SPECIAL ISSUE

Biofeedback and Integrative Medicine in the Pain Clinic Setting

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Keywords: biofeedback, hypnosis, chronic pain, group therapy, integrative medicine

Formal pain management clinics have now existed for more than 30 years and from the beginning have incorporated integrative approaches to assist patients suffering from chronic pain conditions. This article will describe the development of these programs and the role that biofeedback and other psychosocial interventions have played in this development. Case vignettes and interviews are used to demonstrate the value of integrating biofeedback and other integrative health practices into a formal pain management practice.

Michigan Pain Consultants (MPC) was founded in 1984 and from the beginning sought to incorporate a more comprehensive approach to pain management than the strictly medical, solely psychological, or standalone physical rehabilitation programs offered at the time. Although many communities now enjoy the availability of a range of pain management programs and services, the fields of pain management and health psychology are still very young. Dr. Fred Davis and Dr. Mark Gostine, the physicians who founded MPC and later supported the creation of Michigan Behavioral Consultants (the firm providing the psychological and biofeedback services within MPC), began with the basic treatment and business model of, “Do what’s right for the patient and the rest will fall into place.” Thirty years later, the practice now sees more than 40,000 patient visits per year, suggesting the wisdom of this approach.

As he discussed the evolution of the pain practice, Fred Davis explained, “Mark [Gostine] and I realized very early that injections didn’t make people feel better about themselves and didn’t help people understand how the pain affected their lives. Medication didn’t teach people skills or improve social interaction.” At the same time, the outcome of psychology-only pain programs showed limited success, as was true for the physical rehabilitation programs that tried to go it alone. According to Davis, “We embraced the interdisciplinary approach and learned everything we could about all aspects of pain. We often joked that there was nowhere we wouldn’t travel and no one we wouldn’t have dinner with to learn about pain.”

What’s in a Name?
The term integrative medicine enjoys a family tree that goes back to terms such as alternative medicine, complementary medicine, and holistic medicine, to name a few. From a program perspective, terms such as multidisciplinary, interdisciplinary, and transdisciplinary were promoted. The multidisciplinary groups were the first to recognize that no single specialty in pain management had the “silver bullet” to cure all problems and so created clinics and inpatient programs that included psychology, physical therapy, occupational therapy, and other specialists in the same physical location. For the most part, these specialists functioned as private practices with little interaction or communication among themselves. This situation improved with the creation of interdisciplinary practices, which featured increased communication and an increased awareness and appreciation of the contributions of other providers. Although it probably cannot be said that these providers spoke a common language, they did at least become fluent in each other’s languages to facilitate communication. The aspirational transdisciplinary practice is a theoretical model in which every provider would be expert in all areas of pain management to the point of being interchangeable. Licensing laws and scope-of-practice rules would prevent this in practice, but the concept of a fully integrated team with a common skills set remains attractive.

Victor
From the very beginning, biofeedback has been included as a tool available to patients and providers of MPC. Victor, one of the early patients of MPC, illustrates the importance of access to this modality. Victor was a 32-year-old gentleman who was being seen for chronic neck and right shoulder pain that began with a car accident 3 years earlier.
He continued to work as an insurance actuary but reported increased difficulty with pain, concentration, and sleep. Although he had no obvious psychopathology, his pain physician suggested that psychology be included in his program to assess his adjustment and coping skills.

Victor presented with a mildly flattened affect at his initial assessment but was polite and cooperative. He explained that since his accident, he had completed multiple x-rays and other diagnostic tests (magnetic resonance images were not yet available) but that no specific underlying cause for his pain had been determined. Excessive muscle tension had been suggested, but Victor felt that he could relax his muscles well, noting that he had learned Yoga in a summer sports camp while in high school. On completion of the initial history collection, Victor agreed to participate in a brief guided-imagery exercise while biofeedback sensors were placed on his cervical paraspinals and upper trapezius regions to affirm his ability to relax. Initial surface electromyography (SEMG) levels were in fact quite low. During the guided imagery of a peaceful beach scene (warm sun, gentle waves, etc.), muscle tension levels began to skyrocket. Victor was showing no outward distress, but he was asked to open his eyes and to describe his reaction to the imagery. He then stated, “My best friend drowned 2 weeks ago. I was back at the beach watching as they pulled him out of the water.”

This session with Victor occurred more than 25 years ago, but it continues to reinforce the value of simple psychophysiological monitoring. It turned out that Victor was highly reactive psychophysiologically. Although he could relax well intentionally, he seemed completely unaware of his excessive muscle tension when emotionally aroused. With active biofeedback training, Victor was able to improve his recognition of his own muscle tension and use his relaxation skills in a much broader range of circumstances. Had the initial guided imagery exercise not triggered his strong emotional response while his muscle tension was being monitored, he and his therapist may have concluded that muscle tension was not a factor in his pain experience and missed a key element of his eventual recovery. Of course, a second lesson learned from this experience was to allow individuals to choose their own peaceful imagery.

**The Problem Isn’t All in Your Head, but the Answer May Be**

When patients such as Victor are referred for a behavioral medicine consult, they are often anxious and/or suspicious of the intent of the referral. The most common concern can be expressed as, “Does my doctor think that my pain is all in my head?” After some basic reassurance, the patient at MPC is often told, “The problems aren’t all in your head, but the answers may be.” The core goal when treating chronic pain patients is to encourage a reconceptualization from a strict medical model—that some “thing” is wrong with me and the doctor has to fix it—to a model of pain perception and self-regulation. A 50-50 law is often suggested: 50% of your recovery may come from the field of medicine such as medication, surgery, and things only your doctors can do. The other 50% of your recovery will come from self-regulation, such as diet, exercise, and skills that only you can provide. This shared responsibility model is promoted by all providers in the pain clinics.

Psychopathology is, of course, sometimes a factor in a patient’s symptom package. Vicky was a blind, 37-year-old woman referred for biofeedback by her pain physician because of chronic daily headaches. The physician added, “If you’re going to use hypnosis, check out her blindness. Her eyes seem to track when they shouldn’t.”

Vicky had been legally blind for more than 3 years and was receiving Social Security Disability, partially because of her blindness. Her medical records included reports of several ophthalmologists confirming her diagnosis. Her headaches were in both the frontalis and occipital regions, daily and severe. Medication and injections had provided little relief.

During the initial evaluation, Vicky was introduced to the concept of self-regulation and to the use of biofeedback and hypnosis to promote self-regulation. When she agreed to a demonstration of these techniques, she was given the suggestion, “It’s very possible that while in the state of hypnosis your eyes will start working for a short time. The effect won’t last long but wouldn’t it be nice to see again?” With electrodermal and SEMG sensors attached, Vicky appeared to go quickly into a deep state of hypnosis and along with suggestions related to pain reduction, she was told, “Please open your eyes now and tell me what you see.” On opening her eyes, she looked around the room and said, “It’s a shame this isn’t going to last very long!”

Vicky appeared calm and unsurprised by the return of her vision (unlike her therapist) and agreed to wait while a video camera was set up so that she could be interviewed, still in the state of hypnosis and while she was able to see. On camera, she described almost complete absence of her headache and an imperfect vision where she could see “the top half of everything but not the bottom.” By moving her head, she could see and recognize everything in the office. The suggestion that her vision would be only temporary this first time was reinforced, and on realerting from hypnosis, she had full memory of being able to see but
could no longer see. She later reported that her headaches remained minimal for more than 24 hours.

Several points should be made about this initial session. First, a basic caution was used related to symptom removal. Because symptoms often have meaning, until that meaning is known or understood, some protection can be given to a patient by suggesting only a brief relief from the symptom. In this case, Vicky’s brief ability to see answered a core issue: her eyes (and brain) were capable of vision, and her blindness was almost certainly psychosomatic. When Vicky agreed to be videotaped while able to see, a second question was answered: She was not consciously faking her blindness for secondary gain. It seemed clear that although her eyes could see, her conscious brain did not know that she could see.

A similar case was reported of a German soldier who was assigned to participate in a firing squad during WWII. He awoke the next day completely blind in his right eye and unable to take part in the firing squad (Kluxen, 1995).

Vicky was followed for many years in the pain clinic because of her ongoing headaches; however, her eyesight returned to normal over the next 1 to 2 years. A key to her recovery was a hypnotic age regression to a memory of when she first became blind. Unlike the vague history contained in the medical records, Vicky recalled being hit by her husband, resulting in an instant loss of vision. A second immediate result was an extremely remorseful husband who became a full-time caretaker for his wife who could no longer drive, clean the house, do the dishes, or engage in most other activities of daily living.

Once this memory was recovered, psychotherapy allowed her to cope more effectively with her trauma and to go of the psychogenic blindness. Her headaches did not appear to be much improved by psychotherapy; however, with physical therapy, she made significant improvement. Although her progress was relatively slow, the combination of a pain physician, a psychologist, and a physical therapist helped a 37-year-old blind woman with daily severe headaches become a 49-year-old, now divorced, fully independent individual whose headaches have decreased in frequency, intensity, and duration.

**You Are Not Alone**

Pain is, by its nature, a very lonely experience. Despite the common expression, no one really knows how you feel. Early in the formation of the interdisciplinary team, it was observed that patients who were often hesitant to talk in the physician’s or psychologist’s offices were very engaged with other patients while doing physical therapy exercises on the gym floor. This observation of the power of social interaction led to the creation of group therapy sessions for patients dealing with pain and depression. These group sessions have now been offered weekly for more than 25 years at one or more of the pain clinics.

The group therapy setting has proved to be a powerful opportunity to introduce a number of integrative therapies. Each group begins with a brief meditation and check-in from each patient, therapist, and student in attendance. Often, patients are asked to bring in their favorite music to play for the group. Guest speakers are brought in on occasion to discuss nutrition, the benefits of massage therapy, biofeedback, or hypnosis. Patients discuss their own best practices when it comes to coping with pain and lists are often created that include laughter, prayer, music, dancing, exercise, pets, and grandchildren. A group in one clinic was very proud that the only time a physician interrupted the group was when he stuck his head in and asked if they could “keep it down.” “All that laughter is disturbing my patients.” The idea that a “pain and depression group” should be yelled at for laughing too much kept the laughter going.

The group itself can have a powerful transformative effect on new group members. One woman came to her first session with sunglasses, a walker, and a leader dog. As one participant evaluated later,

The only thing she was missing was the sign that said “Hey everybody, look at me!” During her check-in, this woman displayed a very negative attitude, with complaints about her doctor, family, neighbors, and the state of her life. She expressed that everything wrong in her life was someone else’s fault, it wasn’t fair that she couldn’t do anything, and no one would help her. The group listened politely but gave very little feedback. The next woman in the circle began by reporting, “I was able to stand long enough to wash my dishes last night.”

This woman immediately received congratulations and praise from her fellow group members. The new woman, not to be outdone, blurted, “I do my dishes some nights, too.” Rather than show annoyance at this play for attention, one woman in the group recognized the opportunity and gave her the attention that she had been seeking. “That’s great! Some people don’t realize how hard we all have to work to take care of ourselves.” The transformation was immediate: The new group member who couldn’t get attention by complaining and whining was able to get attention by positive statements of reports of appropriate activity. The group supplied this positive
reinforcement in a way that may not have been possible in an individual psychotherapy session.

Over the years, the therapeutic groups have enjoyed the opportunity to give back what their members feel is a gift that they have received in group therapy. One group volunteered to present a Panel of Pain Patients at a local medical conference “to let the doctors know our point of view.” Another group created a videotape of interviews with patients giving advice for new doctors in pain management. Suggestions included advice to “Listen!” “Don’t have your hand on the door handle when you’re with me,” and “Start from the beginning, don’t assume we know all the big words you use.”

Assessment and Outcome
Dr. Kevin Fitzgerald, a pain physician for more than 30 years, joined MPC in 2003. He remains a strong advocate of the use of biofeedback, especially after using it himself while coping with some serious cardiac problems. He offered,

Dr. Fitzgerald noted that it’s interesting now that MPC has extensive outcome measures to assess the impact of treatment. He asserts,

In the end, when looking at quality-of-life indices, patients talk about enjoyment, just being able to enjoy life. You’ll see marked improvement in quality of life indices, but when you ask them to rate their pain, their pain rating doesn’t change much. However, they’re calling the nurses less, they’re asking for medication less, they need to come to the office less for treatment. To me, that’s the magic, that’s the mark, that’s when you know your patients are doing better. Mind, body, spirit. It’s all about balance!

Reference

When I bring a patient in, we initially do a Prism Health Assessment™ (PHA), a patient self-assessment instrument. The PHA includes not only questions related to functional performance but also psychosocial indices such as anxiety, depression, life control, anger, relationship, and both perceived and objective social interference. Looking at all those indices we can start to see what the patient is suffering from behaviorally, and what part of their body they’re not doing well with. We can also look at the same issues with their physical abilities and even their risk of opioid or narcotic use.

The patients that seem to have the most difficulty are the ones that suffer from depression and anxiety and actually, if you ask me which of those two is more difficult to treat, it’s anxiety because it doesn’t appear that any of our medication for anxiety is very helpful. If their anxiety is still problematic, they never seem to get better. That’s where biofeedback has become hugely helpful in my practice. In fact, without using the biofeedback portion of our treatment, my patients just don’t get better no matter how intensively we treat them with medications, interventional treatment, or physical therapy. It’s really key to get them to do the biofeedback.