INTRODUCTION

Pain is a multidimensional experience that often expresses itself as reduced quality of life and functional ability. The biopsychosocial model of the assessment and management is increasingly considered to be the best model. Interdisciplinary pain rehabilitation programs have been shown to be very effective in improving pain mood and function in patients with chronic pain. A meta-analysis of 65 studies of multidisciplinary pain rehabilitation showed significant improvement in function. Another study of 27 randomized controlled trials (RCTs) demonstrated greater effectiveness of this approach compared with no treatment, standard treatments, or nonmultidisciplinary treatment. This improvement has been shown to persist for up to 13 years.

Although these programs are more resource intensive initially, interdisciplinary pain rehabilitation programs (IPRPs) have been shown to be effective in reducing the use of pharmacologic treatment, surgeries, implantable pain devices, and physical therapy. Among all pain-related treatments, this is the only approach that has consistently been shown to be associated with return to work, reduction in hospitalizations over a 10-year period, and meaningful, sustained improvement in pain and function.

This article will discuss the approach and principles of chronic pain rehabilitation in an inter- or multidisciplinary environment. It will also highlight the common practices across some of the chronic pain rehabilitation programs in the United States.

COMPONENTS OF IPRPs

There is no consensus about what constitutes IPRPs. The terms interdisciplinary and multidisciplinary may be used interchangeably. Generally, these programs consist of providers from multiple backgrounds, including pain medicine, other medical backgrounds, psychologists, physical therapists, occupational therapists, addiction counselors, vocational rehabilitation specialists, and others, working together on a common treatment plan for every patient. This coordination and common treatment goal setting differentiate these programs from routine fragmented or unimodality care. The duration of programming can vary. Although patients in some programs are in rehabilitation 8 to 9 hours a day for 3 to 4 weeks, in others, patients attend 3 to 4 hours, a few days a week, for a few months. Often, patients are treated in groups.
The primary approach is addressing the factors that lead to disability and suffering. Pain behaviors are discouraged, and wellness behaviors are encouraged. Patients are usually in a stage of acceptance of their pain. The treatment is based on the physical and psychological needs of the individual patient. The flavor of the program can vary depending on the expertise of the providers. Although some providers may be pharmacologically biased, others may lean more toward psychological or physical therapy techniques. Nevertheless, the presence of all of these approaches in a coordinated fashion is common to all such programs.

**PSYCHOLOGICAL FACTORS THAT AFFECT PAIN**

**Pain Catastrophizing**

Multiple studies have shown that catastrophization leads to a heightened pain experience and is associated with poorer treatment outcomes. Catastrophizing is considered to be attribution of magnified negative meaning to the experience of pain. For example: “my nerves are being pulled,” or “my back was broken” may be used to describe sciatica or back pain, respectively. Catastrophization can be contagious. Catastrophization by family members has been associated with the same in adults and children.5

**Mood and Affect States**

Like depression, anxiety and anger have been shown to impact the pain experience and treatment outcomes.6 Thirty percent to 60% of patients with chronic pain have comorbid depression or anxiety.7

Acceptance is an important part of chronic pain rehabilitation. Patients entering these programs do better when they accept their pain and are looking to work on managing their lives better, reducing its effect on their function and moving away from a sick role to take on more appropriate role with their families, work, and friends.8 Patients who are looking for more tests and surgeries to cure their pain may not be appropriate candidates for treatment in this environment. These principles are applicable to the patient and their families. The basis of behavior modification is operant conditioning. Behavior rewarded is behavior repeated (Skinner), and unrewarded behaviors tend to get extinguished. By converse analogy, most behaviors can be explained by looking for the incentives driving them. Pain-related behaviors like somatic conversation, wearing dark glasses, reclining, avoiding social contacts, and moaning can be replaced with wellness behaviors by changing the incentives.

Behavior modification in chronic pain rehabilitation occurs in the context of patients’ interactions with their treating team, including psychotherapists, nurses, physicians, and physical and occupational therapists.

**Education**

Education is the cornerstone of treating chronic pain. Helping the patient to differentiate between hurt and harm and addressing fear avoidance is an important first step of the treatment process. Patients often carry the acute pain construct with them while living with chronic pain and believe that they need to protect their body to avoid further damage. The experience of increased pain with movement leads to splinting of the body or part of it in the hope of recovery and the desire to limit perceived damage. This may often also be encouraged by health care providers who may be fearful of having patients push through their chronic pain in fear of structural damage. The failure to re-educate and rescind postoperative instructions may lead to the patient continuing with significant restrictions for many years, leading to deconditioning and deterioration (patient continuing to follow a 5 lb carrying restriction 5 years following spine surgery despite a solid fusion).

The treating team can play a critical role in identifying the misinformation and re-educating the patient and his or her family. Education can lead to a perception of increased control of disease, resolution of depression, and promotion of health-promoting activities like exercise and relaxation.

Education includes not only the patient, but also his or her family. There is ample evidence that patients do better when families are engaged in the rehabilitation process.10,11 Families may respond to the patient’s pain and disability in a few different ways. Some respond by enabling them: protecting them, taking over their responsibilities, lowering expectations in terms of work, chores, financial role fulfillment, and intimacy. Others may become angry and reject the patient, questioning the credibility of the patient’s experience. Interestingly,
both these approaches typically lead to the patient being isolated and left out of family gatherings and recreational activities. Evidence suggests that rewarding pain behaviors by families will lead to an increase in them, and ignoring them while encouraging activity can lead to a reduction. Overprotecting and suggesting rest will lead to a poorer outcome. Families are recommended to support and validate the patient’s experience and move away from the role of a caretaker or nurse and return to a more appropriate relational role (spouse, child).

Cognitive Behavioral Therapy

One’s thoughts, behaviors, and feelings are interlinked. Maladaptive thoughts can lead to negative feelings. Cognitive behavioral therapy (CBT) is a modality of therapy that is designed to address this maladaptive pattern. The core focus on CBT is to address maladaptive thoughts and beliefs about the pain experience to enable the patient to change the behaviors related to it.

CBT has one of the most robust outcomes in chronic pain management. Multiple studies have shown improvement in pain, mood, and function lasting up to 5 years. CBT forms one of the core therapies of chronic pain rehabilitation.

Relaxation Training, Guided Imagery, and Biofeedback

The role of anxiety and stress in the pain experience is well known. The experience of pain is amplified by stress and emotional distress. Relaxation training can take various forms like progressive muscle relaxation, guided imagery, and deep breathing and biofeedback. Biofeedback is a method of monitoring physiologic parameters including heart rate, sweating, muscle tension, and brain activity. Studies have shown inconsistent efficacy of biofeedback to improve pain and function, although there is an understanding that provider skill is an important factor in outcome.

Addressing Affective States

Depression and anxiety are conditions that are over-represented in the chronic pain population compared with the general population, with a prevalence of both conditions between 30% and 50%. A systematic review concluded that depression is more likely to be a result of chronic pain, although chronic pain may develop in those with a predisposition to depression. CBT has been shown to be effective in treating mild-to-moderate depression and when combined with antidepressants, it is more effective than antidepressants alone in moderate depression.

Pharmacologic Strategies

The pharmacologic management of depression has been described in the chapter on multymodality treatment of pain. Various tricyclic antidepressants and serotonin nor-epinephrine reuptake inhibitors have been shown to be effective in the management of chronic pain. Often, a combination of antidepressants (with an analgesic effect), antiepileptics, and other agents including tricyclics, is used to achieve adequate analgesia.

Opioids

Opioids can be a useful modality of treatment in pain rehabilitation. Many patients who are referred to pain rehabilitation programs have often failed opioid therapy. Over the past few years, evidence has emerged that discontinuation of opioids in interdisciplinary pain rehabilitation environment resulted in improvement in pain mood and function that is sustained over time. IPRPs provide an ideal environment for the discontinuation of opiates in patients with chronic pain, as the concurrent use of physical and occupational therapy, psychological strategies to improve pain coping, and reconditioning replaces the opiates as the coping strategy and avoids the relapse that is seen so often in patients who only undergo detoxification.

Physical and Occupational Therapy

Active modalities increase flexibility, endurance, and strength. Psychological techniques can be used to help patients tolerate exercises better and self-regulate exercise-induced pain.

Occupational and Vocational Therapy

Return to home, work, and leisure activities is important to prevent relapse of pain behaviors. Patients who have vocational goals to accomplish tend to do better in the long term.

SUMMARY/DISCUSSION

IPRPs have the most evidence in literature for sustained pain and function improvement. The initial expenses and unfavorable reimbursement environment have made their availability scarce. As medicine moves to a more evidence- and outcomes-based practice, the expansion of these programs is inevitable.

REFERENCES

1. Gatchel RJ, Okifuji A. Evidence-based scientific data documenting the treatment and cost-effectiveness of