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The Use of Hypnosis In Controlling Cancer Pain

David Spiegel, M.D.

Pain is frequently, although not inevitably, associated with cancer. The degree of pain depends on a variety of factors, of which the site and extensiveness of the primary tumor and metastases are but two. The pain experience of cancer patients—and, therefore, to a great extent their quality of life—is also influenced by such psychological factors as mood disturbance and beliefs about the disease and its relation to pain.

This paper examines the role of psychological factors in the experience of cancer pain and discusses the rationale for incorporating hypnosis into a pain management program.

The Role of Hypnosis in Controlling Cancer Pain

Pain is a combination of physical disability and psychological distress. This two-component theory of pain was solidly established in 1956 by the classical work of Beecher.¹ He compared the need for analgesic medication among soldiers wounded at the Anzio Beachhead in World War II with that of a group of surgical patients with trauma of equal or less severity. The surgical patients demanded consistently more analgesic medication, leading Beecher to theorize that the psychological

significance of the injury—that is, what it meant to the patient—was an important component in the amount of pain it caused. To a wounded soldier, the pain was a signal that he was still alive and on his way out of danger. To a surgical patient, however, the pain represented disease and life disruption.

The diagnosis of cancer carries obviously distressing implications: the possibility of physical degeneration, pain, and death. These fears persist despite the improving prognosis for many kinds of cancer. By contrast, cardiovascular diseases with comparable threats of morbidity and mortality and a more uncertain course are often perceived more positively. This may be related to the fact that changes in diet, activity, and smoking behavior may affect life expectancy relative to heart disease. Patients with heart disease, therefore, feel that they can do something to control their state of health, even if belatedly.

The personal sense of helplessness engendered by a diagnosis of cancer may well compound the pain and suffering of cancer patients. A vicious cycle is established: The pain is a reminder of the presence and spread of the illness, and the ensuing sense of despair only reinforces the pain experienced. The comparison with cardiovascular disease underscores the importance of encouraging cancer patients to feel as much in control of their illness and its treatment as possible.

Pain does not always accompany can-

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cer. Estimates of the percentages of metastatic cancer patients who report no pain range from 19 percent² to 25 percent³ for those dying of cancer, to 32 percent⁴ and 44 percent⁵ for patients with metastatic carcinoma of the breast. The particular site of metastasis was not a significant predictor of pain; in the study by Front et al,⁴ fewer than one third of the documented metas-

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tases were associated with pain. In a study by Spiegel and Bloom³ of 86 women with metastatic carcinoma of the breast, three factors were found to be significantly associated with pain:

- Request for or use of analgesics.
- Mood disturbance as measured by the Profile of Mood States (POMS) scale.⁶
- Belief that the pain indicated a worsening of the illness.

These three factors accounted for 50 percent of the variance in the pain experience. By contrast, proximity to death and site of metastasis were not significantly associated with pain.

There is other evidence in the literature that psychiatric disturbance in patients with organic illness is associated with more pain.^{4,7,8} This is probably a reciprocal feedback process in which pain and illness lead to anxiety and depression, which in turn undermine a patient's ability to manage pain. For some patients, pain is a somatic metaphor that signals anxiety. For example, one woman who denied the importance of the recurrence of her reticulum cell sarcoma complained bitterly of severe pain in her left side.⁹ When she was encouraged to discuss her fears about the disease and its effects on her son, the pain spontaneously disappeared. Anxiety and

depression may amplify pain signals, which in turn reinforce this kind of psychological distress.

Hypnosis

In ordinary awareness, there is a trade-off between attention to ambience and focus, analogous to the difference between a camera's wide-angle and telephoto lenses. The hypnotic state can be thought of as a shift in concentration in the direction of high-resolution focus at the expense of ambience: a state of aroused, attentive focal concentration with a relative suspension of peripheral awareness. The experience in everyday life most analogous to hypnotic concentration is that of becoming so absorbed in a novel, play, or movie that one enters the imaginary world and experiences it as if it were real, suspending awareness of ordinary surroundings. Indeed, there is evidence that individuals who are more prone to such absorbing and self-altering experiences are more highly hypnotizable.¹⁰

A variety of instructed alterations in the usual perceptual, motor, and cognitive experience can occur in a hypnotized state:

- A relative sense of involuntariness in motor function—for example, a hand feeling as if it is floating up in the air all by itself.
- Alterations in perception—such as tingling, numbness, lightness, or heaviness in an extremity.
- Reorientation of sense of time—for example, when a hypnotized person regresses in time to experience living in the past as if it were the present.
- A relative suspension in critical judgment, sometimes referred to as "trance logic."¹¹
- Dissociation, in which hypnotized individuals compartmentalize various aspects of their experiences—for example, automatic writing, in which they find themselves writing without conscious control.¹²
- A relative openness to structured input from others, in the past referred to as "suggestibility," actually based on the in-

tensity of attentional focus and suspension of critical judgment.

Hypnotizability

Research shows that hypnotizability is a stable and measurable trait.^{13,14} About two thirds of the normal adult population are at least somewhat hypnotizable, and five to 10 percent are highly hypnotizable. The peak of hypnotizability in the human life cycle occurs in the preadolescent years, with a gradual decline through adulthood.¹⁵

The concept of hypnotizability as a trait has important clinical implications. Some individuals simply cannot be hypnotized; it makes sense to select other treatments for them. Given that hypnosis is a simple shift in concentration and that hypnotic induction involves tapping this capacity, long-winded inductions are unnecessary. Those individuals who have the ability can learn to shift quickly into hypnotic concentration, and extensive exhortations will add relatively little to their response. Hypnotic inductions can be made more useful and efficient by converting them into deductions in which the clinician systematically assesses the patient's capacity to enter hypnosis after first showing the patient how to do so. Several clinical scales are available for measuring hypnotizability in this fashion.^{14,16}

Misunderstandings about Hypnosis

Several misunderstandings about the hypnotic state persist. Despite the Greek root *hypnos*, meaning sleep, the hypnotic state is not sleep, but rather a form of aroused concentration coupled with physical relaxation. Thus, putting someone to sleep is time-consuming and irrelevant to inducing trance.

Persons in the hypnotic state are not controlled by the hypnotist. They are open to having their experience structured by the hypnotist, but they can choose whether or not to cooperate. The hypnotist projects nothing onto patients but is, rather, in the role of Socratic teacher, helping patients discover and explore their capacity for experiencing hypnosis. All hypnosis is really

self-hypnosis, and the trance state can be used most effectively by teaching patients how to use their own hypnotic capacity rather than teaching them to rely on the doctor. Indeed, a hypnotizable person can enter a trance state whether or not a doctor is present.

Physicians often worry that hypnosis involves significant risks to patients. Actually, the phenomenon is not dangerous and has fewer side effects than even the most benign medications. The trance state is simply a natural form of concentration. The easiest way to avoid any possible difficulty is to be straightforward with patients about using hypnosis, offering them a choice and never tricking or coercing them into it.

The doctor should be no more interested in using hypnosis with the patient than the patient is in experiencing it. In general, the occasional paranoid patient, who may have delusions about "mind control," will simply refuse such a procedure, and in fact such individuals are generally not hypnotizable.¹⁷

Because an occasional seriously depressed or suicidal patient may view a failure to experience hypnosis as one additional burden to be borne, it is important to treat depression as a primary problem when a patient is suicidal or shows somatic signs such as early-morning waking or hypersomnia, diurnal fluctuation in fatigue, and changes in appetite or libido in conjunction with dysphoria, hopelessness, and guilty ruminations. These problems are exceptions, however, and in general hypnosis is well accepted by patients, especially when offered as instruction in self-hypnosis.

Methods for Employing Hypnosis In Pain Control

Choosing Appropriate Patients

To treat cancer pain using hypnosis, two major factors must be taken into account: the severity of the physical stimuli and the patient's cognitive resources. Some types of physical pain are so overwhelming that opportunities for psychological interven-

tion are limited. Thus, patients with acute hollow organ obstruction or widespread painful metastases are likely to require somatic intervention. Also, patients in the terminal phases of their illness who suffer from extreme fatigue or impairment of concentration due to brain metastases or hepatic decompensation will not be able to mobilize the control of concentration nec-

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essary to experience hypnosis. These patients should be managed with appropriate doses of analgesic medication.

One other relatively refractory group are those who experience substantial secondary gain as a result of the pain. The pain becomes a roundabout way to communicate a need for help and support from the professional staff, family, or sources of financial support. In such a situation, pain relief cannot be expected until these issues are addressed and, if possible, resolved.

The majority of cancer patients, however, suffer pain that is less than overwhelming and are neurologically clear, mentally alert, and strongly motivated to improve functioning. It is these patients who merit a trial of pain control techniques employing hypnosis, and a substantial proportion of them are likely to benefit. Many patients with well-documented physical lesions can respond to such psychological approaches, underscoring the fact that control of pain by psychological means in no way indicates that the patient does not experience real pain. Indeed, patients with a strong overlay of secondary gain may be relatively resistant to such psychological pain-management techniques, while those with considerable pain but high motivation to overcome it may respond well. It is important, therefore, to structure the hypnosis encounter in such a way that the ability

to improve is not equated with hypochondriasis. Pain is always a combination of both psychological and physical factors.

Measuring Hypnotizability

It is useful to start the hypnosis session with a measure of the patient's response to hypnosis, using a scale such as the Hypnotic Induction Profile (HIP)¹⁴ or the Stanford Hypnotic Clinical Scale (SHCS).¹⁶ This emphasizes to the patient that the doctor is not doing something to the patient but is rather helping the patient evaluate and use his or her hypnotic capacity.

As a group, patients with chronic pain are hypnotizable. In one study, for example, their mean HIP hypnotizability scores were found to be very similar to that of patients who sought help for smoking and phobias.¹⁵ While patients with more severe psychiatric disturbances not uncommonly associated with chronic pain, such as depression and anxiety, may be less hypnotizable than normal,¹⁷ the individual assessment provides empirical data on which to plan a treatment strategy.

There is no point in trying to use hypnosis with the one third of patients who are not at all hypnotizable; other approaches can be employed, however, such as the use of psychoactive medications or biofeedback. When the clinician has been able to determine a patient's hypnotizability as low, moderate, or high, the treatment method can then be tailored to the patient's specific degree of hypnotizability.

Hypnotic Induction

Hypnotic induction need not be a complicated procedure. The patient can be taught to enter a state of self-hypnosis as part of the formal induction procedure. This makes the patient more of a collaborator in the treatment; it is widely understood that issues of being in control are of prime importance to patients with cancer.^{19,20} Patients may be told the following:

"The way to go into a state of self-hypnosis is simply to count to yourself from 1 to 3. On 1, do one thing: look up. On 2, do two things: slowly close your eyes,

and take a deep breath. On 3, do three things: let the breath out, let your eyes relax but keep them closed, and let your body float. Then allow one hand to float up in the air like a balloon, and this will be your signal to yourself and to me that you are ready to concentrate."

Once these instructions have been given and responded to, the first of the series of metaphors can be selected on the basis of the patient's hypnotizability.

Pain Control Instructions

The Spanish philosopher, Ortega y Gasset, once commented, "The metaphor is probably the most fertile power man possesses." The practical truth of this principle is nowhere better shown than in the use of hypnotic metaphors, or images, to alter the perception of pain. During the hypnotic experience, the doctor can teach the patient a series of perceptual metaphors and ask the patient to comment on how vivid they are and their effectiveness in reducing pain.

What is perhaps most important about hypnosis from the point of view of pain control is the intensity of focus and the accompanying psychosomatic flexibility. By focusing on one concept involving a change in perception, the hypnotized person may relegate to the periphery of consciousness unwanted perceptions, such as excessive pain. Hypnotizable individuals have a substantial capacity to structure their sensory experience, focus on pleasant sensations at the expense of unpleasant ones, or substitute one sensation for another—for example, icy cold, tingling numbness for pain. It is this intensity of focus and plasticity in mind-body relationship that typify the trance state and can be clinically useful in treating pain in cancer patients.

Highly hypnotizable individuals are capable of producing dramatic changes in perception and can often be instructed to develop a sensation of numbness, such as from an injection of a local anesthetic into the affected body part. This numbness may be initiated in a neutral part of the body, such as the elevated hand, and then transferred to the part of the body in pain by

rubbing it.

For some patients, this sensation may be made more vivid by having them relive the experience of dental anesthesia—reviewing with them successively the pain and pressure of the injection of anesthetic into the gum and the gradually spreading numbness. The patient may then learn to transfer the numbness by applying a hand

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first to the numbed cheek and then to the painful part of the body. This numbness may be explained to patients as a psychological filter through which they experience the pain. They may thus continue to perceive the pain at a reduced level, but their reaction to it has changed. They retain the important signal function of pain while learning to minimize its discomfort.

Moderately hypnotizable patients may not be able to respond to an instruction to produce numbness but can often respond to other metaphors—for example, those involving a change in temperature. It is often useful prior to hypnosis to ask patients whether warmth or cold helps relieve the pain and then to employ this temperature shift during the hypnotic trance. For example, subjects may be told to experience themselves as floating in a warm bath, feeling the warmth penetrating deeper and deeper into their body, especially the parts that experience pain. Others may prefer an image of lying in the warm sun on the beach, or in the snow. It is not surprising that temperature metaphors are frequently effective, since pain and temperature fibers run together in the lateral spinothalamic tracts.

Low hypnotizable patients can make good use of hypnosis in reducing pain, but the results are generally less dramatic.

These patients may often benefit primarily from a technique that focuses on distraction—i.e., using the discipline of the hypnotic state to switch attention to the feelings in a nonpainful part of the body, such as the delicate sensation of rubbing the fingertips together. These patients, rather than altering perception in the painful area, simply shift their focus of attention to a non-

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painful part of their body. These patients may also find it useful to practice the self-hypnosis exercise with a physical aid, such as a warm bath or an ice pack.

The problem of pain, and also nausea and vomiting, may become especially acute for cancer patients when they undergo procedures such as chemotherapy and radiation therapy. The hypnotic state can be especially useful at this time in helping the patient dissociate distress from the experience of being treated. In particular, some patients become so anxious about their expectation of the nausea and vomiting accompanying treatment that they begin to vomit before, rather than after, the treatment.

Hypnotizable patients often respond well to hypnotic instructions that they should in essence deliver their bodies but not their minds for treatment. As soon as they lie down, they enter the state of self-hypnosis and picture on an imaginary screen a pleasant scene, somewhere they enjoy being—for example, the beach, the mountains, or a comfortable room at home. They then concentrate on their own private world, while their body receives the treatment. They can do this both in preparation for the treatment and during it, as a way of dissociating psychological from somatic distress. In addition, some find it helpful to imagine a minty taste in their mouth as a further means of

counteracting the nausea and vomiting that accompany the treatment.

A variety of other approaches have been productively employed. Erickson²¹ instructed patients to substitute another absorbing sensation, such as itching, or to transfer the pain to another part of the body where it was experienced but without the anxiety that it implied a worsening of the cancer. He told some patients to distort their sense of time during a painful episode, making it seem very short. Erickson also taught patients to have what amounts to an out-of-body experience—that is, to leave their body in bed and imagine that they are going into another room to watch television or do something else. Generally, only highly hypnotizable patients can experience such a metaphor, but when it works, it can be quite effective.

Hilgard and Hilgard,¹⁸ working with a boy with leukemia and severe chest pain, taught him to regress in age to a time before the onset of his pain when he was playing a Little League baseball game. He could so absorb himself in reliving the enjoyment of the game that he dissociated the pain. Gardner²² reported on teaching a dying boy to use a hypnotic dream to experience himself flying like an eagle, which would provide enjoyment whenever he wished to use it.

Other approaches include an instruction of amnesia, so that the patient may forget the pain signals, or an instruction to flip an imaginary switch that will reduce the pain signals.¹⁹ Possibilities for useful metaphors are limited only by the imagination of the therapist and the patient. Patients often report that certain states of mind spontaneously produce physical relaxation or that certain places or times in their life are associated with greater comfort. These can easily be incorporated into the hypnotic exercise.

Concluding the Hypnosis Session

The exercise can be concluded by instructing the patient to practice producing the sense of comfort every one to two hours and any time the pain starts to become a problem. It is especially important that the

patient do the exercise before the pain becomes severe, employing the same principle used with analgesic medication. The patient can then be instructed to exit from the state of self-hypnosis by counting backwards from 3 to 1:

"On 3, get ready. On 2, with your eyelids closed, roll up your eyes. On 1, open your eyes, let your hand float back down, make a fist, open it, and that will be the end of the exercise."

The doctor, who has been interacting with the patient during the trance, should then discuss how the patient responded. It is often helpful to have the patient rate on a quantitative scale—for example, 0 to 10, with 10 as unbearable pain—the amount of pain experienced at the beginning of the session, during the hypnotic exercise, and afterward; this provides feedback on the effectiveness of the exercise for both the patient and the doctor.

Basic Principles

There are three common principles that underlie most uses of hypnosis in treating pain:

- Filter the hurt out of the pain. Patients can be reminded that there is no one-to-one correlation between the intensity of a painful stimulus and the amount of suffering it causes. Injuries sustained during the stress of athletic competition or combat are frequently not perceived until hours later. One must pay attention to pain to feel it. Once the pain signal has been received and acted on, the task becomes one of teaching patients to filter the hurt out of the pain, to restructure their experience of it.

- Do not fight the pain. Struggling with pain, having dialogues with it, or becoming angry only make it worse. In fact, the reactive muscle tension surrounding the painful area will literally increase the pain sensations. Patients can be taught that by simply producing a state of physical relaxation, they can diminish the pain itself as well as their perception of it.

- Use self-hypnosis. This gives patients a greater sense of control and mastery over their experience. While some patients may report that hypnosis is less intense when

practiced on their own than when experienced with the doctor, this is more than offset by the enhanced self-esteem and treatment availability that self-hypnosis provides.

Analgesic Medications

Many patients learning to use hypnosis to control pain are already taking one or more analgesic medications, many of which cloud the senses and have sedative side effects. Sedation will hamper hypnotizability, which is a form of alertness and concentration. It is usually best to work with patients as a dose of analgesic medication is wearing off, so that they are maximally alert, and to instruct them to try to use the self-hypnosis to prolong the intervals between medication, while having it available if they feel they need it. Patients can then gradually wean themselves from pain medication, or at least find a dosage level that minimizes side effects while retaining comfort.

Hypnosis can allow patients not only to restructure their pain experience and diminish the amount of pain and suffering accompanying cancer but also to learn to experience a greater sense of mastery and control over their illness and treatment. This can enhance the concept of collaborating with the physician, which is especially critical when patients are faced with the prospect of losing physical control over their bodies and mastery in other parts of their social, vocational, and personal lives.

Efficacy of Hypnosis for Pain Control

Clinical reports of the efficacy of hypnosis in helping patients control pain date back more than a century. In 1846, Esdaile, a Scottish surgeon who employed hypnosis as anesthesia for amputations in India, reported 80 percent efficacy for surgical anesthesia.⁴³ A few years later, when ether was introduced as an anesthetic agent, a surgeon strode to the front of the operating theater and announced, "Gentlemen, this is no humbug," to distinguish ether anes-

thetia from that obtained with hypnosis.

While the majority of medical interest shifted toward pharmacological approaches to the management of pain, a small group of physicians persisted in exploring the use of psychological techniques, including hypnosis. Interest in the phenomenon has recently reemerged via a different route—that of acupuncture. Evidence that this modality is effective in helping patients control pain has led to speculation about a change in our understanding of the nervous system and has been integrated with the well-known “gate” theory of pain control.²⁴

In their original article, Melzak and Wall²⁴ were searching for not only a peripheral mechanism for reducing pain signals but also a central mechanism for managing the gate; this is based on Pavlov’s observation that dogs subjected to repeated painful stimuli will eventually stop behaving as if they are in pain. The gate theory itself provides mechanisms for central as well as peripheral inhibition of pain signals at the gate. In fact, Wall, coauthor of the gate control paper, recently expressed the opinion that hypnosis and acupuncture are, in fact, overlapping phenomena.²⁵

More recently, several studies have indicated that while acupuncture is effective in controlling pain, its effectiveness is statistically related to the subject’s hypnotizability.^{26, 27} Thus, there is an overlap between hypnotizability and responsiveness to acupuncture as a psychological rather than a physical technique for controlling pain.

Hypnosis and Cancer Studies

While there are a variety of clinical reports citing the efficacy of hypnosis in helping cancer patients with pain (for example, Erickson²¹ and Sacerdote^{28, 29}), there are comparatively few systematic studies. Butler³⁰ reported that five of 12 cancer patients benefited from the reduction of pain and anxiety, and he noted that it was the highly hypnotizable patients who responded to treatment. Lea, Ware, and Monroe³¹ reported that five of nine cancer patients responded, and they also found that

hypnotizability was a moderating factor.

Cangello³² reported that 73 out of a group of 81 cancer patients were able to be hypnotized, and 30 of these were substantially helped. As in the earlier studies, the degree of hypnotizability predicted the degree of pain reduction. In the same study, 14 of 22 patients receiving narcotics every four hours for constant pain were able to decrease their use of these medications by at least one half. The reduction lasted, in all but two cases, for at least a week, and for four of the patients, five to 12 weeks.

More recently, a randomized prospective controlled study was undertaken to demonstrate the effect on metastatic breast cancer patients of supportive group treatment in general, and of hypnotic pain control exercises in particular.³³ Thirty-four women were randomly assigned to one of two treatment groups, 24 to a control sample. Their use of analgesic medication was handled by physicians not involved in the study and was comparable in treatment and control groups throughout the study. The two treatment groups met weekly for 1½ hours with two therapists. The majority of the group meetings involved discussions of fears about dying, strategies for maintaining control over the patients’ lives and the management of their illness, grieving over the loss of group members who had died, and establishing realistic goals for the remainder of their lives with friends and family.^{33, 34, 35}

This group intervention was effective in reducing the patients’ mood disturbance over the course of a year. These patients were significantly less depressed, fatigued, confused, and phobic than the control patients, and used better coping responses.³⁶ The treatment patients also experienced significantly less pain (Fig. 1) and associated suffering (Fig. 2) than the control patients. Those in the treatment group that had a regular self-hypnosis exercise as part of the therapy had no increase in pain during the year, in which 30 percent of the total patient sample died. The nonhypnosis treatment group showed a slight, and the control group, a substantial, increase in pain during that year. The duration and frequency of pain attacks was not signifi-

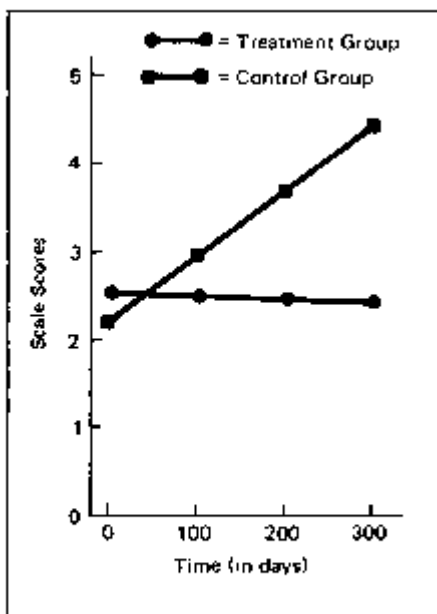


Fig. 1 Changes in pain sensation over the course of one year for patient treatment and control groups.

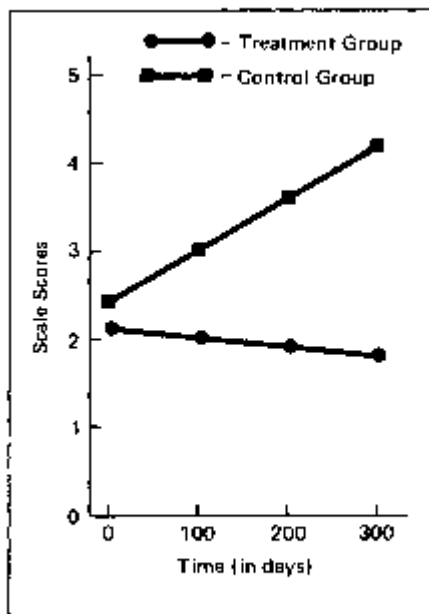


Fig. 2 Changes in suffering due to pain over the course of one year for patient treatment and control groups.

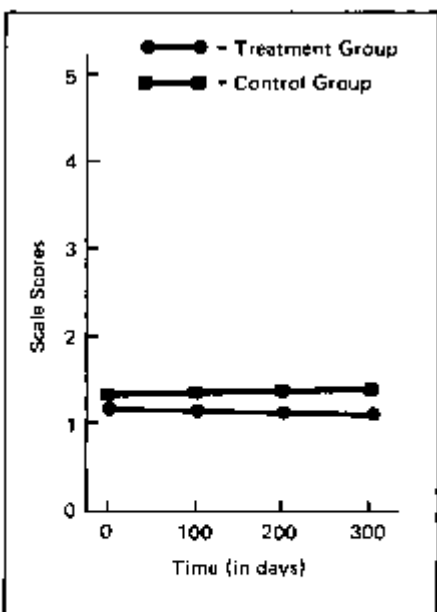


Fig. 3 Changes in the frequency of pain over the course of one year for patient treatment and control groups.

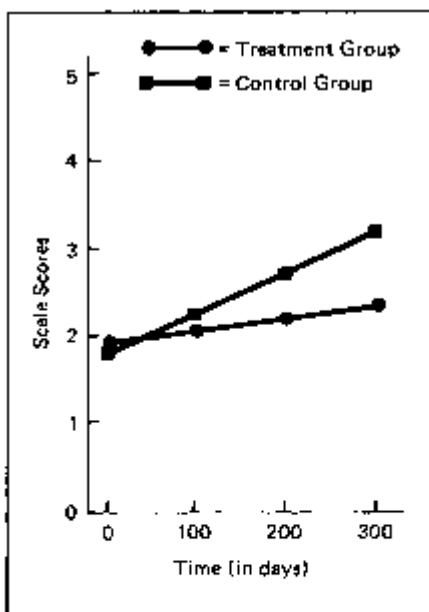


Fig. 4 Changes in the duration of pain over the course of one year for patient treatment and control groups.

cantly different in the two groups (Figs. 3 and 4). The group support and hypnosis, therefore, influenced those aspects of the pain experience most plausibly attributed to the patient's psychological reaction: the sensation itself and associated suffering caused by it, but not the frequency and duration of pain episodes.

Hypnosis has been used effectively as

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a tool with children as well as adults, especially in helping them through procedures such as bone marrow aspiration. The main adaptation in technique is an emphasis on imagery rather than relaxation.³⁷ Children aged five to 11 are especially good candidates, since this is the peak period of hypnotizability in the human life cycle.³⁸ Children can easily learn to redirect their imagination away from a painful procedure to such fantasy experiences as a story, television show, or baseball game. Zeltzer and

LeBaron³⁹ showed that such hypnotic techniques were more effective than nonhypnotic relaxation exercises among 27 children and adolescents with cancer. In a noncontrolled study, Kellerman et al⁴⁰ reported a reduction in anxiety and discomfort in 16 of 18 adolescent patients.

There is evidence from several studies, therefore, that supportive psychological interventions employing hypnosis are of significant benefit in reducing the pain experienced by cancer patients.

Conclusion

Pain control techniques employing hypnosis are simple and effective, easy to learn and teach patients, and applicable to approximately two thirds of cancer patients in pain. They can be a helpful adjunct to treatment in controlling pain, reducing dependence on analgesic medication, and giving patients a greater sense of mastery over their illness.

It is ironic that a technique long associated with fantasies of losing control should be so helpful in enhancing it. The intense concentration, interpersonal sensitivity, and mind-body control that characterize hypnosis make it an empirically grounded, practical tool for use with cancer patients. ©

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