution in individuals with hepatic insufficiency or chronic alcohol abuse. The maximum daily recommended dose is 4 grams in a 24-hour period. That upper limit is reduced to 3 grams for frail elders and further reduced from 50% to 75% in patients with active or recent alcohol abuse.

Nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most commonly used pain medications but should be used cautiously in the geriatric setting. Among older adults hospitalized for adverse drug reactions, nearly one-quarter (23.5%) were attributed to NSAID use [10]. Older adults have a 3-fold risk of gastrointestinal complications with NSAIDs than younger adults [30], and the risk of hemorrhagic peptic ulcer disease jumps almost 13-fold when NSAIDs are used with the common anticoagulant warfarin [9].

Cyclooxygenase-2 (COX-2) selective inhibitors were introduced with the hope of reducing GI toxicity. While their use has been associated with fewer significant GI adverse events, the protection incurred is not complete. In addition, the other types of NSAID-related toxicities are the same. Celecoxib is currently the only COX-2 inhibitor remaining on the market, as both rofecoxib and valdecoxib were withdrawn due to concerns about unacceptable risks of adverse cardiovascular events.

The American Geriatric Society (AGS) guidelines specify that both NSAIDs and COX-2 inhibitors may be considered on rare occasions and used with extreme caution in highly selected patients. That said, a proton pump inhibitor (PPI) or misoprostol for gastrointestinal protection should be used concurrently with nonselective NSAIDs. Individuals taking a COX-2 selective inhibitor concurrently with aspirin should also use a proton pump inhibitor or misoprostol. AGS guidelines also recommend that clinicians should routinely monitor all patients taking NSAIDs for gastrointestinal and renal toxicity, hypertension, heart failure, and other drug–drug and drug–disease interactions [19].

Long-term use of opioids for persistent pain may be associated with fewer potential life-threatening risks compared with long-term NSAID use. That said, opioids have their own set of potential risks, including constipation, nausea and vomiting, sedation, impaired cognition and psychomotor function, and respiratory depression. While most adverse events do decline over time, extended use of opioids may suppress the production of several hypothalamic, pituitary, gonadal, and adrenal hormones.

Methadone is problematic in older adults due to a very long half-life. Newer opioid alternatives include levorphanol, which is similar to methadone, but with less pharmacokinetic and drug interaction pitfalls. Tapentadol is associated with significantly less gastrointestinal distress and constipation. Transdermal buprenorphine is an agonist/antagonist with less risk for the toxicities associated with conventional opioids and with compliance benefits. However, none of these have been extensively studied in frail elders.

Adjunctive analgesics include antidepressants, such as tricyclic antidepressants (TCAs), serotonin-reuptake inhibitors (SSRIs), and mixed serotonin and norepinephrine-reuptake inhibitors (SNRIs). Antidepressants are commonly used as adjunctive analgesics for neuropathic pain and fibromyalgia. For example, duloxetine (SNRI) is FDA-approved for neuropathic pain as well as depression. Tertiary tricyclic antidepressants, such as amitriptyline, imipramine, and doxepin, should be avoided in individuals with NCD because of higher risk for adverse effects such as anticholinergic effects and cognitive impairment [8].

Antiepileptic drugs (AEDs) are commonly used for neuropathic pain. Gabapentin (Neurontin) has FDA approval for postherpetic neuralgia, and pregabalin (Lyrica) is approved for diabetic peripheral neuropathy, postherpetic neuralgia, and fibromyalgia. AEDs can be cognitively blunting and should be used cautiously in older adults with NCDs.

Analgesic effects of steroids can be helpful for a wide range of conditions, such as rheumatoid arthritis, polymyalgia

rheumatica, giant cell arteritis, neuropathic pain syndromes, and cancer. Long-term systemic corticosteroids should be reserved for patients with pain-associated inflammatory disorders or metastatic bone pain [8]. Unfortunately, toxicity can be problematic, particularly with long-term use. Clinicians should also be mindful of the risk of steroid-induced psychosis, particularly in individuals at risk of worsening NPS.

Muscle relaxants, which can be useful for relief of skeletal muscle pain, should be used with caution, if at all, in individuals with NCD. Muscle relaxants such as cyclobenzaprine and baclofen are associated with dizziness and increased risk of falls. These medicines are also difficult to stop and must be tapered to avoid seizures and delirium.

Topical preparations have substantial utility in pain management. Topical NSAIDs, such as diclofenac or salicylate derivatives and compounded topicals, have also been introduced as an alternative to traditional oral agents due to their ability to achieve superior tissue levels for appropriately selected inflammatory conditions. For example, diclofenac gel has demonstrated greatly reduced systemic levels compared with oral equivalent doses for the treatment of osteoarthritic pain [4]. Topicals offer better tolerability as well as avoidance of drug interactions, end-organ dysfunction, and gastrointestinal bleeding. Topicals can also provide immediate relief of pain for conditions that affect the dermis, such as shingles and postherpetic neuralgia.

Nonpharmacological Interventions

In a culture in which there is a pill for every ill, it is not uncommon for the use of medication to overshadow other treatment modalities. When offered their choice of a prescription or eight free sessions of psychotherapy, only 7% of depression sufferers in the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) Study chose psychotherapy [11].

Nonpharmacological interventions are vital for pain management in older adults. AGS guidelines recommend that one should never give pain medication without also using a nonpharmacological modality. Combining pharmacologic and nonpharmacologic strategies enhances pain relief. The most frequently used modalities are acetaminophen (61%), regular exercise (58%), prayer (53%), and heat and cold (48%) (cite).

Warm blankets, as well as weighted blankets, can be very helpful, as are other modalities, such as exercise, heat, cold, massage, TENS, assistive devices, or orthotics. An occupational or physical therapy consultation can be extremely helpful.

AGS Guidelines

- Use least invasive route.
- Oral is better than IM.
- Use short-acting analgesia for episodic pain and around-the-clock regimens for continuous pain.
- Long-acting or sustained release for continuous pain only.
- Start low; go slow.
- The most appropriate first choice is acetaminophen.
- For pain uncontrolled with acetaminophen, the use of NSAIDs is appropriate.
- For pain refractory to NSAIDs, a weaker opioid (codeine, hydrocodone, oxycodone) is the appropriate first choice, in combination with acetaminophen.
- For pain refractory to the previous plan, morphine is appropriate. Other pure opioids to consider include hydromorphone, fentanyl, levorphanol, and oxycodone.
- Adjuvant medication may be used to relieve fear and anxiety in the patient as well as for synergism with the previously named medications.

Complementary and Alternative Modalities (CAM)

Forty percent of Americans use complementary therapies (Eisenberg et al.), particularly for conditions such as chronic back pain, osteoarthritic pain, and headaches. Most complementary therapies are used in addition to the appropriate use of analgesics. The benefits of these therapies help to diminish emotional component of pain, strengthen coping abilities, reduce anxiety and provide a sense of control, decrease fatigue, and promote sleep. Ultimately, the use of CAM can enhance comfort and restore hope by returning the locus of control back to the individual.

Relaxation therapies include activities that produce a state of relative freedom from both anxiety and skeletal muscle tension. These can include breathing exercises, imagery, or distraction, in which attention and concentration are directed at stimuli other than pain. Meditation, or focusing one's mind on a single thought, sound, or image in an attempt to promote relaxation and physiologic function, can be helpful. These practices may have limited benefit for individuals with major NCD; however, various modalities can be used with individuals with minor forms of NCDs.

Aromatherapy is commonly used. Lavender, rose, and angelica are reportedly anxiolytic, and clove, cinnamon, sage, eucalyptus, black cumin, and bay leaf reportedly have anti-inflammatory benefits. Black pepper and capsaicin can be used for arthritis pain. Topical clove oil has been used as an analgesic in dentistry for many years.

- Respect the patient's report of pain.
- Be accountable for pain control.
- Advocate for appropriate analgesics to relieve pain.
- Assess pain relief after medicating.
- Listen and provide a caring presence, especially when pain is not immediately alleviated.
- Pain is what the world does to you; suffering is what you do to yourself.
- Reassurance – it is unreasonable to expect life to be pain-free, but I will help you learn how to manage it.

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