

Aromatic Essential Oil Acupressure Combined with Music Therapy in Cancer Pain Management

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How to cite this paper: Su, H. and Liu, J. (2023) Aromatic Essential Oil Acupressure Combined with Music Therapy in Cancer Pain Management. *Journal of Biosciences and Medicines*, 11, 318-324.

<https://doi.org/10.4236/jbm.2023.1112024>

Received: November 16, 2023

Accepted: December 22, 2023

Published: December 25, 2023

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Abstract

Objective: To explore the effect of aroma oil acupressure combined with music therapy in pain intervention for tumor patients. **Methods:** 60 patients with malignant tumors accompanied by cancer pain who were hospitalized in the oncology department of a tertiary-level hospital in Jingzhou City, Hubei Province, from January 2022 to December 2022 were selected as the study subjects, and were divided into 30 cases in the control group and 30 cases in the intervention group according to the stratified sampling method. The control group was divided into 30 cases of control group and 30 cases of intervention group according to the stratified sampling method. The control group was given medicine according to the conventional step analgesia, and the intervention group was given medicine according to the conventional step analgesia with the addition of aromatic oil acupressure combined with music therapy, and the effect of the intervention was valued by the NRS, the SAS and the SDS. **Results:** The NRS, SAS and SDS of patients in the intervention group were lower than those in the control group ($p < 0.05$). **Conclusion:** Aromatic oil acupressure combined with music therapy can effectively improve the pain symptoms of tumor patients, relieve anxiety and improve the quality of sleep of patients. Combined with pharmacological methods of pain relief, it can reduce the dose of pain medication and the frequency of administration of medication, and find a safe, low-cost, non-pharmacological pain complementary alternative therapy for tumor patients with cancer pain.

Keywords

Cancer Pain, Aromatic Essential Oils, Acupressure, Music Intervention, Effectiveness

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1. Introduction

Cancer is one of the most threatening diseases to human life and health at present, and most cancer patients will have cancer pain, which is easy to make the patients anxious, pessimistic, and psychologically, which seriously affects the quality of life of the patients and aggravates their conditions [1]. Pain is one of the most common and intolerable symptoms in cancer patients and seriously affects the quality of life in cancer patients. The incidence of pain in new cancer patients is about 25%, while that in patients with advanced cancer can reach 60% to 80%, with 1-third of these patients having severe pain [2]. Relieving cancer pain and improving patients' quality of life have become one of the most important measures in cancer treatment. For this reason, in 1986, the World Health Organization (WHO) proposed the "three-step therapy for cancer pain" as the main analgesic program [3]. Although the three-step pharmacological analgesic therapy has greater efficacy, due to the rapid development of cancer itself, the current pain medication can hardly meet the needs of some patients, therefore, it is necessary to use non-pharmacological treatments to improve the symptoms of pain at the same time of pharmacological analgesia. In recent years, with the development of medical technology and the deepening of cancer pain research, there are more and more treatment options, especially in the field of non-pharmacological treatment, not only physical therapy methods such as acupuncture and moxibustion, but also cognitive therapy modes such as psychological assistance and health education, as well as interventional therapy methods such as peripheral nerve block and nerve destruction, which are proven to have the role of relieving cancer pain [4]. Currently, the non-drug pain relief methods applied clinically include: acupuncture, moxibustion therapy, acupoint embedding therapy, tuina massage therapy, music therapy, aromatherapy, nerve block therapy, etc. Each method has its own characteristics. Each method has its own characteristics and can relieve cancer pain to a certain extent, especially in dealing with cancer patients with a longer course of disease and milder pain symptoms with better efficacy. Essential oils are extracted from aromatic plants. The National Association for Holistic Aromatherapy (NAHA) recommends that essential oils should be blended with a 1% - 5% dilution, *i.e.* 1 - 5 drops of essential oil per 5 ML of carrier oil [5]. Commonly used essential oils for pain relief, sleep aid, and fatigue relief include marjoram, eucalyptus oleoresinol, rosemary, ylang-ylang, peppermint, grapefruit, and others. Essential oil molecules can penetrate into the dermis in 3 min, enter the blood and lymph in 5 min, and can be completely excreted from the body in 4 - 12 h. Listing *et al.* [6] used rose and calendula essential oils to massage (head, neck, and back) of 115 cases of breast cancer patients for 30 min twice a week for 5 weeks, and the results also showed that this aromatherapy significantly improved the pain and discomfort of the patients. Acupressure is a TCM nursing technique that utilizes traditional Chinese medicine theories to apply force to acupoints on the surface of the patient's body in order to dredge meridians and regulate the function of the body's internal organs.

Most of the intervention studies on acupoint massage have been conducted in China, and it has been pointed out that massaging acupoints such as Yintang, Fengchi, Neiguan, Hegu, Houxi, and Leshou can effectively relieve patients' anxiety and pain. Music therapy refers to a therapeutic method that utilizes the art of music to regulate people's emotion and promote the cure of diseases. Music therapy used in oncology clinic is one of the emerging therapeutic methods in recent years, which has the effect of relieving nervousness or dysfunctional psychological state, promoting metabolism, enhancing immune function, and treating the disease. Meanwhile, music therapy is based on the different types of patients to play their suitable music, which is easy to operate, less costly, and has no side effects, and reduces the cost of treatment when helping to alleviate the discomfort [7]. Music therapy is increasingly recognized by health-care professionals as a non-pharmacological intervention due to its convenience, lack of side effects, and economy [8]. In this technique, two non-pharmacological pain relief methods, namely acupressure with aroma oils and music therapy, are jointly applied to patients with cancer pain in order to increase the efficacy of pain relief, relieve pain and discomfort, alleviate anxiety, relieve cancer pain, and improve the quality of sleep and quality of life for patients with cancer pain [9].

2. Information and Methodology

2.1. General Information

Stratified sampling method was used to select 60 patients with malignant tumors accompanied by cancer pain who were hospitalized in the oncology department of a tertiary-level hospital in Jingzhou City, Hubei Province, from January 2022 to December 2022 as the study subjects. 1) Inclusion Criteria: a) Patients with confirmed diagnosis of malignant tumors accompanied by cancer pain; b) Aged 18 - 70 years old and agreed to participate in the study; and c) Numeric rating scales (NRS), with scores of 1 - 10; d) expected survival period of more than 3 months; e) conscious and able to cooperate with the completion of the study. 2) Exclusion criteria: a) patients who had received aroma oil acupressure and music therapy 6 months before the hospitalization; b) patients with allergy to aroma essential oils or impaired sense of smell; c) congenital or pathologically deaf; d) patients who are participating in other clinical research; e) patients who are currently participating in other clinical research; and Those who are currently participating in other clinical studies; f) Those who have a score of <50 on the Terminal Patient Condition (Survival) Assessment Scale. g) Past and present mental illness, consciousness disorder and communication disorder. 3) Exclusion criteria: a) aggravation of the condition, poor compliance and low cooperation; b) transfer to other departments or other hospitals in the middle of the treatment; c) abandonment of the treatment by the patient or family members during the treatment and automatic discharge. 4) Termination criteria: a) poor tolerance to essential oils; b) aggravation of the condition, consciousness disorder; c) poor

compliance and failure to cooperate.

The patients were divided into the control group and the aromatic oil acupressure combined with music therapy group using the computerized completely random numbering method, with 30 cases in each group. The 60 cases of the selected patients were grouped by the random number table method, 30 cases in the control group, 18 men and 12 women, aged 45 - 70 years, average (57.17 ± 7.07) years old, with a disease duration of 2 - 5 years, average (3.27 ± 1.14) years; and 30 cases in the experimental group, 17 men and 13 women, aged 45 - 70 years, average (58.03 ± 6.61) years old, with a disease duration of 2 - 3 years, average (3.27 ± 1.08) years. Average (3.27 ± 1.08) years. The difference between the two groups was not statistically significant ($p > 0.05$) and is comparable. See **Table 1**.

2.2. Methodology

2.2.1. The Control Group

Adopts conventional analgesic nursing interventions, the main contents include: pain assessment should be carried out every time the oncology patients are received; the assessment is based on the patient's main complaint, following the principles of routine, quantitative, comprehensive and dynamic; the medication is timely, accurate and standardized in accordance with the doctor's prescription, the analgesic effect is monitored and the adverse reactions are prevented; the patient and the main caregiver should be educated with the knowledge of pain-related knowledge. Provide patients with routine psychological interventions, dietary guidance, comfortable hospital environment, monitoring vital signs, using analgesic drug interventions, and instructing patients to adopt a comfortable position, thus relieving pain. The intervention was continued for 15 days.

2.2.2. Observation Group

Based on the control group, aromatic oil acupressure combined with music therapy intervention treatment, the specific contents are as follows. Aromatic oil acupressure combined with music therapy intervention group was set up: 1) the members of the group included doctors of traditional Chinese medicine, doctors and cancer pain nurses, with the head nurse as the leader of the group, and the

Table 1. Comparison of general information of the two groups of patients.

Groups	Number of examples	Gender (cases)		(a person's age	Course of disease	Educational attainment
		Male	Women	(years, $\bar{x} \pm s$)	(years, $\bar{x} \pm s$)	(years, $\bar{x} \pm s$)
Control subjects	30	18	12	57.17 ± 7.07	3.27 ± 1.14	9.57 ± 4.10
Experimental group	30	17	13	58.03 ± 6.61	3.27 ± 1.08	10.10 ± 3.45
χ^2		0.003		0.413	0.067	0.018
t-value		-0.372		-0.456	0.000	-0.717
p-Value		0.712		0.652	1.000	0.479

members of the group received regular training, which included health knowledge, knowledge of aroma oil acupressure combined with music therapy, nursing skills, and communication skills with the patients and their families. Through the examination, the team members' mastery of the training content was tested to ensure that the patients were able to accept the correct nursing interventions, thereby reducing their pain and improving their quality of life. 2) Health education: explain the purpose of the study and intervention methods to patients and their families, distribute the information related to aroma oil acupressure and music therapy, and explain the purpose of the study, sign the informed consent form before the implementation of the study interventions. The patients and their families were taught the methods of taking acupoints and massage techniques by means of video combined with on-site demonstration, WeChat sent colorful diagrams of human acupoints, and talked about the role of essential oils, precautions and methods of use. 3) Standardize the operation process: do a skin spot test for patients before the operation, no allergic person can implement the aroma essential oil massage. Ask the patient to lie still, breathe steadily, close your eyes, choose the appropriate aromatic oil poured on the hands, by trained nurses personally or instruct family members to carry out acupressure points (Yintang points, Fengchi points, Neiguan points, Hegu points, Leshou points, Houxi points, etc.) 10 - 15 min, during the period of time, choose the patient's mood for the music to be played, the massage is completed to continue to play the music for 30 min, the aroma of the oil massage once a day, a reasonable choice of time can be; every day at bedtime, the music can be classified according to the music mood, such as: pleasant, soft, lyrical, passionate, sad and so on. Aromatherapy oil massage is performed once a day, and the time can be reasonably selected. Every day before bedtime, intervention music is played again.

Aromatic oil acupressure can reduce pain, muscle tension and lymphedema, helping to increase self-acceptance and cope with physical changes. Factors such as the melody of the music have a positive effect on the nervous system, while the subject can be guided verbally through the meditation.

2.3. Evaluation Indicators

Patients in the intervention group underwent the first pain assessment on the first day of admission, which met the inclusion criteria for 15 d. The patients were assessed for pain on the 7th and 14th d, and the pain relief effect before and after the application was compared. Patients discharged from the hospital could be monitored via WeChat or telephone follow-up to see if they were on time for the intervention. The intervention period was 15 d. Before the intervention, on the 7th and 14th day of the intervention, the tumor pain evaluation scale commonly used at home and abroad was used, respectively. Numeric Rating Scale (NRS), Negative Psychological Scale (NPS) NRS, SAS and SDS [10] were used to evaluate patients' pain, anxiety and depression.

Table 2. Comparison of indicators before and after the intervention in the two groups (points, years, $\bar{x} \pm s$).

groups	NRS score			SDS scores			SAS score		
	Day 0	Day 7	Day 14	Day 0	Day 7	Day 14	Day 0	Day 7	Day 14
Control group (N= 30)	3.83	3.40	3.00	58.33	56.63	54.03	58.53	57.50	55.90
	\pm 1.02	\pm 0.85	\pm 0.52	\pm 5.37	\pm 5.07	\pm 4.71	\pm 5.50	\pm 5.52	\pm 5.42
Experimental group (N= 30)	4.17	3.37	2.50	59.47	54.50	50.10	59.73	56.07	52.00
	\pm 1.26	\pm 0.96	\pm 0.73	\pm 4.96	\pm 4.54	\pm 3.74	\pm 4.78	\pm 4.75	\pm 4.39
χ^2	0.15	0.213	0.150	0.608	0.325	0.601	0.516	0.103	0.221
t-value	-1.306	0.162	3.525	-0.894	1.899	3.764	-0.962	1.287	3.477
P-value	0.202	0.873	0.001	0.379	0.067	0.001	0.344	0.208	0.002

2.4. Statistical Methods

SPSS26.0 statistical software was used to process the data, and the measurement data conforming to normal distribution were expressed by ($\bar{x} \pm s$) and compared by *t* test; the count data were expressed by the number of cases and the rate (%), and the comparison between the groups was made by the χ^2 test, and the rank data were compared by the rank-sum test. The difference was considered statistically significant at $p < 0.05$.

3. Results

The baseline NRS, SAS and SDS scores of the two groups were not statistically significant ($p > 0.05$). The NRS, SAS and SDS scores on the 7th and 14th day after intervention were significantly lower than those of the control group, and the differences were statistically significant ($p < 0.05$) (See **Table 2**). Combination therapy has the advantages of safety and reliability, and 30 patients in the aromatic essential oil acupuncture combined with music therapy group had no adverse reactions.

4. Discussion

The NRS, SAS and SDS scores on day 7 and day 14 were significantly lower than the routine analgesic care intervention, indicating that the therapy of the combination was effective. Aromatic essential oil acupuncture combined with music therapy can effectively improve patients' pain symptoms, relieve anxiety, improve patients' sleep quality, improve the quality of life of tumor patients, and has the advantages of safety, reliability, ease of use, and small toxic side effects, etc., and the joint application with medication pain relieving methods can reduce the dosage of pain medication and the frequency of administration of medication, so as to find a safe, low-cost, non-pharmacological pain supplementation for patients with oncological cancer pain. Alternative therapy. Non-pharmacological interventions applied to cancer pain in patients with advanced tu-

mors can relieve cancer pain and improve sleep quality and quality of life [9].

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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