

# Hypnosis as an Adjunct for Managing Pain in Head and Neck Cancer Patients Post Radiotherapy

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**Background:** Many factors contribute to pain in cancer patients. Hypnotherapy is the mental processes, involving conscious and unconscious awareness to understanding of the pain to correct thought, improve emotional acceptance, and reduce pain by the patient themselves.

**Objective:** To examine the effects of hypnotherapy on pain reduction in the patient's with head and neck cancer after radiation therapy.

**Material and Method:** A randomized controlled clinical trial was conducted with the 68 patients who were divided into two groups, i.e., 34 patients undergoing hypnotherapy and 34 patients received usual care. Visual analogue scales (VAS) were used for pain assessment.

**Results:** Sixty-eight patients were recruited in the present study and half were randomly assigned to hypnotherapy group. One participant in the treatment and two participants in the control groups discontinued before the end of the study. Demographic data were comparable in the two groups. No complication was found during, immediately after, or five days after the procedure. After adjusted with baseline, gender, age, non-opioid, week-opioid, and strong-opioid, hypnosis treatment demonstrated significantly less pain score -1.966, (95% CI -2.260 to -1.673, p-value <0.001) than the control group.

**Conclusion:** Hypnosis can reduce pain in patients with head and neck cancer after radiation therapy and it is much better when using combination with the strong opioids. The hypnosis command can be used to reduce chronic pain for cancer patients with head and neck in addition to the usual treatments. Relationships between clinician and patient, patient's knowledge, exploring patient's difficulties, and hypnosis training are all important factors to be considered before the hypnotherapy.

**Keywords:** Hypnosis, Pain, Head and neck cancer, Radiation

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Incidence of head and neck cancer is on a rise, particularly among men in Thailand<sup>(1)</sup>, more often arising from the oral cavity, pharynx, and larynx<sup>(2)</sup>. The lymph nodes, brain, throat, liver, bones, pleura, lungs, skin, and membrane tissue in the skin are the common sites involved in metastasis<sup>(3)</sup>. Neck pain because of cancer is often associated with ulcers arising from spongy organs such as stomach and esophagus<sup>(4)</sup>, whilst other factors including-stage of cancer, may flare neck pain as tumor advances<sup>(5)</sup>. A previous study found that 69% of the patients had experienced increasing amount of pain occurring from different location as the

tumor advanced<sup>(6)</sup>. A survey reported a mean duration of four months of pain among cancer patients from all sectors of Thailand<sup>(7)</sup>, whilst the patients from the northeast Thailand had pain for an average period of 60 days<sup>(8)</sup>. Pain in cancer patients often associated with negative emotions and lead to the belief of cancer becoming worse<sup>(9)</sup>. Radiotherapy for head and neck tumors results in complications, including sore throat, oral ulcers, and swallowing difficulties leading to malnutrition that debilitates patients with harmful complications. Moreover, several factors, including patient's physical ailments may adversely contribute to the intensity of psychological reaction. The pain could be acute, chronic, or both and may arise at any stage of the cancer. Nevertheless, a breakthrough in treating pain can be achieved with adequate pain relieving drugs<sup>(10)</sup>. However, an efficient pain management by medications may not suffice to reduce

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pain in patients with head and neck tumor to make them treatable.

Hypnotherapy is a branch of psychotherapy that alters subconscious thoughts, which could be beneficially applied in cancer patients to reduce pain by improving subconscious awareness and understanding of the problem of pain. Hypnotherapy helps cancer patients by letting them accept pain and the emotional thoughts arising from it. Many researchers have demonstrated the positive effects of hypnosis for pain management<sup>(11)</sup>.

A previous trial showed the positive effects of the treatment outcomes of the complementary hypnosis after medical procedure compared with the control group. However, there is no concrete evidence for the studies of the hypnosis in pain reduction for cancer patients in Thailand. Therefore, this study examined the hypnosis effects provided for patients with cancer pain, particularly focusing on patients with head and neck cancer.

## **Material and Method**

### **Design**

The present study was a randomized controlled trial aiming to evaluate hypnotherapy effects for pain in 68 patients diagnosed with head and neck cancer after radiation therapy. The patients were randomly assigned equally into two groups. The first group was those who underwent hypnotic practice, in addition to the conventional treatment. Anticipated pain levels were measured by a visual analog scale (VAS), horizontal version for intensity. For pain intensity, the scale was most commonly anchored by “no pain” (score of 0) and “worst” or “extremely intolerable” (score of 10).

### **Setting**

The study protocol was approved by the ethics committee for human research of the Faculty of Medicine, Khon Kaen University and was conducted between August 2015 and March 2016, at the in-patient’s radiation therapy Department, Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Thailand. The study aimed to examine the effect of hypnotherapy on the pain in head and neck cancer patients after radiation therapy. Anticipated pain levels were measured by a visual analog scale (VAS) in both groups. On the day of admission, the participant’s pain score was recorded three times by research assistant. From day two to five, pain assessment was recorded four times in both groups. On day four, the treatment

group received a single episode of hypnotherapy for 20 minutes.

### **Inclusion criteria**

The participant were head and neck cancer patients aged between 40 and 70 years, with a score of four on visual analogue scale (VAS) at the first admission. Assessment was performed for vulnerability to hypnosis with Stanford hypnotic susceptibility scale form C with high levels of pain more than or equal to five.

### **Exclusion criteria**

Pregnancy, mental disorders including psychosis, somatoform disorder, dementia, perception disorder, or palliative patients were excluded.

### **Sample size**

The sample size was calculated based on variance in the pretest, which was 10 (measured 15 times) and the mean pain score of the pre-procedural in treatment groups was 2.2 (SD 1.30). In control group, the mean pain score was 3.6 (SD 1.81). The difference between groups of the average pain score was 1.4. Sixty-eight patients initially volunteered and three were dropped out. Therefore, there were 65 participants.

### **Procedure and collection of materials initially**

On the first day of admission, the patients were assessed for the level of pain by visual analogue scale (VAS) by the research assistant three times in 24 hours. A list of patient with a pain score of four or greater was given to the research assistant who selected participants those met the criteria. The next day, the research assistant assessed the level of pain at 6.00 AM, 10.00 AM, 14.00 PM, and 18.00 PM, for four days. The researchers were encouraged to establish a relationship whilst explaining the objectives and the project in details. The patients were given time for inquiries before the consent was obtained. After the consent was given, the researchers evaluated the hypnotic ability of the volunteers in the treatment group by Stanford hypnotic susceptibility scale form C. On the third day, the participants in the treatment group were provided an introduction to the hypnosis exploring differences with the patient and practices of the hypnosis. On the fourth day, the patient underwent hypnotherapy, which took 20 minutes.

### **Statistical analysis**

Baseline characteristics and demographic data

of the patients were compared using independent sample t-test. Pain score and correlation were analyzed using STATA statistical software version 10 under the license of Khon Kaen University, Thailand. For all analyses, the level of statistical significance was set at  $p < 0.05$ .

## Results

Demographic, medical, and other baseline characteristics of the study subjects are presented in Table 1, 2. Table 3 shows a multiple linear regression, comprising Coefficient,  $p$ -value, 95% Confident Interval of pain score.

Sixty-eight patients were recruited in the present study, 34 and 34 block randomization assigned to hypnotherapy and non-hypnotherapy groups, respectively. One participant in the treatment and two participants in the control groups discontinued before the end of the study.

Table 1 and 2 show the patient's demographic characteristics, including age, gender, religion, levels

of education, occupation, cancer diagnosis, current treatment, level pain at admission, state of cancer, location of pain, and other management in which these were comparable in the two groups. No complication was found during, immediately after, or five days after the procedure.

Table 3 demonstrates the results of a multiple linear regression of VAS pain score. After adjusting with baseline, gender, age, non-opioid, weak-opioid, and strong-opioid, hypnosis treatment demonstrated significantly less pain score -1.966 (95% CI -2.260 to -1.673,  $p$ -value  $< 0.001$ ) than the control group.

## Discussion

Hypnosis has been used increasingly as an adjunct with conventional medications for treating pain in cancer patients. Many studies have reported hypnosis complementing regular treatments for patients with head and neck cancer on radiation therapy in hospital. Hypnosis role is enhancement rather the main mode of treatment. They are used as an adjunct to

**Table 1.** Baseline characteristics and demographic data of the patients

Variables	Intervention	Control	Overall	$p$ -value
Age (year), mean (SD)	54.41 (8.95)	57.29 (7.72)	55.85 (8.95)	0.160
Minimum 41, maximum 70				
Gender				0.214
Males	24 (35.2%)	19 (28%)	43 (63.2%)	
Females	10 (14.7%)	15 (22.1%)	25 (36.8%)	
Religion				1.000
Buddhist	34 (50%)	34 (50%)	68 (100%)	
Levels of education				0.463
Less than primary school	23 (33.8%)	25 (36.8%)	48 (70.6%)	
Secondary school (9 years)	4 (5.9%)	2 (2.9%)	6 (8.8%)	
Higher secondary (12 years)	5 (7.4%)	7 (10.2%)	12 (17.6%)	
Bachelor	2 (2.9%)	0 (0%)	2 (2.9%)	
Occupation				0.086
Housewife/unemployed	2 (2.9%)	11 (16.2%)	13 (19.1%)	
Laborer	8 (11.7%)	5 (7.4%)	13 (19.1%)	
Seller	5 (7.4%)	2 (2.9%)	7 (10.3%)	
Agriculture	15 (22.1%)	13 (19.1%)	28 (41.2%)	
Government officer	4 (5.9%)	3 (4.4%)	7 (10.3%)	
Type of cancers				0.205
Nasopharynx	21 (30.9%)	13 (19.1%)	34 (50%)	
Oral and tongue	7 (10.3%)	15 (22.1%)	22 (32.4%)	
Glottis	6 (8.8%)	6 (8.8%)	12 (17.6%)	
Current Treatment				0.063
Radiation therapy	5 (7.3%)	1 (1.5%)	6 (8.8%)	
Radiation + chemo	16 (23.6%)	12 (17.6%)	28 (41.2%)	
Radiation + surgery	7 (10.3%)	13 (19.1%)	20 (29.4%)	
Radiation + chemo + surgery	6 (8.8%)	8 (11.8%)	14 (20.6%)	

**Table 2.** Baseline characteristics and demographic data of pain

Variables	Intervention	Control	Overall	p-value
Pain level at admission				0.400
4-7	30 (44.2%)	32 (47%)	62 (91.2%)	
8-10	4 (5.9%)	2 (2.9%)	6 (8.8%)	
Stage of cancer				0.618
Stage 3	13 (19.1%)	11 (16.2%)	24 (35.3%)	
Stage 4	21 (30.9%)	23 (33.8%)	44 (64.7%)	
Pain location				
Head	22 (32.35%)	22 (32.35%)	44 (64.7%)	1.000
Cheek	16 (23.5%)	27 (39.7%)	43 (63.2%)	0.005
Tongue	4 (5.9%)	11 (16.2%)	15 (22.1%)	0.041
Maxilla, nasopharynx	11 (16.2%)	6 (8.8%)	17 (25%)	0.166
Neck	21 (30.9%)	21 (30.9%)	42 (61.8%)	1.000
Others	3 (4.4%)	3 (4.4%)	6 (8.8%)	1.000
Other pain management with non-medication				
Massage	7 (10.3%)	9 (13.2%)	16 (23.5%)	0.574
Compress	0 (0.0%)	1 (1.5%)	1 (1.5%)	0.321
Read the book	9 (13.25%)	9 (13.25%)	18 (26.5%)	1.000
Meditation	18 (26.4%)	15 (22.1%)	33 (48.5%)	0.474
Worship	21 (30.9%)	18 (26.4%)	39 (57.3%)	0.469
Listen to music	6 (8.8%)	7 (10.3%)	13 (19.1%)	0.762
Medication				
Non opioid	31 (45.6%)	30 (44.1%)	61 (89.7%)	0.695
Weak opioid	12 (17.7%)	14 (20.5%)	26 (38.2%)	0.624
Strong opioid	10 (14.7%)	15 (22.1%)	25 (36.8%)	0.214
Anti-depressants	18 (26.5%)	13 (19.1%)	31 (45.6%)	0.230
Mouthwash	21 (30.9%)	13 (19.15%)	34 (50%)	0.053
Topical oral drugs	11 (16.1%)	6 (8.9%)	17 (25%)	0.166
Reduce constipation	16 (33.55%)	16 (33.55%)	32 (47.1%)	1.000
Antiemesis	12 (17.7%)	5 (7.3%)	17 (25%)	0.051
Steroid	5 (7.3%)	4 (5.9%)	9 (13.2)	0.725

**Table 3.** Effects on pain by multiple linear regression

Variables	Coefficient	p-value	95% CI
Group	-1.966	0.000	-2.260, -1.673
Baseline	0.278	0.038	0.015, 0.542
Gender	0.041	0.783	-0.257, 0.340
Age	0.012	0.123	-0.003, 0.029
Non-opioids	0.240	0.302	-0.221, 0.702
Weak-opioids	0.065	0.661	-0.232, 0.363
Strong-opioids	0.356	0.047	0.004, 0.707
Adjuvant	0.160	0.260	-0.121, 0.442

cognitive behavior psychotherapy<sup>(12)</sup>. This approach is in accordance with the view that hypnosis is not a treatment, but as an enhancement form of treatment.

The hypnosis is a non-pharmacologic on frequently cited in pain control<sup>(13)</sup>. Hypnosis for the

management of chronic pain has been shown to help relieve the symptoms of cancer pain. There have been positive effects for the reduction of chronic pain and pain associated with cancer. The study found that the hypnosis has reduced the pain in patients with head and neck cancer to statistically significant level. This is consistent with a study on breast cancer patients that found that those assigned to treatment in standard care or expressive-supportive therapy<sup>(14)</sup> that included clinical hypnosis demonstrated significantly less pain. Another study of advanced-stage cancer patients with malignant bone disease<sup>(15)</sup> showed hypnosis intervention group had a significant decrease in pain.

One study showed that the patients who received the strong opioid analgesic decreased in pain significantly compared with those who were treated with chemotherapy<sup>(16)</sup>. Another study compared hypnosis with the treatment modification techniques

“cognitive behavior therapy (CBT)” found that overall hypnosis could reduce the pain in the floor of mouth. However, there was no significant difference between groups for nausea and vomiting or taking opioid.

However, in this present study, the level of pain was not associated with gender, age, and pain medication in a group other than the group with strong opioid, in which this was consistent with the previous study examining pain intensity as perceived by patients with cancer and their caregivers<sup>(17)</sup>. The study found that age and gender could not explain the variability of the pain but might be due to the society culture of hidden feelings and being considerate to people who care. Moreover, the cancer patients would be having pain and suffering by the clinical condition of the diseases. However, these are inconsistent with another study<sup>(18)</sup> that found that the experience of emotional pain between female and male was statistically significant different.

### Conclusion

Hypnosis can reduce pain in patients with head and neck cancer after radiation therapy and it is much better when using in combination with the strong opioids. The hypnosis command can be used to reduce chronic pain for cancer patients with head and neck in addition to the usual treatments. Relationships between clinician and patient, patient’s knowledge, exploring patient’s difficulties, and hypnosis training are all important factors to be considered before the hypnotherapy.

### What is already known on this topic?

Hypnosis produces an altered state of consciousness, awareness, or perception. Hypnosis is a relax state of mind, at both conscious and unconscious levels, and the patient is receptive to suggestions for treatment. It involves the learning to use the concept, the mind to manage emotional distress, and undesirable physical symptoms like pain. A session of the hypnosis may be different depending on the requirements of the patients.

### What this study adds?

Hypnosis is an alternative for caring to cancer patients, particularly in palliative care for cancer patients to reduce related symptoms of radiation and chemotherapy such as pain. Hypnosis is used clinically for cancer patients ranging from one to several times. This study focused on management the pain by self-hypnosis to enhance the treatment of cancer pain.

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### Potential conflicts of interest

None.

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## การสั่งจิตช่วยจัดการความปวดในผู้ป่วยมะเร็งศีรษะและคอที่ได้รับรังสีรักษา

ชนินฐา ทูมา, ฐานพัฒน์ ดิฐสถาพรเจริญ, สุวรรณ อรุณพงศ์ไพศาล, พูลสุข ศิริพุด

ภูมิหลัง: ความปวดในผู้ป่วยมะเร็งมีปัจจัยหลายอย่างที่อาจนำไปสู่ปฏิกิริยาทางจิตใจที่มีความรุนแรง การสั่งจิตเป็นกระบวนการสื่อสารทางความคิด คำพูด เพื่อให้จิตสำนึกและจิตใต้สำนึกรับรู้และเข้าใจถึงปัญหาความปวดแล้วไปปรับปรุง แก้ไขความคิดอารมณ์ให้เกิดการยอมรับ และลดปัญหาความปวดจากตัวผู้ป่วยเองได้

วัตถุประสงค์: เพื่อศึกษาผลของการสั่งจิตต่อความปวดในผู้ป่วยมะเร็งศีรษะและคอที่ได้รับรังสีรักษา

วัสดุและวิธีการ: ทำการศึกษาแบบ randomized controlled trial ในผู้ป่วยมะเร็งศีรษะและคอที่ได้รับรังสีรักษาในผู้ป่วยในโรงพยาบาลศรีนครินทร์ สุ่มตัวอย่างด้วยวิธีการ block randomized control trial จำนวน 68 ราย แบ่งผู้ป่วยเป็น 2 กลุ่ม กลุ่มศึกษาได้รับการสั่งจิตร่วมกับการรักษาปกติ และกลุ่มควบคุมไม่ได้รับการสั่งจิตแต่ได้รับการรักษาปกติ ประเมินระดับความปวดก่อนและหลังการสั่งจิตด้วยมาตรวัดความปวดด้วยสายตา (VAS) วิเคราะห์ข้อมูลด้วยโปรแกรม STATA เวอร์ชัน 10 multiple linear regression, ช่วงเชื่อมั่นร้อยละ 95

ผลการศึกษา: อาสาสมัคร 68 คน แบ่งผู้ป่วยเป็น 2 กลุ่ม กลุ่มละ 34 คน คือกลุ่มที่ได้รับการสั่งจิตและกลุ่มที่ไม่ได้รับการสั่งจิต กลุ่มทดลองมี 1 คน และกลุ่มควบคุม 2 คน ออกก่อนจบการศึกษาลักษณะทางประชากรทั้งสองกลุ่มไม่แตกต่างกัน ไม่พบภาวะแทรกซ้อนในระหว่างและหลังการศึกษา เปรียบเทียบปัจจัยด้านเพศ อายุ ยาแก้ปวดที่ได้รับในกลุ่มอื่นที่ไม่ใช่ กลุ่ม strong opioid ค่าสัมประสิทธิ์การถดถอยของตัวพยากรณ์ไม่ต่างกัน ผลการศึกษา เปรียบเทียบคะแนนปวดหลังได้รับการสั่งจิตพบว่า ค่าสัมประสิทธิ์การถดถอยคะแนนความปวดกลุ่มทดลองมีค่าน้อยกว่า 1.966 คะแนน (95% CI -2.260, -1.673) p-value 0.000, เมื่อเทียบกับกลุ่มควบคุม

สรุป: การสั่งจิตสามารถช่วยลดความเจ็บปวดในผู้ป่วยมะเร็งศีรษะและคอที่ได้รับรังสีรักษาได้ และจะดีมากขึ้นเมื่อใช้ร่วมกับยาในกลุ่ม strong opioids การสั่งจิตจึงสามารถนำไปใช้ลดความปวดเรื้อรังให้กับผู้ป่วยมะเร็งศีรษะและคอได้ เป็นการเสริมจากการรักษาปกติ สิ่งที่ต้องคำนึงถึงคือควรสร้างสัมพันธภาพ ค้นหาปัญหาที่เกิดขึ้นกับตัวผู้ป่วย ให้ความรู้ ฝึกการสั่งจิต ซึ่งเป็นสิ่งสำคัญก่อนการสั่งจิตเพื่อให้ผลของการสั่งจิตลดปวดมีประสิทธิภาพมากขึ้น

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