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Pain Management & C.A.R.E.®

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President & CEO

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ABSTRACT

Pain management has reached the apex of conflict between what patients have a right to expect and how physicians balance safe pain relief with suffering. With the Opioid Epidemic being attributed in part to the over-prescribing by physicians, the push to find alternatives is greater now than in the past. However, there is little understanding about the experience and mechanisms of pain and its management.

This paper provides an overview of the history of pain theories and their relationship to patients' empowerment in managing their conditions. The dictum that pain is not a disease, but rather a symptom, allows for broader understanding and exploration on a per patient basis. Theories that inform pain management practices, such as Focused Attention, Attention Restoration, and Restorative Environments are also reviewed. In addition, research that points to the patient's pain beliefs, attitudes, and emotional state informing their capacity to self-regulate pain and the effectiveness of pain management strategies is discussed. The C.A.R.E. Channel and C.A.R.E. with Guided Imagery are discussed in the context of current pain management practices and creating an environment of care that is, itself, a means of mitigating pain. This includes concerns about comfort and self-management of pain that extend beyond hospitalization.

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It is a shame that we possess such insufficient knowledge concerning the character of pain—those symptoms which represent the essential part of all bodily suffering of man. (Goldscheider, 1894)

Protection from and relief of pain and suffering are a fundamental feature of the human contract we make as parents, partners, children, family, friends, and community members, as well as a cardinal underpinning of the art and science of healing. (National Institute of Sciences, 2011)

When Rene Descartes declared the separation of the mind and the body in the 17th Century, it was a political move to get science away from what physician and scholar Eric J. Cassell (2004) described in his book, *The Nature of Suffering and the Goals of Medicine*, as “the smothering control of the Church.” Anything non-physical, it was agreed, was spiritual and “belief-based”, and therefore within the religious domain.

Anything “physical” became “knowledge-based” and within the domain of science. It was assumed that the nonphysical could neither communicate with nor influence the physical. And, the opposite was assumed to be equally true.

Since that time, this philosophy, called the Cartesian divide, has both served and limited us. It has allowed science to mature and provide many answers and solutions to our most profound questions about the laws of nature. At the same time, it has encouraged us to dismiss anything that cannot manifest itself in the physical world and be reduced to numbers.

In the 19th Century, Charles Bell developed the Specificity Theory, which grew from Descartes work and that of the Persian polymath Avicenna, who claimed that specific pain receptors transmit signals

to a “pain center” in the brain. Bell’s concept, which encouraged more research, was that pain was not a sensation, it did not use the sensory system. Rather, it had its own pathway, and was generated through perception and emotional context.

These theories, along with others, attracted subsequent research but did not reveal exactly what pain was and how best to mitigate it.

In the 20th Century, however, with brain imaging scans, we can now see which parts of the brain are involved in the pain experience. Counter to Bell’s theory regarding a “pain center,” scans reveal that multiple areas of the brain are involved, indicating that pain is far more complex than a physical reflex.

Fight or Flight

In 1915, William B. Cannon identified “fight or flight” as the initial causal response to fear and pain. He described it as the “response of the sympathetic nervous system to a stressful event, preparing the body to fight or flee, associated with the adrenal secretion of epinephrine and characterized by increased heart rate, increased blood flow to the brain and muscles, raised sugar levels, sweaty palms and soles, dilated pupils, and erect hairs.”

Then, in 1936, endocrinologist Hans Selye put forth the General Adaptation Theory (GAS), which took an extension of Cannon’s theory as it applied when extended over time. He defined the physiology of continuous stress as leading to disease. Selye suggested that the body responds physiologically to anything that threatens its survival by struggling to return to its normal state (homeostasis).

Physiologically, “fight or flight” is the first causal response, but not the only one. The release of cortisol

and adrenaline elevates blood pressure and increases the heart rate. Basically, it puts the body on notice that something is wrong. Sometimes this is enough to fight off the threat. However, if the threat continues, eventually the body is exhausted, becoming susceptible to disease.

Selye connected these physiological responses to external events related to the mind and body, naming it the “Stress Response.” He went further by describing the relationship between mental/emotional perception and measurable physiological/neurological outcomes.

With the onset of pharmaceutical solutions to manage pain, minimize discomfort, and reduce anxiety, the ways in which pain is managed has set aside, if not dismissed, the patient’s inherent power of emotional and cognitive mediation. Further, although current practices aim to alleviate pain, there are still over 75 million Americans who suffer pain 24-hours a day, and whose pain is not understood (NIH, 2010). Thus, comprehending the profound nature of suffering remains a conundrum and a generalizable protocol for pain relief has yet to be established.

Pain Still a Mystery

Today, pain remains as much a human mystery as it did when the ancient Greek philosopher Aristotle proclaimed that pain was not physical, but emotional. It is such a deeply private experience, that our language is often inadequate in being able to accurately describe pain. Even when physiologist Max von Frey’s detailed the Specificity Theory, speculating in 1895 that every organ has its own pain cue and every pain can be assigned to a place on the human body, it made it no easier for caregivers to figure out how to relieve suffering.

The use of drugs has become the overwhelming preference for pain management. But while pain medications are abundant, suffering, which is less tangible than pain, has often been set aside by the medical community because it is subjectively experienced and reported, but not quantified. Furthermore, there is a potential distrust between

patients and physicians when patients claim to be in pain where there is little or no objective physical evidence. This puts the physician deeply inside the conflict between serving patients and protecting them (Scarry, 1985).

The medical community has had mixed success with this invisible and agonizing phenomena of suffering. Medication into unconsciousness may postpone the suffering, but not without side effects, both long and short-term, and risks that can be lethal.

Research has led to a shift in the understanding of the importance of the experience of pain in relationship to the meaning attributed to that pain by the patient. In their work on understanding pain mechanisms, psychologist Ronald Melzack and neuroscientist Patrick Wall (1965) observed that some patients with little injury suffered from extraordinary pain and others with extensive damage, suffered little. This led to the Gate Control Theory, where patients’ capacities to modulate their pain was based on their experience and their genetic makeup.

Shortly thereafter, Melzack partnered with colleague Kenneth Casey (1969) in expanding Gate Control Theory to identify three distinct factors in the experience. These include the somatic, or sensation of pain, the perception of pleasantness or unpleasantness (which can lead to the fight or flight response), followed by “appraisal, cultural values, context, and cognitive state.” These steps influence each other and, together, motivate patients’ coping skills. More than medication, the emotional and cognitive power of perception and meaning-making, together with directed attention, becomes the mechanism for patients to actively participate in their own pain management.

Beyond Medication

The first pain standard from the Joint Commission in 2000 made pain the fifth vital sign, set up a requirement to have patients report their own pain, and made it a clinical requisite to alleviate pain. The belief is that these requirements led, in part, to the U.S. Opioid Epidemic, to which there is now

palpable pushback from the edge of the “as needed” prescription. Thus, we are now returning to a more holistic practice of merging the control patients have over their own pain with medications and a reasonable expectation for outcomes.

With a concern about possible overuse of opioids, The Joint Commission has clarified its position, stating that it does not expect patients to be medicated until they are totally pain free. It has put forth standards pushing more diligent and purposeful practices for each patient, including “identification of psychosocial risk factors that may affect self-report of pain.” In addition, it recommends that patients participate in their own treatment plan, set realistic expectations, and fully understand how the pain may impact how they function. By promoting the use of non-pharmacologic pain treatment modalities, the Joint Commission has brought us back to the importance of the emotional and cognitive factors in managing pain (Baker, 2016).

The Joint Commission also wants practitioners to use their skills and expertise to assess and manage patients’ pain, while respecting patients’ self-knowledge regarding their pain and their condition. However, without taking into consideration the psychosocial context in which patients live (their beliefs, attitudes, and emotional status), the practitioner’s pain management method and practice may not be optimally effective. Returning to the original understanding that pain is not a disease, but a symptom, allows clinicians to delve deeper into the life-world of patients to find meaningful and effective solutions.

The Meaning Response

The role of meaning in relationship to pain has been defined by Melzack and others as attitudes and emotional states having a direct effect on patients’ experiences of pain. Traced to neurological activity, this has put the focus on the whole patient in terms of physical, emotional, mental, and cognitive capacity.

The placebo effect, which has been referred to as the meaning response, is the ideal example of the role of

belief and meaning. The most common understanding is that a placebo is an inert substance administered under the guise of being a medicine, with specific promised or suggested outcomes. Further, it is married to the outcomes of a pharmaceutical such that the patient is set up to expect the same results. A 2015 study published in the *Pain* journal, indicated that between 1990 and 2013, the placebo effect has been shown to increase while the effectiveness of drugs has diminished, putting into question whether pharmaceutical solutions are the best solution for pain (Tuttle et al, 2015).

It reality, a placebo does nothing. It is inert. However, the placebo effect, or a positive response to a placebo, is not caused by the substance, but rather is generated by the patient’s own belief and expectations. In addition, it is the support and encouragement of the caregivers, including physicians and others, that enhance the effectiveness of all treatments, including those related to patients’ powers to heal.

In this case, the placebo is not being referred to as a deception or sham medication, which would be an insult to the patient experience. Rather, it is being considered within the meaning response concept. Medical anthropologist Daniel Moerman points to the meaning response as physiologic or psychological effects of meaning in the origins, treatment, and recovery of illness (Moerman, 2002). He also calls the meaning response an autonomous response, one generated within and by the patient’s own powers to heal.

Hidden Factors of Culture and Gender

Anthropologist Mark Zborowski posited that social and cultural influences determine what he called “pain expectancy” and “pain acceptance.” Pain expectancy sets up a patient to perceive both avoidable and unavoidable pain. Pain acceptance is about the inevitable; something that one must deal with as a result of his or her behavior or cultural mandate. For example, some women opt for natural childbirth as a social or religious rite of passage, while others choose medication. Aside from expectations and acceptance,

however, there is pain apprehension and pain anxiety, both of which impact the character of the pain, such as its intensity, duration, quality of sensation, and the emotional response of the patient (Zborowski, 1952).

Pain beliefs and expectancy inform the experience of pain. And, beliefs are the result of many influences, not merely the current or immediate circumstances. Consequently, any attempt to treat pain without taking into consideration the social, cultural, and personal context of its meaning to the patient, risks being ineffective, making the increase in the use of drugs likely. Acute pain is not far from chronic pain. Thus, at its worse, patients may not only suffer physically, but may be unable to participate in their own lives (Rutledge et al, 2013).

The inequality that exists in pain treatment between white, middle-income patients and those belonging to ethnic minorities, such as Hispanics, has been well acknowledged (Mossey, 2011). The reasons behind this discrepancy are complex. However, social and ethnic influences may inform the very willingness to report pain, request help or medication, and ultimately, make public any level of discomfort.

Gender differences also play a significant role in determining the perception and expectations around pain, as well as the effectiveness of pain management. Greenspan, et al (2007) concluded that, “psychological and social variables powerfully influence pain and can often explain more the variance associated with pain than do biological variables.” The same is true of gender roles in respective expectations and obligations of men and women. This impacts self-report of pain, medication use, and prognosis in dealing with chronic pain. There is not enough evidence to determine sex-specific pain protocols, but considerations for gender along with other cultural issues will improve outcomes (Cepeda et al, 2003).

The existing conflict between women (especially ethnic minorities and the elderly) who report pain, and male physicians who do not take them seriously, has yet to be openly acknowledged or resolved. The American Society of Anesthesiologists reported

(2015) that women are more likely to experience more pain than men. However, they are reluctant to report it and they are often ignored or dismissed.

There is an inherent human response to suffering that offers the window into the universality of being a patient. Pain occurs in a person, not in a group of study participants. The research may summarize results in percentages and general trends. However, there is also to uniqueness of each patient that, when acknowledged, facilitates the partnership between patient and caregiver that leads to recovery.

The C.A.R.E. Channel

Since its inception in 1992, The C.A.R.E. Channel has sought to be a tool of comfort, stress relief, and a positive distraction. It offers multi-modal stimulation, with visual and auditory components, each of which can be experienced on their own and together.

The gaps in treatment, the hours between medication, the days between doctor visits, the fear of the unknown for both patients and their family members, cannot be treated pharmacologically. The environment of care can be described as a series of stressors or comforters: noise/quiet, light/dark, nature elements/technology, space/crowding, social support/isolation.

Malenbaum et al. (2008) found that the patient environment could either increase or lessen pain. They concluded that, “The visual and sensory settings in which we usually treat pain patients probably do little to relieve pain and may exacerbate pain.” Because The C.A.R.E. Channel mitigates some of the most invasive stressors by masking noise and providing access to natural landscapes, it contributes to a positive space in which patients can recover.

Finlay and Anil (2016) found that music enhanced pain management capacities and, by creating a positive valance, helped patients manage the experience of time, which can be oppressive. Happy relaxing music functioned as an anxiolytic and reduced pain. Their findings can be added to the large body of studies that show music to be not only a positive distraction, but also a companion beyond the

hospital to manage chronic pain at home.

Primary among C.A.R.E. Programming objectives is cross-generational and cross-cultural appeal. The music is original and is chosen for its appropriateness to create a healing environment. Because the musical preferences of patients reflect personal history, events, people, and peer identity, the music is unfamiliar, but feels familiar. Popular music or someone else's music preferences may inadvertently cause stress, anxiety, or sadness depending on the circumstances. Therefore, music that is comforting without triggering a negative emotional response allows patients respite from ongoing worries and creates an unbiased, positive musical valance.

Similarly, natural landscapes and nature elements also have universal appeal. The Theory of Biophilia put forth by E.O. Wilson (1993) points to the inherent attraction to nature for all humans. Nature imagery in C.A.R.E. Programming is produced to standards that invite continued engagement, including variety, depth, balanced color and sunlight, and imagery that is easily comprehended. Transitions between scenes are slow, allowing patients to follow and understand what is happening in front of them. Appropriate for patients across the spectrum of acuity, the video production standards are based on studies concerning Biophilic environments and the impact of mediated (broadcast) natural landscapes (Berto, 2014; de Kort, 2006; Kahn, 2008; Mazer, 2014), the relevance of the circadian rhythm to recovery (Kamdar et al, 2016; 2011), and the impact of acuity on cognition and comprehension.

Nature, the perfection of C.A.R.E.'s stunning landscapes, offers not only a distraction from pain and suffering, but also hope, the kind of hope that the enduring life of natural lakes, trees, and other foliage represents.

Nature as Medicine

Ulrich (1984) did a seminal study demonstrating that a view of nature was better for post-surgery cardiac patients than a view of a brick wall, reducing complications by 50 percent and shortening the

hospital stay by one and a half days. Since that study, others have confirmed that exposure to nature can mitigate mental stress and speed recovery into a positive state.

In a study of patients who were struggling to concentrate following breast cancer surgery, Kaplan and Kaplan (1989) showed that time spent in nature was able to restore the capacity for focused attention. From that, they developed Attention Restoration Theory, looking at all forms of attention, from directed attention, or attention by obligation, doing something that requires effort, to voluntary attention or engagement by attraction, and distraction.

Kaplan and Kaplan also found that fatigue could set in following a period of focused attention. This is what motivated studies on how to restore attention, or refresh focus. Being in a natural environment or exposed to nature in some way, was found to be the most effective antidote to attention fatigue.

Being hospitalized demands of patients that they pay attention, to the degree they can, to the unfamiliar surroundings and their circumstances. Patients are in transition and circumstances change continuously. For example, in one day, they can move from home, through admitting or the emergency room, to surgery, to ICU.

Ulrich (1983) and Kaplan and Kaplan (1989) suggested that an environment has restorative potential if four qualitative experiences are available in the human-environment interaction:

1. The sense of being away (being in a different place)
2. Fascination (effortless attention or engagement)
3. Coherence (coherent physical environment of sufficient scope)
4. Compatibility (match between person, purposes and environment)

Natural elements, sunlight, and consideration for the aesthetic balanced with the requisite technologies

in the hospital can make a meaningful difference in patient recovery. Exposure to natural environments or nature elements produces positive mood changes. Exposure to nature elements (either real or mediated) can mediate the negative effect of stress, mitigating negative mood states and at the same time enhancing positive emotions (Berto, 2014).

The effectiveness of multi-modal stimuli increases effectiveness in relieving pain. Kline (2011) found that exposure to nature images together with music was most effective in relieving acute pain than either used alone. The mechanism for this was linked to distraction theory and the intensity of engagement.

Power of Imagination

The power of imagination that allows a viewer to be lifted into a different place is what makes a media experience like The C.A.R.E. Channel both attractive and effective. However, to do that, the content must provide one or more of the four components put forth by Ulrich and Kaplan and Kaplan.

“Fascination is drawn by stimuli that are reasonably complex, coherent, and legible and yet hold some mystery.” (de Kort et al, 2006) This definition makes real why overly familiar images may not be engaging. The variety of natural landscapes provided in C.A.R.E. Programming offer both complexity and variety to qualify for the fascination as defined. And being able to understand and make meaning of the visual journeys featured in C.A.R.E. programming provides the coherence that transforms the physical environment into a healing environment.

The purposeful design of the patient environment has been the basis of nursing practice starting with Florence Nightingale (1860). The C.A.R.E. Channel is produced with due respect for the healing process and empathy for the circumstances of the patient. Thus, there are no aggressive animals, no windstorms, or anything that would be unnerving to patients. Nor are there commercials or any other interruptions.

Removing or minimizing environmental stressors and providing and optimizing positive distractions, such as nature and music, is the key to optimal pain

management. That means if an environmental stressor like noise is removed, something positive, such as music, must be added. External positive distractions mitigate patients’ internal self-generated fear and confusion.

Giving Control to Patients

Today’s patients want to be self-efficient in managing their own conditions. Calling for a new prescription does not put the control back into the patient’s hands or mind or body. The use of complementary therapies are now more prevalent because they are not only effective, but they allow patients to participate in their own recovery, guide their own treatment plan, and become functional according to their own values and preferences (Baker, 2017).

Patients’ capacity to cope with pain, the level at which they are comfortable, if not pain free, is directly related to their mood, emotional affect, and acceptance and trust in their treatment. Studies that have looked at mood and attitude have repeatedly shown this correlation.

Understanding and designing the context in which patients must manage their pain is a key to optimal levels of medication and function. The less medication and the greater sense of control on the part of the patient, the better the outcomes. More so, providing patients with tools that can help them learn how to manage their own pain will lead to better long-term outcomes.

By shifting their attention from their own experience to focus on nature and music, The C.A.R.E. Channel is often used by patients to relieve suffering. It holds the spiritual “hands” of patients and family members during the long hours they are in the hospital or a hospice facility.

There is a financial and human price to pay for the use of pharmaceutical solutions, as well as a cost benefit for the use of alternative methods. Side effects from morphine, oxycodone, Percocet, and other opioids and opioid substitutes are numerous and can lead to death. In the elderly, they are particularly dangerous in comparison to non-steroidal anti-inflammatory

drugs (NSAIDS), including a greater risk of having a cardiovascular event, GI bleeding, four times as many fractures, increase risk of additional hospitalization for an adverse drug event, and, at the worst, death.

Clinical outcomes of using nature imagery and music reflect a reduction in the need for pharmacological intervention in some patients by as much as 29%. (Rudin et al, 2007) Studies also reflect alternatives to pharmaceutical intervention can reduce side effects and hospital length of stay by an average of 1.5 days. (Devine, 1996) Since hospitals are responsible for the cost of additional patient days beyond what Medicare pays, additional savings could be significant. The average daily inpatient cost is \$1,986 (Kaiser State Health Facts, 2015).

The use of non-pharmaceutical pain management protocols carries few risks and is far less expensive. However, more important, it puts patients in control of their own health and provides effective and meaningful tools to be used following hospitalization or any procedure.

C.A.R.E. with Guided Imagery

Guided imagery is a guided narrative that promotes the use of patients' imagination to positively impact their health status, and generate hope and a sense of wellbeing. It is used for general relaxation, pain reduction, to ease the side effects of chemotherapy, and more. The use of guided imagery has been shown to be effective in helping patients reframe the meaning they attribute to their condition. The imagery can address a wide variety of conditions or be limited to the immediate state of the patient regardless of their diagnosis.

A 1997 study (McKinney et al.) using guided imagery and music reported significant decreases in pre- and post-session depression, fatigue, and total mood disturbance and had significant decreases in cortisol level by follow-up.

Because C.A.R.E. with Guided Imagery uses visual, auditory, and cognitive stimulation, it is yet a more complex and comprehensive intervention to assist patients in managing their pain. The visual landscapes

are complimentary rather than literal in its relationship to the narrative. Thus, it engages the imagination through sight, sound, and language.

Where We Are Now

In January 2017, the Joint Commission called for comments on new standards on acute pain assessment and management standards for its hospital accreditation program. Noticeable is the second standard listing that requires hospitals to promote "access to non-pharmacologic pain treatment modalities (this may include alternative modalities, such as, chiropractic, relaxation therapy, music therapy)."

Acknowledging the ways in which pain is experienced and managed by the patient offers multiple methods for assisting patients. Whether using distraction therapy, relaxation practices, guided imagery, or therapeutic tools such as The C.A.R.E. Channel, patients come with their own arsenal of personal, physical, spiritual, and emotional strength. The inherent bond of mind and body is key to relieving pain and mitigating suffering.

Studies have found that patients' capacity to manage their own pain is directly related to how they perceive their own ability to control their pain. A 2008 study (Keefe et al.) concluded that self-management of pain succeeds in part because patients believe that they can control their own pain. The National Institute of Medicine stated in 2011 that "Pain beliefs correlate with outcomes."

On the other side, "Pain Catastrophizing," which occurs when patients exaggerate its threat and believe they cannot control it (Keefe et al, 2000), makes it difficult for patients to manage their pain. Therefore, creating a healing environment, offering methods that empower patients' own restorative capacities, and engaging with patients in understanding their individual circumstances is the optimal systemic process of addressing acute and chronic pain.

In his book, *The Culture of Pain*, David Morris points to the long trajectory, from Plato to opioids, that

moved pain from being an emotion to being a disease deserving of its own specialty and clinic. And yet today, the treatment for pain considers first the physiology, the neurological pathway to and from the brain. Patients have come to expect (and demand) immediate relief without engaging in meaningful dialogue to address the complexities that contribute to pain and suffering. The most powerful pain management tool is the patient him/herself.

Rather than conceptualizing the mind-body connection as being forced or theoretical, the unification of physical, emotional, spiritual, and psychosocial factors defines the whole person experience and holds the key to pain management. All evidence and studies around pain suggest that pain is an experience to be managed in its many dynamics by multi-modal methods with patient experience being at the center.

By providing a positive distraction and an experience that restores patients' sense of beauty and hope in a life worth living, The C.A.R.E. Channel is a vital tool in raising the threshold of pain. Integrating C.A.R.E. Programming into pain management programs, offering C.A.R.E. with Guided Imagery in the hospital pre- and post-surgery, and having C.A.R.E. Connect for patients to access this therapeutic programming at home fulfills the promise to support patient self-care and help them manage their own pain a reality.

Conclusion

Pain is not injury; the quality of pain experiences must not be confused with the physical event of breaking skin or bone. Warmth and cold are not "out there"; temperature changes occur "out there," but the qualities of experience must be generated by structures in the brain. There are no external equivalents to stinging, smarting, tickling, itch; the qualities are produced by built-in neuromodules whose neurosignatures innately produce the qualities. (Melzack and Katz, 2004).

The patient experience of pain lives uniquely within each patient, not within the hospital protocols, the physician's judgment, or a randomly controlled trial summary that reports what millions of others may

have felt.

Furthermore, pain is complex and involves more than the physical, more than the emotional, and more than any one factor. Pain scales do not address cause, nor do they offer insight into how to help any patient. Actually, to reduce a patient's report of pain to a number from 1-10 ignores the nuances of suffering. Therefore, pain management must itself be aware and respond to this complexity without reducing pain management to a single injection or prescription.

As described in the long history of pain theories, there remains no meaningful definition of pain that can be applied randomly across whole populations. However, there are human qualities and capacities to modulate pain that exist within each patient.

The mind is where pain is experienced and where it takes on meaning. Non-pharmaceutical mind-body methods can minimize the use of pharmaceutical solutions and engage patients in their own recovery. And, while the meaning of pain is influenced by many factors, the experience of pain, in the moment, is greatly affected by the environment of care.

The C.A.R.E. Channel and C.A.R.E. with Guided Imagery are effective methods to engage patients, mitigating their pain while reducing stress. These therapeutic tools help create a soothing, uncomplicated space where patients not only release tension, but where beauty dominates rather than pain and injury. When integrated into pain management strategies, medication may be reduced and patients will have learned how to help themselves.

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