

## HYPNOSIS IN CANCER CARE

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### Abstract

Despite conclusive evidence for the efficacy of clinical hypnosis in the management of many cancer related symptoms and particularly acute and chronic pain, hypnosis is currently under-utilized in these applications. This paper gives a brief overview of the contemporary uses of hypnosis in paediatric and adult oncology and shows how hypnosis can be integrated into a total therapeutic process based on the needs and goals of the patient and the health care team treating them. The first section describes studies that have evaluated hypnosis in adult oncology. The second half consists of a review of the hypnosis literature in paediatric oncology. The paper concludes with suggestions for future research, and implications for clinical practice, which at the moment lags behind. Copyright © 2006 British Society of Experimental & Clinical Hypnosis. Published by John Wiley & Sons, Ltd.

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**Key words:** hypnosis, cancer, pain, quality of life, palliative care

### Introduction

Psychological approaches to symptom management are among the oldest and are an intrinsic part of medical practice in every culture. Hypnosis under various names has been used for as long as records have been kept. Suggestive therapy is probably the oldest of all therapeutic methods. This paper gives a brief overview of the contemporary uses of hypnosis in paediatric and adult oncology and shows how hypnosis can be integrated into a total therapeutic process based on the needs and goals of the patient and the health care team treating them. The first section describes studies that have evaluated hypnosis in adult oncology. The second half consists of a review of the hypnosis literature in paediatric oncology. Despite conclusive evidence for the efficacy of clinical hypnosis in the management of many cancer related symptoms and particularly acute and chronic pain, hypnosis is under-utilized in these applications. The present literature review aims to provide practitioners with the necessary evidence to support their clinical practice in this important area. Inevitably this paper cannot be an exhaustive review of the numerous studies conducted in the area. Instead it focuses on methodologically rigorous randomized trials or promising case studies. The paper concludes with suggestions for future research, and implications for clinical practice, which at the moment lags behind.

### Hypnosis with adults with cancer

Many studies have explored the usefulness of hypnosis in the adult oncology setting with promising results. Studies to date have investigated the efficacy of hypnosis in the management of pain, nausea and vomiting, immune function and general quality of life.

Promising preliminary results have been reported from the use of hypnosis for hot flushes.

### *Hypnosis and pain*

Relatively few controlled clinical trials have tested the efficacy of hypnosis for reducing cancer pain (Flammer and Bongartz, 2003). Hypnosis has been demonstrated as effective for controlling patients' pain in other surgical settings, but breast surgery patients have received little attention. To determine the impact of brief presurgical hypnosis on these patients' postsurgery pain and distress, and to explore possible mediating mechanisms of postintervention patient distress and expectations of pain on postsurgery hypnoanalgesic effects, Montgomery, Weltz, Seltz and Bovbjerg (2002) randomly assigned 20 excisional breast biopsy patients to a hypnosis or control group (standard care). Hypnosis reduced postsurgery pain and distress. Initial evidence suggested that the effects of hypnosis were mediated by presurgery expectations.

Syrjala, Cummings and Donaldson (1992) randomized 45 cancer patients undergoing bone marrow transplantation to one of four groups: routine treatment; a therapist attentional control; hypnosis (i.e. relaxation and imagery of a visual, auditory and kinesthetic nature); or a cognitive-behavioural skills package. The cognitive-behavioural skills package was extensive and included progressive muscle relaxation, autogenic training, cognitive restructuring, distraction, coping self-statements, problem solving, and exploration of the patients' interpretations of their illnesses and treatments. Additionally, psychoeducation specific to transplantation pain was provided. Guided imagery, however, was specifically excluded from the cognitive-behavioural skills package. Patients assigned to the hypnosis and the cognitive-behavioural groups participated in two individualized verbal training sessions prior to the transplant procedure, and they received written and audio taped instructions to practise their skills prior to hospital admission. Therapy sessions to reinforce training were provided twice a week for the first five weeks of hospitalization. Patients in the therapist attention control condition met with a mental health professional to discuss general, non-pain-related topics for the equivalent amount of time and session frequency as the hypnosis and cognitive-behavioural groups. Results indicated that only the hypnosis-alone group reported significantly less post transplant pain than that reported by controls. This was particularly true during weeks 2 and 3 post transplant. Indeed, reported peak pain for the hypnosis group was lower in intensity and of a shorter duration. There were no differences among the four groups in terms of opioid usage, suggesting that decreased pain report in the hypnosis group was not simply a function of additional pain medication. As the authors suggest, the superiority of the hypnosis group over the cognitive-behavioural skills programme implies that the guided imagery component may be pivotal to effective treatment. Additionally, as noted by the researchers, the lack of success with the cognitive-behavioural skills training also may have been compromised by the number of techniques used, which may have surpassed what patients could master in such a short period of time.

In a subsequent study by many of the same researchers (Syrjala, Donaldson, Davis, Kippes, et al. 1995) bone marrow transplant patients with oral mucositis pain were again assigned to several conditions: treatment as usual; therapist support, which comprised a psychoeducation component and reassurance but not the training of new coping skills; relaxation, imagery, and autogenic training; and a cognitive-behavioural skills programme. Data analysis from the second study revealed that patients in the relaxation/imagery/autogenic training group and in the cognitive-behavioural skills group reported significantly less pain than those in the treatment-as-usual control group. However, there

were no differences between the relaxation/imagery/autogenic training group and the cognitive-behavioural skills group in terms of pain levels. Thus, findings suggest that the addition of cognitive-behavioural techniques to relaxation/imagery/autogenic training did not further reduce pain levels. In addition, those participants who received therapist support also reported less pain than the treatment-as-usual controls. However, the difference was a trend and did not reflect a statistically significant effect. Again, no differences were detected among the groups in terms of opioid use.

### *Hypnosis and chemotherapy related nausea and vomiting*

Nausea and vomiting are the most frequently reported and debilitating adverse effects of cancer chemotherapy and radiotherapy and have remained prevalent despite the use of increasingly potent antiemetic medication i.e. 5-HT<sub>3</sub> receptor antagonists. These side effects are sometimes so serious that they compromise compliance with therapy. Patients may postpone, refuse completely or be unwilling to complete a full course of potentially curative or palliative chemotherapy because of the unpleasantness of these symptoms.

Lyles, Burish, Krozely and Oldham (1982) assigned 50 cancer patients receiving chemotherapy, 25 by push injection and 25 by drip infusion, to one of three conditions for their chemotherapy treatments: progressive muscle relaxation training plus guided relaxation imagery; therapist control, in which a therapist was present to provide support and encouragement but did not provide systematic relaxation training; and no-treatment control. Patients participated in one pre-training, three training, and one follow-up session. Results indicated that during the training sessions, patients who received relaxation training, relative to patients in either of the other two conditions, reported feeling significantly less anxious and nauseated during chemotherapy; showed significantly less physiological arousal (as measured by pulse rate and systolic blood pressure) and reported less anxiety and depression immediately after chemotherapy; and reported significantly less severe and less protracted nausea at home following chemotherapy. The attending nurses' observations during chemotherapy confirmed patient reports. The differences among conditions generally remained significant during the follow-up session.

### *Hypnosis and quality of life*

Lioffi and White (2001) evaluated the efficacy of clinical hypnosis in the enhancement of quality of life of patients with far-advanced cancer in a randomized controlled clinical trial. Fifty terminally ill cancer patients aged between 35 and 74 received either routine medical and psychological (cognitive existential) palliative care or standard care plus hypnosis. Patients in the hypnosis group received weekly sessions of hypnosis with a therapist for four weeks. Outcome measures included quality of life, as measured by the Rotterdam Symptom Checklist (DeHaes, van Knippenberg and Nejit, 1990), and depression and anxiety, as measured by the Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983). The results demonstrated that at the end of intervention patients in the hypnosis group had significantly better overall quality of life and lower levels of anxiety and depression when compared to the standard care group.

In New Zealand Laidlaw and Willett (2002) randomly assigned 35 cancer patients suffering from acute 'anxiety attacks' to receive a tape teaching either progressive muscular relaxation or a light and slow breathing rhythm, both delivered in the context of hypnosis. Eight patients withdrew from the study for various reasons. Data on the incidence of acute anxiety episodes and ratings of both positive and negative emotions were collected prior to the intervention and post-intervention using the Personalised

Emotional Index (PEI) (Laidlaw, 1999) via daily diaries. Participants showed significant improvement in both incidence of acute anxiety episodes and emotional states, although only the breathing training group produced significant improvement in all three measures (more positive and less negative mood states and fewer anxiety 'attacks').

In a small pilot study in London Laidlaw, Bennett, Dwivedi, Naito and Gruzelier (2005) used two psychological interventions aimed at maintaining health and well-being in women with metastatic breast cancer. Out of 100 women deemed eligible, 37 were randomly assigned to four weeks of training in self-hypnosis or to a Japanese healing method, Johrei, or to a wait-list control condition for three months. Participants were examined with quality of life and mood scales on two occasions, prior to training and again three or more months later. Most data were able to be collected on 14 participants. Following both interventions, patients were more composed and less anxious than controls. Hypnosis training increased and Johrei patients maintained energy levels. There was a positive change in anxiety levels and a general increase in other mood scores.

### *Effects of hypnosis on the immune response*

It has been suggested and enough evidence is available that hypnosis can modify the production and activity of components of the immune system and the immune response as measured by B-cells, T-cells, and helper cells and suppressor cells (Gruzelier, 2002). Such immune control is usually accompanied by self-reports of enhanced mood and well-being. Some studies have even suggested that this immune system enhancement in cancer patients can be translated in longer survival although further studies are required to clarify this (Walker, Heys and Eremin, 1999).

Three recent investigations by John Gruzelier and his colleagues (Gruzelier, Smith, Nagy and Henderson, 2001a; Gruzelier, Levy, Williams and Henderson, 2001b; Gruzelier, Champion, Fox, Rollin, McCormack, Catalan, Barton and Henderson, 2002) with self-hypnosis training incorporating imagery of the immune system are particularly relevant. In two studies, hypnosis buffered the effects of stress on immune functions in medical students at exam time, and the comparison of self-hypnosis with and without immune imagery confirmed advantages to targeted imagery for both immune function and mood, and importantly, fewer winter viral infections. The implications for health were investigated in a third study in patients with virulent and chronic herpes simplex virus-2 (HSV-2). Six weeks of training almost halved recurrence, improved mood and reduced levels of clinical depression and anxiety. Immune functions were up-regulated, notably functional natural killer cell activity to HSV-1. Individual differences in hypnotic susceptibility and absorption were predictive of efficacy.

In a landmark clinical study, Spiegel, Bloom, Kraemer and Gottheil (1989) carried out a 10-year follow-up of 86 women with metastatic breast cancer, some of whom had received group therapy consisting of a variety of interventions including peer group support, emotional expression, relaxation training, and autohypnosis. Although there was no statistically significant difference in the median survival of the patients receiving group therapy and the patients in the control group, the mean survival time of the patients receiving group therapy was 36.6 months compared with 18.9 months in the control group. The time from first metastasis to death was also increased in the patients who had received the group therapy. Subsequent analysis demonstrated that the results were not due to between group differences in initial disease stage or to the amount of previous or subsequent radiotherapy, hormone therapy or chemotherapy. However, the mechanism whereby the intervention enhanced survival is unclear in this study. The investigators themselves suggested that the intervention may have enhanced compliance with medical

treatment, improved appetite and nutritional intake, and enabled patients to maintain a beneficial level of physical activity.

More recently a prospective, randomized, controlled trial of relaxation training and guided imagery in 80 women with large or locally advanced breast cancer was carried out to assess the effects of this intervention on host defences in patients with cancer. In addition to improving quality of life (Walker, Walker, Ogston, Heys, Ah-See, Miller, Hutcheon, Sarkar and Eremin, 1999), the intervention increased the number and percentage of activated T cells (CD251), lowered the circulating level of tumor necrosis factor-alpha and enhanced lymphokine-activated killer (LAK) cell cytotoxicity. Although the two groups did not differ in natural killer (NK)-cell cytotoxicity, self-rated imagery quality was correlated with cytotoxicity at final follow-up (Walker, Walker, Simpson, Fielden, Ogston, Heys, Ah-See, Hutcheon, Eremin and Segar, 1997). This and the previous study point to the conclusion that even in patients receiving immunosuppressive treatments relaxation and imagery can produce immunological changes that may have clinical relevance.

### *Hypnosis and hot flushes*

Hot flushes are a common but often underestimated side effect of breast cancer treatment with up to 78% of female chemotherapy recipients and 72% of tamoxifen recipients experiencing hot flushes (Carpenter, 2001). Hot flushes can also be a significant problem for many breast cancer survivors. Many physical symptoms are associated with hot flushes including headaches, irritability, palpitations, paresthesias, dizziness, discomfort, insomnia, anxiety, weakness, itching sensations and overall decreased quality of life (Pansini, Albertazzi, Bonaccorsi, Calisesi, Campobasso, Zanotti, Bagni and Mollica, 1994; Lamb, 1995; Finck, Barton, Loprinzi, Quella and Sloan, 1998; Carpenter, 2001). Emotional aspects of hot flushes that have been reported in the literature include anxiety, 'panic attacks' and being 'embarrassed in public'. Hunter and Liao (1995) found that one third of women with hot flushes described embarrassment, and 20% described a general sense of a loss of control. In the past, the standard treatment for hot flushes has been hormone replacement therapy (HRT). However, recent research (Rossouw, Anderson, Prentice et al., 2002; Beral, 2003; Anderson, Limacher, Assaf, et al., 2004; Holmberg and Anderson, 2004) has found an increased risk of breast cancer in women receiving HRT.

Elkins, Marcus, Palamara and Stearns (2004) based on their clinical experience and two published case studies have suggested that hypnosis may be of significant benefit to women with breast cancer in reducing the frequency and severity of hot flushes and other benefits may include reduced anxiety and improved sleep. They recommend the use of suggestions for coolness and comfort; reduced anxiety; and improved sleep for the management of this symptom. These investigators are currently undertaking a randomized clinical trial of hypnosis for hot flushes. Hypnosis may be the treatment of option for this cancer related symptom because of no side effects and the preference of many women for a non-hormonal therapy.

### **Hypnosis with children with cancer**

Hypnosis has established a successful record in the paediatric oncology setting mainly in the management of chemotherapy-related nausea and vomiting (NV) and procedure-related pain where it has achieved status as an evidence-based intervention (Lioffi, 2000).



*Hypnosis in the control of chemotherapy-related nausea and vomiting*

Initial reports on the use of hypnosis to treat NV were in the form of case studies and uncontrolled investigations. Subsequently several controlled studies (O'Grady and Hoffmann, 1984; Olness and Gardner, 1988; Wester and O'Grady, 1991) have assessed and supported the efficacy of hypnotherapy in alleviating chemotherapy-related NV.

Zeltzer, LeBaron and Zeltzer, (1984) randomized 19 children with cancer to receive hypnosis or supportive counselling during two or more matched chemotherapy courses. An additional course with no intervention was assessed in half of the patients. Supportive counselling consisted of distracting the child during chemotherapy administration by directing their attention to interesting objects in the treatment room, telling jokes, squeezing the therapist's hand, taking deep breaths, and playing guessing games. The hypnotic intervention consisted of involving the child in imagery and children were also given post hypnotic suggestions to help them use imagery at home, to have a good appetite, and to have a restful night's sleep. Hypnosis and supportive counselling were equally effective for reducing the severity of nausea and vomiting, and the extent to which these symptoms distressed patients. Also, after termination of intervention, symptom ratings remained significantly lower than baseline. Methodological limitations of this study included a small sample size and demand characteristics.

In a subsequent study Zeltzer, Dolgin, LeBaron and LeBaron (1991) studied 54 paediatric cancer patients to determine the relative efficacy of hypnosis and nonhypnotic distraction/relaxation. Following baseline assessment, children who were experiencing significant chemotherapy-related nausea and/or vomiting during baseline assessment (i.e. ratings of >3 on a 0 to 10 scale) were randomly assigned to receive imagination focused hypnosis, nonhypnotic distraction/relaxation, or attention control during the subsequent identical chemotherapy course. Observational and interview measures of anticipatory and post-chemotherapy nausea and vomiting, distress and functional disruption (i.e. disruption of eating, sleep, school and play) served as outcome measures. Children in the hypnosis group reported the greatest reduction of both anticipatory and post-chemotherapy symptoms.

In a controlled experiment, Cotanch, Hockenberry and Herman (1985) randomly assigned 12 young patients to receive either a relaxation/self-hypnosis intervention or standard treatment. Both groups were followed through two consecutive chemotherapy cycles. Child self-report and nurse observations were obtained on nausea and vomiting (intensity, severity, frequency) and on the amounts of oral intake 24 hours post chemotherapy. The intervention significantly reduced the frequency, severity, and duration of nausea. Oral intake was also significantly enhanced, and the patients reported feeling less distressed by the chemotherapy experience. The major limitation of this study was that the experimental group received extra attention, which was not available to the children in the control group.

Jacknow, Tschann, Link and Boyce (1994) conducted a prospective, randomized, controlled, single blind trial to study the effectiveness of hypnosis for decreasing anti-emetic medication usage and treatment of chemotherapy-related nausea and vomiting in 20 children with cancer receiving chemotherapy. Patients were randomized to either hypnosis or standard treatment. The hypnosis group used hypnosis as primary treatment for nausea and vomiting, using antiemetic medication on a supplemental (p.r.n) basis only, whereas the control group received a standardized antiemetic medication regimen. The hypnosis condition was adjusted to the child's interests and developmental level. For older children, the hypnosis procedure included learning a progressive relaxation exercises. Suggestions were given for feeling safe and well and for being able to re-experience

hypnosis on their own. Children in the control group received an equivalent amount of individual time consisting of informal conversation with the therapist about the child's schooling and extracurricular activities. Nausea and vomiting and p.r.n antiemetic medication usage were measured during the first two courses of chemotherapy. Anticipatory nausea and vomiting were assessed at 1 to 2 and 4 to 6 months post diagnosis. Patients in the hypnosis group used less p.r.n antiemetic medication than control subjects during both the first and second course of chemotherapy. The two groups did not differ in severity of nausea and vomiting. The hypnosis group experienced less anticipatory nausea than the control group at 1 to 2 months post diagnosis. This study was among the first to examine hypnosis as a primary treatment modality for chemotherapy-related side effects and the efficacy of hypnosis for decreasing medication usage for these side effects. The fact that the therapist knew which group each child was in could have influenced the interactions, despite the effort to treat patients in both groups equally. Furthermore, differences in p.r.n antiemetic medication usage between groups could have been affected by the potential differences in expectation regarding antiemetic use. Patients in the hypnosis group may have believed that they have failed if they requested antiemetic medication, whereas subjects in the control group, who were already using medication, may have been more comfortable requesting additional medication.

Finally, in the most recent study Hawkins, Lioffi, Ewart, Hatira, Kosmidis and Varvutsi (1995) demonstrated the effectiveness of hypnosis for the reduction of anticipatory NV in a randomized controlled design study that aimed to assess the possible therapeutic gains that may be derived from hypnosis while controlling for gains that may be derived from non-specific therapeutic factors. Thirty paediatric oncology patients, following baseline assessment, were randomly assigned to one of three groups during an identical chemotherapy course: treatment as usual control group, therapist contact group, and a hypnosis training group. Hypnosis was effective in reducing both anticipatory nausea and vomiting. Therapist contact alone was also found to be effective in reducing anticipatory nausea but it was suggested that this might have been a statistical rather than a clinical effect.

In summary a review of the literature on the hypnotic treatment of nausea and vomiting in children suggests that hypnosis is effective in this treatment. Many interventions have a number of components and additional research is needed to identify the relative contribution of these critical factors. Moreover, according to LeBaron and Zeltzer (1984) major studies are still needed in which there are multiple baseline and intervention assessments, post intervention follow-up, appropriate controls, and comparison of hypnosis and other behavioural techniques in the treatment of aversive chemotherapy side effects.

### *Hypnosis in pain management*

Children and adolescents in treatment for cancer undergo numerous painful procedures including venepunctures, lumbar punctures, bone marrow aspirations and biopsies. In fact during the past decade, a growing body of scientific evidence suggests that a cancer diagnosis itself in combination with associated invasive procedures renders patients at risk for long term psychological distress sometimes manifesting itself in compromised treatment compliance.

All studies conducted to date (Hilgard and LeBaron, 1982; Zeltzer and LeBaron 1982; Kellerman, Zeltzer, Ellenberg and Dash, 1983; Katz, Kellerman and Ellenberg, 1987; Kuttner, Bowman and Teasdale, 1988; Wall & Womack 1989; Hawkins, Lioffi, Ewart, Hatira and Kosmidis, 1998; Lioffi and Hatira 1999; 2003) found hypnosis effective in

reducing the pain and anxiety of young patients during procedures. The consistency of the findings and methodological considerations among the studies conducted so far indicates the usefulness of hypnosis as an effective intervention for helping children and adolescents to control the pain and anxiety associated with medical procedures (Lioffi, 1999; 2002) and renders hypnosis as empirically validated intervention in procedure-related pain management (Lioffi, 2002) according to the criteria developed by Chambless and Hollon (1998) and endorsed by the American Psychological Association. The following three studies have made a critical contribution to the establishment of hypnosis as evidence based and are briefly described below.

Zeltzer and LeBaron (1982) randomized 27 children undergoing bone marrow aspirations and 22 children undergoing lumbar punctures to two groups, one receiving hypnotic therapy and the control group receiving nonhypnotic behavioural therapy. In the children undergoing bone marrow aspirations, a significant decrease in pain in the hypnotic group versus the nonhypnotic group was reported. Children undergoing lumbar punctures also incurred less pain in the group receiving the hypnosis. Anxiety was decreased more in both groups receiving hypnosis versus controls.

Lioffi and Hatira (1999) conducted a randomized controlled trial to compare the efficacy of clinical hypnosis versus cognitive behavioural training (CBT) in alleviating the pain and distress of 30 paediatric cancer patients during bone marrow aspirations. Patients were randomized to one of three groups: hypnosis, a package of CBT skills and no intervention. In the hypnosis group children received hypnotic analgesic suggestions i.e. request for numbness, topical, local and glove anaesthesia and were given post-hypnotic suggestions. In the CBT group children were taught relaxation training, breathing exercises and cognitive restructuring. In the control group, as in all the groups the children received a standard lidocaine injection. Outcome measures included self reported pain, and anxiety and behavioural observation by an independent observer. Results demonstrated that patients who received either hypnosis or CBT reported less pain and pain related anxiety than did control patients, and less pain and anxiety than at their own baseline. Hypnosis and CBT were similarly effective in the relief of pain. Results also indicated that children reported more anxiety and exhibited more behavioural distress in the CBT group than in the hypnosis group.

More recently the same investigators (Lioffi and Hatira, 2003) reported a prospective controlled trial that investigated the efficacy of a manual-based clinical hypnosis intervention in alleviating pain in 80 paediatric cancer patients (6–16 years of age) undergoing regular lumbar punctures. Patients were randomly assigned to 1 of 4 groups: direct hypnosis with standard medical treatment, indirect hypnosis with standard medical treatment, attention control with standard medical treatment, and standard medical treatment alone. Patients in the hypnosis groups reported less pain and anxiety and were rated as demonstrating less behavioural distress than those in the control groups. Direct and indirect suggestions were equally effective, and the level of hypnotizability was significantly associated with treatment benefit in the hypnosis groups. Therapeutic benefit degraded when patients were switched to self-hypnosis.

## **Conclusion**

Clearly, hypnosis has been shown in a number of studies to reduce the distress of children and adults with cancer undergoing a variety of stressful procedures and treatments. These studies have been conducted by a number of investigators using various experimental designs. Apart from its proven efficacy in actual symptom management hypnosis



has several other attractive features. It is safe and does not produce adverse effects or drug interactions. Patients enjoy the hypnotic experience. They obtain relief without destructive or unpleasant effects. There is no reduction of normal function or mental capacity and no development of tolerance to the hypnotic effect. It is a skill that individuals can easily learn, that provides a personal sense of mastery and control over their problems and that counters feelings of helplessness and powerlessness. An additional benefit is that hypnosis can be generalized to many circumstances. The person who learns hypnosis for management of pain or nausea and vomiting may apply their skills to lessen the distress of insomnia and anxiety, to address dysphagia for pills or to enhance their performance in their favourite sport. For a clinician, hypnosis is an opportunity to be inventive, spontaneous and playful and to build a stronger therapeutic relationship with a patient while providing symptom relief (Lioffi, 1999).

Patients with cancer and particularly children would benefit tremendously from the wider application of hypnosis in oncology centres. In terms of clinical practice, the optimal control of patients' symptoms requires an integrated psychological and medical approach. Hypnosis is well suited to become an integral part of a comprehensive multidisciplinary cancer treatment approach.

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