Short Report

Effect of music therapy for patients with cancer pain

Raji Kaliyaperumal[a],*, Jaya Gowri Subash[b]

[a,*]Prof. Raji Kaliyaperumal, Vice Principal, K.G. College of Nursing & Hospital, Coimbatore, India.
[b] Dr. Jaya Gowri Subash, Ph.D (Nursing) Professor in nursing, Ranimeyammai College of nursing, Annamalai University, Chidambaram, India.

A R T I C L E   I N F O

A B S T R A C T

Cancer is one of the most important diseases in the world. Every year about 8, 50,000 new cancer cases are diagnosed in India, resulting in about 5, 80,000 death. Cancer pain can result from the cancer itself or cancer treatment such as chemotherapy, radiation and surgery. To evaluate the effect of music on pain for patients with cancer. Music intervention has been evaluated as an appropriate nursing intervention to reduce patients pain, stress and anxiety level in several clinical settings. Music release endorphins thus reduce the perception of pain through the components of the gate control theory of pain. The sample consists of 40 women, between the age group of 30-50 years with breast and cervix cancer receiving chemotherapy were allocated to either music listening (n=20) or routine nursing care only (n=20).The treatment group received 20 minutes of music therapy twice a day for 3 days. Pain was recorded before and 5 minutes after the intervention by using numerical pain intensity scale. Paired 'T' test was used to assess the effect of music on pain both the group. In the music group 'T' value is significantly higher than the tabulated value at 5%, 'Z' test was used to assess the difference between experimental and control group, this shows significantly higher than the tabulated value at 5%. Music therapy is a beneficial nursing intervention that promotes relaxation and alleviates the perception of pain among the patients. Music therapy could be used as an intervention along with other modalities of pain management as it has no adverse effect.

1. Introduction

Cancer is second largest non-communicable disease and it has a more contribution in the total number of death globally. Indian council of Medical research institute stated that, India accounts for nearly 6% of death due to breast cancer; globally 1 out of every 22 women in India is diagnosed with breast cancer. Breast cancer is rapidly overtaking the number of cervical cancer among Indian women. There will be approximately 2,50,000 new cases diagnosed as breast cancer in India by 2015. In India the incidents of breast cancer has steadily increased over the year and as many as 1, 00,000 new patients are being deducted every year. The average age of the high risk group for breast cancer in India is the women between 43 46 years. In India, cervical cancer is the most common women related cancer, followed by breast cancer. Every year cervical cancer is diagnosed about 5, 00,000 women globally and is responsible for more than 2, 80,000 deaths annually .There is a wide variation in the incident of cervical cancer across the globe.

In the west, early detection through regular screening has aided to significantly control the prevalence of this disease, thereby lowering its incidences. The number of deaths due to cervical cancer is estimated to rise to 79,000 by the year 2010 in India. The cancer mostly affects middle-aged women between 40 – 55 years, especially those from the lower economic status, who failed to carry out regular health checkup due financial inadequacy. In urban areas, cancer of the cervix account for over 40% of cancer, while in rural areas it accounts 65%   as per the information from the cancer research center [1].

Background of the study: The World Health Organization reports that in 85 97% of all cancer cases pain can be controlled. People living with cancer life are precious, because of the prognosis. When pain become part of each day of life , if the pain is not taken care , these days are diminished and quality of life is eroded. In addition to medication, there is several techniques that can be useful in managing pain. These techniques can be used in conjunction with medication or in some cases can be used alone to effectively manage pain. Several alternative method of pain control for cancer has been sanctioned by the National Institute of Health.

* Corresponding Author : Prof. Raji Kaliyaperumal
  K.G. College of Nursing & Hospital, Coimbatore,
  Mobile: +91 9952710627, Fax: +91 422 2211212, E-mail: drrajiphd@gmail.com

Raji K, J Gowri Subash / Int J Biol Med Res. 2010; 1(3): 79-81.

80

These include Cognitive technique such as distraction, visualization, relaxation and biofeedback. Music has been used in medicine for thousands of years. Ancient Greek philosopher believed that music could heal both the body and mind. Some people believe music therapy may be beneficial addition to the health care of children with cancer by promoting social interaction and co-operation. Music therapy works in chronic pain management by providing sensory stimulation that evoke a response in the patient. There are several theories about how music therapy positively affect perceived pain (1) music serve as a distracter (2) music may give the patient a sense of control (3) music caused the body to release endorphine to counteract pain (4) slow music relaxes a person by slowing their breathing and heart beat. Distracting can be effective in moderating pain primarily through the cognitive component of the gate control theory of pain. Attending to pleasant stimuli occupies the capacity of the information processing system, disabling the individual from fully attending to the pain-causing stimulus [1]. Music therapy can help to reduce pain and relieve chemotherapy induced nausea and vomiting [2]. Research has found that music used as a clinical intervention can help patient by reducing the amount of pain they perceive, by promoting relaxation, rhythmic breathing, alleviating anxiety & stress, giving their mood a positive boost [3].

2. Materials and Methods

A quasi-experimental design was used to explore the effect of music therapy on pain in the GKNM hospital; Coimbatore. The study purpose was discussed with the consultant of the sample and the ethical committee of the hospital. The committee given acceptance to conduct such a study in the cancer unit. The study purpose was explained to the sample the confidentiality of the sample was assured and consent was obtained from the sample to conduct study. Number of patient consulting per month average about 200 with breast and cervical cancer, it is considered as population, from the population 40% sample taken for the study. Based on inclusion criteria the samples were selected for the study. Inclusion criteria such as who receiving chemotherapy for the first time, interested in listening music, who stay in the hospital for three days. Convenient sampling technique was adopted for this study. The sample consists of 40 women between the age group of 30-50 years with breast and cervix cancer receiving chemotherapy at first time were allocated to either music listening (n=20) or routine nursing care only (n=20). The basic demographic data such as age, marital status, education, source of health information, stage of illness, psychological support, site of cancer and number of children were collected by interview schedule and health record. The treatment group received 20 minutes of music therapy (classical music) twice a day at the time of 7am and 7pm for three days in the conducive environment through headphone. Pain was recorded before and 5 minutes after intervention by using numerical pain intensity scale in the experimental group, the same schedule followed in the control group with routine care.

2.1. Statistical analysis

All data were computed as Mean, SD and frequency distribution The statically significance were analyzed by paired "t" test, p value @ 5% significant.

3. Results and Discussion

Table 1 shows distribution of demographic variables of cancer patients. Regarding the age of the samples, 12 (60%) in the experimental group, 12 (60%) in the control group belong to the age group of 30-40 years and 8 (40%) in the experimental group, 8

(40%) in the control group belong to 41-50 years. Regarding the marital status 16(80%)in the experimental group and 15(60%) in the control group were married, rest of the sample were fall in the categories of unmarried and widow. Regarding education status in the experimental group 8 (40%) falls in the category of primary education and in the control group 11(55%) falls in the category of illiterate. Majority of the sample from experimental and control group received information from health care professionals. Majority of the sample from experimental and control group 10 (50%) falls in the category of stage III and rest in stage I & II. Bothexperimental and control group 16(80%) got psychological support from family members. Regarding site of cancer , breast and cervical cancer sample 10(50%) were equally participated in the study. Regarding number of children in the experimental group 15(70%) were having one child and in the control group 16(80%) were having one child.

Table 1. Distribution of demographic data of cancer patients

Demographic Variables	Group			
	EXPERIMENTAL		CONTROL	
	No	%	No	%
Age in years:				
a). 30-40	12	**60**	12	60
b). 41-50	8	40	8	40
Marital status:				
a). Married	16	80	15	60
b). Unmarried	2	10	3	30
c). Wido	2	10	2	10
Education:				
a). Illiterate	6	30	11	55
b). Primary	8	40	4	20
C. Secondary	6	30	5	25
Source of Health Information:				
a). Family member	5	25	4	20
b). Neighbors	5	25	7	35
c). Health professional	10	50	9	45
Stage of illness:				
a). Stage II	8	40	8	40
b). Stage III	10	50	10	50
c). Stage IV	2	50	2	10
Psychological Support:				
a). Family	16	80	16	80
b). Relative	2	10	2	10
C). Friends	2	10	2	10
Site of cancer:				
a). Breast	10	50	10	50
b). Cervix	10	50	10	50
Number of children:				
a). One	15	70	16	80
b). Two	3	20	20	10
c). More than two	2	10	2	10

Table 2. shows that calculated value of 't' is greater than table value at 1.96 level of significance. There is a significant difference between the experimental and control group in day 1, day 2 and day 3.This shows that music therapy is effective in reducing pain

Table 2. Comparison of post test pain score in experimental and control group

Number of days	Experimental Group		Control Group		Calculated Value of "t"
	Mean	S.D	Mean	S.D	
DAY 1	4.55	1.08	6.25	0.59	8.71
DAY 2	4.20	0.99	5.90	0.78	8.73
DAY 3	4.05	1.36	5.50	0.72	5.97

Raji K, J Gowri Subash / Int J Biol Med Res. 2010; 1(3): 79-81.

81

Table 3. shows that calculated value of "t" is greater than the tabulated value at 2.09 levels. There is significant difference between the experimental group in pre test and post test pain in day 1, day 2 and day 3.It revealed that music therapy is an effective intervention for reducing pain among cancer patients.

Table 3. Comparison of pre /post test pain scores in experimental group

Number of days	Experimental Group				Calculated Value of"t"
	Pre test		Post test		
	Mean	S.D	Mean	S.D	
DAY 1	6.45	1.04	4.45	1.08	22.03
DAY 2	5.75	0.71	4.20	0.99	19.46
DAY 3	5.60	1.26	4.05	1.36	15.35

Calculated value of "t" is greater than the tabulated value at 2.09 levels. There is significant difference between the experimental group in pre test and post test pain in day 1, day 2 and day 3.It revealed that music therapy is an effective intervention for reducing pain among cancer patients.

The above result was supported by the study conducted in the department of cardiothoracic surgery and centre for health care science in Orebro University on soothing music can increase oxytocin level during bed rest after open-heart surgery. Results revealed that levels of oxytocin increased significantly in contrast to the control group, there were also a significant higher level of pao2 in the music group compared to the control group [4]. Another study conducted in the Department of medicine and care in Sweden on effect of music on postoperative pain. The results revealed that patient exposed to music intra-operatively or post operatively reported significantly lower pain intensity at first and second post operative day and patient in the post operative music group required less morphine at 1hr compared to the control group [5].A study conducted in which 20 patients diagnosed with cancer were divided into a group receiving music therapy or a control group. Utilizing the Beak Depression inventory, Hospital Anxiety and Depression scale, and the Hamburg Quality of life Questionnaire in the author found significant improvement in the scale values of self esteem, depression and anxiety in the group receiving music therapy [6]. The other study found that patients in the music therapy experienced significantly less pain and stress than those in the patient with pain medication only in control group among cancer patient [7]. In a study of 50 hospitalized cancer patients, half of the randomly assigned participants with live music and other half with a recorded music. The profile of mood status was administered prior to and after the music therapy session. Patients receiving live music were significantly more likely to report an increase in vigor as well as decreased tension and anxiety than those individual receiving taped music [8].

Pain is the most common reason people seek help from the medical profession. Nursing used many approaches to treat pain such as (1) pain medication (2) imagery (3) deep breathing and (4) music. This study supported the gate control theory of pain and provides support-using music as a modality to relieve pain [9]. This study focus on cancer pain, describe music therapy as a non-invasive intervention, which allows a patient to relax, providing distraction from the pain intensity and completed with the pain impulses in the central nervous system. It is recommended to allow patients to choose the music they prefer and let them express their feelings [10]. Another study discusses the use of music in the operating room. Music used in the operating room has the potential to provide positive result for both surgeons and operating room staffs when they are allowed to listen to music of their choice. Listening resulted in improvement of both speed and accuracy. Familiar music increased their concentration and reduces the deterioration of vigilance overtime. Music chosen by the patient before, during and after surgery yielded anxiolytic effect and improved tolerance to pain. When music was provided to anesthetized patient, they required fewer anesthesias during surgery and less analgesia during recovery [11]. The study looked at postoperative women who had hysterectomy 10 minutes segments of easy listening music were used on the first 2 days after surgery. The women scored their anxiety rating it on a scale of 0-5, from calm to extremely anxious after listening to music; the amount of anxiety reported was significantly lower. The women used these music sessions 3 hours after their pain pills. Their pain lessened by the music only on the second postoperative day [12].

4. Conclusion

Music therapy is a beneficial nursing intervention that promotes relaxation and alleviates the perception of pain among the patients. Music therapy could be used as an intervention along with other modalities of pain management as it has no adverse effect. Music intervention should be offered as an integral part of the multimodal therapy administered to the patients with pain that reduce the pain and increases relaxation.

5. References

[1]   Arora B, Kurkure PA. Breast cancer: Search for new targets and improvement of existing techniques. Indian Journal Of Cancer.2010; 47: 10-11.

[2]   Lane D. Music therapy a gift beyond measure. Oncology Nursing Forum. 1992; 19:863-867.

[3]   Hilliard RE. The effect of music therapy on the quality and length of life of people diagnosed with terminal cancer. Music Therapy.2003; 40:113-137.

[4]   Evans D. The Effectiveness of music as an intervention for hospital patients. Journal of Advanced Nursing. 2000; 37(1): 8-18.

[5]   Roberts S. Music therapy for chronic pain. The Diabetes forecast .2000; 55(9): 26-28.

[6]   Pelletier CL. The effect of music on decreasing arousal due to stress a meta-analysis. Music therapy.2004; 41:192-200.

[7]   Kwekkeboom K. Music versus distraction for procedural pain and anxiety in patient with cancer. Oncology Nursing Forum.2003; 30(3): 433-440.

[8]   Wade JB, Hart RP. Attention and the stage of pain processing. Pain medicine. 2002; 3(1): 30-38.

[9]   Whipple B, Glynn N. Quantification of the effects of listening to   music as a non-invasive method of pain control, scholarly inquiry for nursing practice. An International Journal.1992; 6:143-56.

[10] Bral E.Caring for adult with chronic cancer pain. American Journal of Nursing.1998; 98:27-32.

[11] Thompsom JF. Music is the operating theatre. British Journal of Surgery.1995; 82:1586-1587.

[12] Mullooly, Virginia, Levin, Rona F, Feldman Harriet R. Music soothes postoperative pain and anxiety. American Journal of N u r s i n g . 1 9 9 8 ; 88:949-951.