

# HYPNOSIS AND HYPNOTHERAPY

## Clinical Hypnosis in Paediatric Oncology: A Critical Review of the Literature

Christina Lioffi, Ph.D.

The aim of the present paper is to critically evaluate the current literature on the use of hypnosis in the pediatric oncology setting. The studies conducted in the fields of procedure-related pain management and chemotherapy-related nausea and vomiting management are reviewed. A detailed summary is provided for each study including information about the subjects, experimental design, assessment measures, treatment protocol, outcome and follow-up. Future challenges for hypnosis research in the area of procedure-related pain and chemotherapy-related nausea and vomiting are discussed. (Sleep and Hypnosis 2000;5:268-274)

**Key words:** cancer, children, hypnosis, nausea, vomiting, paediatric oncology, procedure-related pain.

### INTRODUCTION

Hypnosis has been shown to be an effective treatment modality for a number of childhood disorders and several studies have demonstrated that children are more hypnotically responsive than adults. Hypnosis has a wide range of applications with children, including the treatment of learning problems, medical conditions, and mental health disorders. Despite the fact that research on clinical hypnosis with children is in an early stage of development and the child hypnosis literature is predominantly composed of anecdotal case histories and uncontrolled research studies (1) one of the best-documented uses of hypnosis is in the treatment of children with cancer. Hypnosis has been used successfully for the management of chemotherapy-related nausea and vomiting and for the control of procedure-related cancer pain.

In this paper the current research literature about the uses of hypnosis in the paediatric oncology setting will be described and critically evaluated. The first section reviews the literature regarding the management of

chemotherapy-related nausea and vomiting. This is followed by an examination of the research evidence about the efficacy of hypnosis in the control of procedure-related cancer pain. In the final section an attempt is made to evaluate the existing literature and to offer some suggestions for future research in the area.

### NAUSEA AND VOMITING MANAGEMENT

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 medications i.e. 5-HT<sub>3</sub> receptor antagonists. These side effects are sometimes so serious that compromise compliance with therapy, a problem most prevalent in the adolescent population. 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 (2). Nausea and vomiting associated with cancer chemotherapy most commonly occur after administration of the drug regimen. Post-chemotherapy nausea and vomiting can be acute (developing immediately or within hours of the cytotoxic drug infusion), delayed (not occurring during the first 24 hours but developing on later days), or persistent (beginning during or soon after receiving of the chemotherapy agent and continuing beyond the first day). In addition, a

From the Department of Psychology, University of the West of England, St Matthias Campus, Oldbury Court Road, Fishponds, Bristol, UK.

Address reprint requests to: Christina Lioffi, Ph.D.

From the Department of Psychology, University of the West of England, St Matthias Campus, Oldbury Court Road, Fishponds, Bristol, UK. BS16 2JP, UK. Tel: 0117 3444347, Fax: 0117 9762340.  
e-mail: Christina.Lioffi@uwe.ac.uk

Accepted May 12, 2000

substantial proportion of patients develops nausea or vomiting in anticipation of treatment, after one or more courses of chemotherapy have been given (3,4).

Several studies have reported the use of hypnosis for control of anticipatory and post-treatment nausea and vomiting in young cancer patients receiving chemotherapy. Zeltzer and colleagues in a series of studies (5-7) demonstrated the efficacy of hypnosis in the management of chemotherapy-related nausea and vomiting. In the first study Zeltzer et al (5) used hypnosis with 12 adolescents (12 to 20 years of age). The hypnosis intervention consisted of imagery based on the life experiences and preferences of each patient. Suggestions were given regarding the refreshing nature and antiemetic properties of patients' imagery. Posthypnotic suggestions were given during each session for a relaxed and comfortable course of chemotherapy and for ease of reentering hypnosis using treatment or symptom related visual cues. Eight patients receiving chemotherapy demonstrated significant reduction in the frequency and intensity of emesis and six of them also demonstrated a shortened duration of emesis. The ninth patient, whose vomiting was due to brain tumor, showed a gradual reduction in vomiting with eventual complete control. Three patients refused hypnosis. Trait anxiety scores (as measured by the Spielberger Trait Anxiety Scale) for the groups were significantly lower at retest 6 months following hypnosis intervention. Significant changes in scores of health locus of control (as measured by the Wallston Health Locus of Control Scale), impacts of illness (as measured by the Impact of Illness Scale), or self-esteem (as measured by the Rosenberg Self-Esteem Scale) were not found. The major drawback of this study was the lack of a contact control group. The reduction in emesis may have been secondary to the increased attention given to patients by the research team and clinical staff during intervention.

In the second study Zeltzer et al (6) 1984 randomised 19 children with cancer (6 to 17 years of age) 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 on 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 posthypnotic 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 (6).

In the final study Zeltzer et al. (7) studied fifty-four paediatric cancer patients (5 to 17 years of age) 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, non-hypnotic 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. The cognitive distraction/relaxation intervention had a maintenance effect on the symptoms while symptoms in children in the control group consistently increased over time.

In a controlled experiment, Cotanch et al (8) randomly assigned 12 young patients aged 10 to 18 years 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 amount of oral intake 24 hours post-chemotherapy. The intervention significantly reduced the frequency, severity, and duration of chemotherapy emesis, as well as the intensity 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 et al (9) conducted a prospective, randomised, controlled, single blind trial to study the effectiveness of hypnosis for decreasing antiemetic medication usage and treatment of chemotherapy-related nausea and vomiting in 20 children with cancer (6 to 18 years of age) receiving chemotherapy. Patients were randomised 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 exercise. 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 difference 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 (8).

Finally, Hawkins et al (10) in a randomised controlled study assessed the therapeutic gains derived from hypnosis while controlling for gains that may be derived from non-specific therapeutic factors in the treatment of anticipatory chemotherapy-related nausea and vomiting. Thirty paediatric oncology patients (5 to 17 years of age), following baseline assessment, were randomly assigned to one of three groups: "treatment as usual" control group, therapist contact group and a hypnosis training group, during an identical chemotherapy course. 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 (9).

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 (11) major studies are still needed in which there are multiple baseline and intervention assessments, post-intervention follow-up, appropriate controls, and comparisons of hypnosis and other behavioural techniques in the treatment of aversive

**Table 1. Comparison of hypnotic intervention studies for nausea and vomiting in children with cancer**

Study	Patients (n)	Age range (years)	Design	Interventions	Outcome Measures	Results
Zeltzer et al. 5	12	12-20	Baseline-post-test	Hypnosis	Daily frequency, times of onset and cessation, and intensity of emesis episodes. Trait anxiety (Spielberger Trait Anxiety Scale), self-esteem (Rosenberg Self-Esteem Scale), perception of control over one's health (Wallston Health Locus of Control Scale)	Eight patients demonstrated significant reduction in the frequency and intensity of emesis. Trait anxiety scores were significantly lower at retest but no significant change were found in scores of health locus of control, impact of illness, and self-esteem
Zeltzer et al. 6	19	6-17	Repeated measures	Hypnosis, Supportive counselling	Severity of nausea and vomiting, extent to which these symptoms "bothered" the patients	Both interventions were associated with significant reduction in nausea, vomiting and the extent these symptoms "bothered" patients
Zeltzer et al. 7	54	5-17	Randomised controlled trial	Hypnosis Distraction/relaxation Placebo	Nausea duration and severity vomiting duration and severity distress, disruption of school, eating, sleep, and play	Hypnosis was effective in reducing both anticipatory and post-chemotherapy and nausea vomiting
Cotanch et al. 8	12	10-18	Randomised controlled trial	Self-hypnosis Standard treatment	Frequency, severity and duration of emesis, intensity and duration of nausea, oral intake	Hypnosis was effective in reducing all of the outcome measures
Jacknow et al. 9	20	6-18	Randomised controlled trial	Hypnosis Control	Nausea severity, vomiting frequency, supplemental antiemetic medication usage. Anticipatory nausea severity, frequency, and time of onset before chemotherapy. Anticipatory vomiting frequency and time of onset before chemotherapy.	Hypnosis was effective in decreasing antiemetic medication usage and reducing anticipatory nausea and vomiting. The two groups did not differ in severity of post-chemotherapy nausea and vomiting
Hawkins et al. 10	30	5-17 trial	Randomised controlled Control	Hypnosis Placebo	Anticipatory nausea anticipatory vomiting nausea was effective in reducing anticipatory	Hypnosis was effective for the reduction of anticipatory and vomiting. Therapist contact nausea.

chemotherapy side effects. To facilitate comparison of the important elements of the studies reviewed, a table was devised that cites each of the studies reviewed and provides a description of the participants, the research design, the major procedures, and the major findings (Table 1).

## PROCEDURE-RELATED PAIN MANAGEMENT

Paediatric cancers are not in their majority painful but children with cancer undergo numerous painful procedures for diagnosis, therapy, and supportive care, including venepuncture, lumbar puncture, bone marrow aspiration, and biopsy. Young patients consider painful procedures to be the most difficult part of having cancer and frequent repetition of procedures does not desensitize them to the distress (12,13). Due to the traumatic nature of bone marrow aspirations (BMAs) and lumbar punctures (LPs), it may take up to three years for children to "adjust" to the procedures or to encounter them without extreme distress and trauma (14).

The experience of procedure-related cancer pain has been the focus of numerous case studies and a considerable number of systematic investigations in the hypnosis field. In a classic study Hilgard and LeBaron (15) investigated the effectiveness of hypnosis in relieving pain and anxiety due to BMAs in 24 6 to 19 years old children and adolescents with cancer. Data were gathered both at baseline and posthypnotic treatment times and consisted of self-reports of pain and pain-related anxiety and observation of distress behaviour by an independent observer. For the 24 patients treated by hypnosis statistically significant reductions over baseline occurred both for pain and anxiety in the first hypnotic treatment session. The reductions of pain and anxiety were related significantly to hypnotizability as measured by the Stanford Hypnotic Clinical Scale for Children (16). Therapist attention, degree of rapport and amount of intervention were not controlled for in this study. It is possible that these elements have confounded the results (17,18).

Zeltzer and LeBaron (19) compared hypnotic with nonhypnotic behavioural techniques for efficacy in reducing pain and anxiety in 33 children and adolescents (6 to 17 years) during BMAs and LPs. Nonhypnotic behavioural techniques included a combination of deep breathing and distraction. Both hypnotic and nonhypnotic interventions were conducted during the medical procedures and patients in both groups were encouraged to have practice sessions. Self-report and observational data were collected. For both lumbar punctures and bone marrow aspirations, intervention was associated with an overall reduction in pain and anxiety. A significant interaction found between the

amount of pain reduction and the type of intervention suggested that hypnosis was more effective than non-hypnotic techniques.

Kellerman et al (20) evaluated the effectiveness of hypnosis in reducing anxiety and discomfort during BMAs, LPs, and chemotherapeutic injections in 16 adolescents with cancer using a pre-test post-test design. Self-report measures were used as baseline data to assess patient's anxiety and discomfort. Measures of anxiety and discomfort were recorded separately on 5-point Likert scales (1 = none, 5 = maximum) and were gathered immediately before, during, and immediately following one of the above mentioned procedures. Standardized psychological measures were also used to assess four psychological dimensions: trait anxiety, self-esteem, health locus of control, and illness impact. Hypnotic interventions were individualized to the needs and interests of each patient. Significant reduction in both anxiety and discomfort at all three time periods were found after the hypnotic intervention. On the psychological measures, only a significant reduction in trait anxiety after hypnosis intervention was detected.

Katz et al (17) compared the effects of hypnosis with play interventions in children undergoing repeated BMAs. Thirty-six children (6 to 12 years) were randomly allocated into either a hypnosis or a play comparison group. Major components of the hypnotic intervention included the development of rapport, direct discussions about the child's medical history and treatment needs, active imagery adjusted to the interests of each individual child, deep muscle relaxation, and suggestions. The specific suggestions incorporated were: imagery to reduce or reframe sensory/pain experiences, distraction and relaxation, pairing positive affect with medical procedures, developing a sense of mastery and control over sensory and affective experience, post-hypnotic suggestions for practicing and reentering hypnosis with a cue from their therapist during actual procedures. The comparison study condition consisted of nondirected play sessions that were designed to control for the amount of time and attention the child received from the psychologist performing the hypnotic intervention. Patients were followed for a period of 6 months after the psychological treatment. Immediately prior to each child's next three BMAs (after initial intervention), children were seen in the clinic for a 20-minute intervention by the same therapist they had seen in previous sessions. Both self-report and observer measures were utilized as dependent measures in this study. Children in both hypnosis and comparison groups demonstrated significant decreases in self-report of fear and pain from baseline to postintervention BMAs, with no major differences between groups. Thus, it appears that hypnosis and

play are equally effective in reducing subjective pain and fear to BMAs, while having no significant impact on observable behaviour, when group data are evaluated as a whole.

Kuttner et al (21) compared distraction, hypnosis/imaginative involvement, and a standard practice control group, in the reduction of procedural pain and distress during BMA in 30 children, 3 to 10 years of age. In the distraction intervention, a therapist engaged the children in blowing bubbles, counting, puppet play, and looking at pop-up books during the procedure. The hypnotic group received a combination of hypnotic suggestion, guided imagery, and therapist support. Following treatment, each child was assessed

during two consecutive BMAs. The only significant finding to emerge indicated that, among younger children (3 years to 6 years 11 months), the hypnotic treatment produced lower distress scores than did the distraction or control treatments in the first BMA only. By the second BMA, the younger children in the three groups showed equivalent reductions in distress scores. There was no significant differences in self-reported pain and anxiety among the three groups.

Wall and Womack (18) examined the differential effects of standardized instruction in hypnosis or active cognitive strategy for provision of relief from procedure-related pain and anxiety. In the active cognitive strategy, patients were trained to use their own chosen

**Table 2. Comparison of hypnotic intervention studies for paediatric procedure-related cancer pain.**

Study	Patients (n)	Age range (years)	Design	Interventions	Outcome measures	Results
Hilgard and LeBaron (15)	24	6-19	Baseline, post-test	Hypnosis: (induction) eye fixation and closure, suggestion for relaxation, imagery, post-hypnotic suggestion for comfort during BMA	Self-reported pain, observer-rated anxiety	Significant reduction in self-reported pain and observer-rated anxiety from baseline to post-treatment
Zeltzer and LeBaron (13)	33	6-17	Repeated measures, factorial	Hypnosis: Therapist-assisted imagery Nonhypnotic condition: deep breathing, distraction (counting, hand squeezing and talking)	Self-reported pain, self-reported anxiety	BMA: pain specifically reduced in both treatment groups, anxiety reduced in hypnosis/imagery group only; anxiety significantly reduced in both treatment groups. Overall hypnosis/imagery associated with greater reduction in pain and anxiety than distraction
Kellerman et al (29)	16	11-16	Baseline, post-test	Hypnosis: (induction) eye fixation or levitation, rhythmic breathing, suggestions for relaxation, increased well-being, visualization of a favorite place, post-hypnotic suggestion for comfort and mastery during the procedures (BMA, LP, VP)	Self-reported pain, self-reported anxiety	Significant reduction in pain and anxiety from baseline to post-treatment
Katz et al (17)	36	6-12	Repeated measures, factorial	Hypnosis: (induction) eye fixation with or without eye closure, imagery, muscle relaxation, and suggestion related to coping with sensory aspects of BMA. Post-hypnotic suggestion for re-entering hypnosis with cue from therapist. Control: unstructured play sessions prior to BMA	PBRS-r, nurse rating of anxiety, self-reported fear, self-reported pain, therapist-patient rapport ratings, and response to hypnosis ratings	No significant difference in distress scores increased from first to third BMA, equivalent reductions in self-reported pain and fear from baseline to post-treatment in both groups, consistent increase in scores from first to second BMA
Kuttner et al (21)	30	3-10	Repeated measures, factorial	Distraction: bubble blowing, pop-up books, puppet play, deep breathing Hypnotic imaginative involvement: suggestions for the time reduction, analgesia using a pain switch technique, and imaginary stories. Control: standard practice	Self-reported pain, self-reported anxiety, PBRS-r, observer-rated pain anxiety	No significant difference in distress scores for children: younger children in hypnosis groups had lower distress scores on first BMA only, no significant difference in pain and anxiety among groups
Wall and Womack (18)	20	5-18	Repeated measures, factorial	Hypnosis: (induction) arm levitation, relaxation, visual imagery, cued to use hypnosis with taped message. Active cognitive strategy: Procedural information plus distraction activities	Self-reported anxiety, self-reported pain, observer-rated pain, and observer-rated anxiety	Both interventions were effective for reducing pain but not anxiety. No difference in pain or anxiety reduction between groups
Hawkins et al (22)	30	6-16	Parallel group	Hypnosis: (induction) visual imagery, indirect hypnotic suggestions	Self-reported pain, self-reported anxiety, observed distress (PBCL)	No differences in pain, anxiety and observed distress scores between the two groups
Lioffi and Hatira (23)	30	5-15	Parallel group	Hypnosis: (induction) relaxation and visual imagery, request for numbness, topical, local and glove anaesthesia CB training: relaxation, breathing exercises, and cognitive restructuring. Control: lidocaine	Self-reported pain, self-reported anxiety and PBCL	Hypnosis and CB training were equally effective in the relief of pain. Children reported more anxiety and exhibited more behavioural distress in the CB training condition

Adapted from Ellis and Spanos NP. Cognitive behavioural interventions for children's distress during bone marrow aspirations and lumbar punctures: a critical review. *J Pain Symptom Manage* 1994;9:96-108.

BMA: bone marrow aspiration; LP: lumbar puncture; VP: venipuncture; PBRS-r: Procedural Behaviour Rating Scale-Revised; PBCL: Procedure Behaviour Check List; CB: cognitive-behavioural

distraction during the BMA or LP. Participants were 20 paediatric oncology outpatients ranging in age from 5 to 18 years. Data were obtained by both self-reports and observation measures and were collected at both baseline and postintervention periods. Interventions consisted of group practice sessions, where each group met twice in the week between baseline and postintervention medical treatments. This study is unique in its approach to using group treatment for cancer pain with children and adolescents. Experimenters were blind to the preintervention data. At the time of the second BMA or LP, patients were cued by tape to make use of the techniques learned during the training sessions. Results indicated a significant treatment effect in the reduction of pain in both self-report and observed ratings. Anxiety as rated by patients self-reports were not reduced significantly. In examining differences in pain reduction by treatment, Wall and Womack (18) found no significant differences between the hypnosis and the active cognitive strategies group. The authors concluded that while both techniques appeared significantly effective in pain reduction, neither was more effective than the other and neither appeared effective in anxiety reduction. In terms of hypnotizability, the authors reported no significant differences in results between high- and low-hypnotizable participants.

Hawkins et al (22) examined the differential effectiveness of direct versus indirect hypnotic suggestions. Thirty children (5 to 15 years) with leukaemia and non-Hodgkins lymphoma who were undergoing regular lumbar punctures were randomly allocated to two groups. In one group, children were hypnotized and given direct suggestions associated with pain relief. In the second group children were given indirect hypnotic suggestions (i.e. therapeutic stories and metaphors) associated with pain relief. After hypnotic intervention, there was a significant reduction over baseline for pain and anxiety during lumbar punctures in both groups. Direct and indirect hypnotic methods were found to be equally effective. The level of hypnotizability was associated with the magnitude of treatment outcome. The study was performed in such a way that no conclusion regarding the level of analgesia was possible, since no control group was used. However, the low pain scores indicate that effective analgesia was achieved during LP by both hypnotic interventions.

Lioffi and Hatira (23) 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 (age 5 to 15) undergoing BMAs. Patients were randomized to one of three groups: hypnosis, a package of CBT coping 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 control group, children like in all groups 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.

Overall, hypnosis interventions were found to be effective in reducing pain and anxiety in all of the studies conducted up to day. The consistency of findings indicates the usefulness of hypnosis as an intervention for helping children and adolescents with cancer control pain and anxiety associated with invasive medical procedures. To facilitate comparison of the important elements of the studies reviewed, a table was devised that cites each of the studies reviewed and provides a description of the participants, the research design, the major procedures, and the major findings (Table 2).

## CONCLUSION

Clearly hypnosis has been shown in a number of studies to reduce the distress of children with cancer undergoing a variety of stressful procedures and chemotherapy. These studies have been conducted by a number of investigators using various experimental designs. Milling and Constantino (1) concluded that a review of controlled studies on the efficacy of clinical hypnosis with children reveals promising findings, particularly for reduction of acute pain and chemotherapy-related distress. However, no child hypnosis intervention currently qualify as "efficacious" according to criteria for empirically supported therapies (EST) (25) A major limitation of the existing literature relative to the EST guidelines is the lack of treatment specification via a manual or its equivalent. To establish a therapy as empirically supported studies are required by the EST guidelines to utilise a treatment manual, except where the treatment is simple and adequately described in the journal article.

Future direction should include the compilation of these treatments into published treatment manuals and further dissemination of the findings. Emphasis should be placed on the potential for combined and complementary applications, as opposed to an either/or approach (26). Repeated measures design, adequate sample sizes and appropriate control groups are essen-

tial along with the measurement of hypnotizability in all groups (27). Treatments should be described in sufficient detail so that comparisons across studies can be made. It would also be helpful if findings from these investigations were reported in terms of both clinical and statistical significance.

## REFERENCES

1. Milling LS and Constantino CA. Clinical hypnosis with children: first steps toward empirical support. *The International Journal of Clinical and Experimental Hypnosis* 2000;48(2):113-137.
2. Morrow GR and Hickok JT. Behavioral treatment of chemotherapy-induced nausea and vomiting. *Oncology* 1993;7(12):83-89.
3. Morrow GR and Dobkin PL. Anticipatory nausea and vomiting in cancer patients undergoing chemotherapy treatment: prevalence, etiology, and behavioral interventions. *Clinical Psychology Review* 1988;8:517-556.
4. Jacobsen PB and Redd WH. The development and management of chemotherapy-related anticipatory nausea and vomiting. *Cancer Investigation* 1988;6(3):329-336.
5. Zeltzer L, Kellerman J, Ellenberg L, and Dash J. Hypnosis for reduction of vomiting associated with chemotherapy and disease in adolescents with cancer. *Journal of Adolescent Health Care* 1983;4:77-84.
6. Zeltzer L, LeBaron S, Zeltzer PM. The effectiveness of behavioral intervention for reduction of nausea and vomiting in children and adolescents receiving chemotherapy. *Journal of Clinical Oncology* 1984;2(6):683-690.
7. Zeltzer LK, Dolgin MJ, LeBaron S, LeBaron C. A randomized, controlled study of behavioral intervention for chemotherapy distress in children with cancer. *Pediatrics* 1991;88(1):34-42.
8. Cotanch P, Hockenberry M, Herman S. Self-hypnosis antiemetic therapy in children receiving chemotherapy. *Oncol Nurs Forum* 1985;12:41-46.
9. Jacknow DS, Tschann JM, Link MP, Boyce WT. Hypnosis in the prevention of chemotherapy-related nausea and vomiting in children: a prospective study. *Developmental and Behavioral Pediatrics* 1994;15(4):258-264.
10. Hawkins PJ, Lioffi C, Ewart B, Hatira P, Kosmidis H, Varvutsi M. Hypnotherapy for control of anticipatory nausea and vomiting in children with cancer: preliminary findings. *Psycho-Oncology* 1995;4:101-106.
11. LeBaron S and Zeltzer L. Behavioral intervention for reducing chemotherapy-related nausea and vomiting in adolescents with cancer. *Journal of Adolescent Health Care* 1984;5:178-182.
12. Weekes DP and Savedra MC. Adolescent cancer: coping with treatment-related pain. *Journal of Pediatric Nursing* 1988; 3(5): 318-328.
13. Kazak AE, Boyer BA, Brophy P, Johnson K, Scher CD, Covelman K, Scott S. Parental perceptions of procedure-related distress and family adaptation in childhood leukemia. *Children's Health Care* 1995;24(3):143-158.
14. McGrath PJ and Unruh AM. *Pain in children and adolescents*. Elsevier, Amsterdam 1987.
15. Hilgard JR, LeBaron S. Relief of anxiety of pain in children and adolescents with cancer: quantitative measures and clinical observations. *International Journal of Clinical and Experimental Hypnosis* 1982;30:417-442.
16. Morgan AH, Hilgard JR. The Stanford Hypnotic Clinical Scale for Children. *American Journal of Clinical Hypnosis* 1978/79;21 (2-sup-3):148-169.
17. Katz ER, Kellerman J, and Ellenberg L. Hypnosis in the reduction of acute pain and distress in children with cancer. *Journal of Pediatric Psychology* 1987;12(3): 379 -394.
18. Wall VJ and Womack W. Hypnotic versus cognitive strategies for alleviation of procedural distress in pediatric oncology patients. *American Journal of Clinical Hypnosis* 1989;31(3):181-191.
19. Zeltzer L, LeBaron S. Hypnosis and non-hypnotic techniques for reduction of pain and anxiety during painful procedures in children and adolescents with cancer. *Journal of Pediatrics* 1982;101:1032-1035.
20. Kellerman J, Zeltzer L, Ellenberg L, Dash J. Hypnosis for the reduction of the acute pain and anxiety associated with medical procedures. *Journal of Adolescent Health Care* 1983;4:85-89.
21. Kuttner L, Bowman M, Teasdale M. Psychological treatment of distress, pain, and anxiety for young children with cancer. *Developmental and Behavioral Pediatrics* 1988;9(6):374-381.
22. Hawkins PJ, Lioffi C, Ewart B, Hatira P, Kosmidis H. Hypnosis in the alleviation of procedure related pain and distress in pediatric oncology patients. *Contemporary Hypnosis* 1998;15(4):199-207.
23. Lioffi C, Hatira P. Clinical hypnosis versus cognitive behavioral training for pain management with pediatric cancer patients undergoing bone marrow aspirations. *The International Journal of Clinical and Experimental Hypnosis* 1999;47(2):104-116.
24. Lioffi C. Management of paediatric procedure-related cancer pain. *Pain Reviews* 1999;6:279-302.
25. Chambless DL, Hollon SD. Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology* 1998;66:7-18.
26. Powers SW. Empirically supported treatments in pediatric psychology: procedure-related pain. *Journal of Paediatric Psychology* 1999;24(2):131-145
27. Lynn SJ, Kirsch I, Barabasz A, Cardena E, Patterson D. Hypnosis as an empirically supported clinical intervention: the state of the evidence and a look to the future. *The International Journal of Clinical and Experimental Hypnosis* 2000;48(2):239-259.