

A literature review about effectiveness of massage therapy for cancer pain

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Abstract

This literature review explores the effectiveness of massage therapy to reduce cancer pain. As part of the review, systematic literature search was carried out on various electronic databases and specialised journals. Included are 19 research-based articles and 8 review articles. The review suggests that cancer has become a common health problem in the world and most of the cancer patients are going through intense and unbearable pain. Studies have reported that most of the cancer patients' pain reduced with therapeutic massage. Seventy-three per cent of cancer patients use massage therapy in the USA. Few studies are available in the context of the developing world related to massage therapy and we could not find any study in the Pakistani context. There is a need to conduct an interventional study about the effectiveness of massage therapy to control cancer pain in developing countries such as Pakistan.

Keywords: Cancer pain, Therapeutic massage, Cancer pain and complementary therapy, Effectiveness of massage in cancer pain.

Introduction

The concept of cancer and cancer pain has become more prevalent in the world. Cancer patients usually go through intense and chronic pain.¹ Dickman defined pain as a subjective unpleasant feeling that may or may not be due to obvious injury to individuals and it affects them physically, mentally and emotionally.² Patients may experience moderate to severe pain due to malignant tumour or side effects of treatment regimes like chemotherapy, radiation therapy or surgery.³

Worldwide 9 million people are suffering from cancer pain.¹ Pain management is one of the significant aspects of oncology care. In some oncology care settings, patients usually receive only pharmacological support to cope with chronic and unbearable pain. There is a need to introduce some alternative strategies which can relieve cancer pain. Complementary and alternative medicine

(CAM) therapy is emerging as an important concept for pain management in cancer patients, as it is cost-effective and specific.⁴ The National Centre for Complementary and alternative medicine (NCCAM, 2012) defined CAM as "A group of diverse medical and health-care systems, practices and products that are not generally considered part of conventional medicine."⁵ One of the effective complementary therapies for pain management is massage therapy.

This review provides information about cancer incidences, cancer pain and CAM, massage therapy and its use among cancer patients for pain management and gate control theory. The literature search was carried out by using various databases, including: Science direct, Nursing Consult, PubMeds and CINAHL. In addition, nursing journals or health sciences journal, full text and other publication within 10 years were used to get recent, relevant and complete articles.

During literature search, the following key terms were used: 'cancer', 'cancer pain management', 'cancer and complementary therapy', 'massage therapy', and 'effectiveness of massage in cancer pain. Finally, 19 research-based articles and eight review articles related to the topic in the English language were, included in this paper.

Cancer and Cancer Pain

The World Health Organisation (WHO) reported that cancer is rapidly increasing throughout the world. In 2008, 7.6 million people died due to cancer.⁶ In Peshawar (Pakistan), the mean incidence of cancer was 15.04 per 100,000 in 2000-2004.⁷ There are two million cancer survivors in United kingdom.⁸ In United State of America 1,638,910 new cancer cases and 577,190 deaths from cancer are estimated in 2012.⁹ Pain is a most common as well as terrible symptom of cancer that patient's experience.¹⁰ The prevalence of pain is estimated in oncology patients up to 25 % in newly diagnosed, 33% in those who are under active treatment and more than 75 %, in patients with advance stage of cancer.¹¹ Pain is complex; it gives physical as well as psychological discomfort to individuals.² In addition, patients with cancer pain are most likely to go through disability, fatigue and depression.¹² It is considered that cancer pain may be relieved with medication but sometimes it has

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unbearable side effects.³ Therefore it is believed that only pharmacological support is not enough to manage cancer pain, and multidisciplinary approach is required.²

Chemotherapy and radiation therapy have a bad effect on the quality of life of cancer patients which causes them to use more complementary and alternative medicine (CAM).¹³ Ninety one per cent patients, who were on radiation or chemotherapy, are using CAM.¹³ It has been reported that 84% of cancer patients are using complementary or traditional therapies in Pakistan.¹⁴ Yates et al. affirmed that CAM can decrease the physical and psychological pain of patients on cancer treatment.¹³ In USA, cancer centres provide CAM therapies, with the most common being massage and acupuncture.¹⁵

Massage Therapy

Massage is defined as a skill in which different types of strokes are used to manipulate the soft tissue of whole body in order to provide relaxation and relieve pain.¹⁶ Oncology patients use massage therapy during chemotherapy or radiation therapy.¹³ Sims believed that touch is important in nursing profession as it provides comfort and alleviates suffering and communicates caring attitude towards patients.¹⁷ Massage is also a form of touch therapy. It is an ancient form of treatment which started from China, Japan and was later used in India, Arabic nations, Egypt, Greece and Rome.¹⁸ Those patients who received massage said that it reduced their distress level¹⁹ eased tightness and provided relaxation.²⁰

There are many types of massage and back massage is one of the common ones. Sims defined back massage as, a massage that covers only the back area of the patient's body and different strokes are used with both hands.¹⁷ Sims further stated that it should be done with equal and gentle pressure for 10 minutes. It has 3 steps; first is effleurage in which long strokes are given, it starts from the spine and covers the whole back and shoulder. The second step is fanning out, in which the first step continues and circular movements are added on the upper portion of the spine with both hands on both sides of the spine. The third step is feathering in which light strokes are used with finger tips with alternative hand and then final closing of procedure is with cupping. Those patients who received massage and experienced it, felt that it provided a soothing effect and relaxation.²⁰

Many studies conducted in western countries on therapeutic massage revealed that it helps to control cancer-related symptoms. For example, it improves the quality of sleep, reduces pain, anxiety and distress in oncology patients.^{16,21-23} Massage is a famous complementary therapy among Americans and its use is

increasing specifically for pain management.²⁴ Seventy-three per cent cancer patients use massage therapy to cope with the symptoms of cancer and the side effects of the treatment regimen.¹³

Massage Therapy and Cancer Pain

One of the interventional studies conducted in a medical centre of USA²² included 41 cancer patients who were on radiation or chemotherapy and had pain and other cancer symptoms. Numerical rating scale was used to measure the score of pain. Patients received massage three times in a week. Pain was measured at the time of admission and after one week. Out of 41 patients 20 received therapeutic massages for 15-30 minutes and 21 patients received control therapy; nurse interaction. Before massage patients' mean pain score was 9.5 ± 4.9 and in the control group the initial mean pain score was 9.3 ± 6.9 . After getting massage patients' pain score decreased to 7.3 ± 5 and in the control group post test mean score was 10.2 ± 6.7 . Paired t test showed that, patients who received massage therapy had significant decrease in pain with $p < 0.10$.

In addition, Weinrich and Weinrich conducted an experimental study on 28 oncology patients assess the effectiveness of massage therapy to control cancer pain.²³ Two groups of 14 patients each in interventional and control group were found. Patients were paired based on their frequency to take analgesic medications. Each pair was randomly assigned to interventional group or control group. Patients who were in interventional group got 10 minutes back massage. Visual analogue scale (VAS) (0-10) was used to measure the pain intensity of the patients. Pain was measured immediately after the intervention, then after an hour followed by 2 hours. Before massage, pain mean score was 3.1 ± 2.8 and in the control group it was 2.2 ± 3 . Male patients had reported significant decrease in pain immediately after the therapeutic massage ($p < 0.01$).

An exploratory study was conducted by Ferrel Tory et al to assess the effect of therapeutic massage on pain perception and anxiety.²¹ They included nine male hospitalised cancer patients experiencing cancer pain. Thirty minutes of therapeutic massage was provided to them on two consecutive evenings. Pain was measured on VAS immediately after interventions. Before massage the pain score was 3.1 ± 2.8 in patients and in control group it was 2.2 ± 3 . Male patients had a better response ($p < 0.01$). On day one mean pain score pre massage was 48.2 ± 29 . After massage mean pain score decreased to 18.7 ± 22.5 mm. On second day mean pain score before massage was 43.3 ± 31.4 and decreased to 20.7 ± 22 mm.

Cassileth and Vickers conducted a study by reviewing patients assessment cards.¹⁶ This study was conducted in Memorial Sloan Kettering Cancer Centre in New York. Patients reported their symptoms level on a card in the pre- and post-massage state by using 0-10 rating scale. Data was collected from 2000-2003 on 1290 patients. Both in-patients and out-patients were included. In this medical centre, three types of massage were provided which included; Swedish massage, light touch massage and foot massage. Average duration of massage was 20 minutes for in-patients and 60 minutes for out-patients. Pain and other symptoms were assessed before massage and 5-15 minutes after massage. There was 40% decrease in pain scores of patients after getting massage. Data indicated that out-patients improved 10% more than the in-patients.

A randomised control trial by Kutner et al was done to see the efficacy of massage therapy for the management of cancer pain and distress in patients with advanced stage of cancer.²⁵ Immediate assessment of pain was done on 0-10 scale of pain and detailed assessment, with the help of Brief Pain Inventory (BPI). There were 380 oncology patients who participated in the study. Six sessions of 30 minutes of massage or simple touch were provided to the participants. Patients were randomly assigned in intervention (massage) and control group (simple touch). Data was collected from 2003-2006 from 15 hospices and a cancer centre and patients who had at least moderate pain were included in the study. Baseline pain score was 3.7 ± 2.6 and after massage therapy, mean change of pain score was $1.8 \pm 95\%$ CI. This immediate improvement in pain was clinically significant.

One pilot study conducted in Taiwan to examine the longitudinal effect of full body massage on pain intensity and other symptoms of patients with metastatic bone pain.²⁰ Quasi-experimental pre-post design with repeated measures was used to evaluate the time effect of massage therapy (MT) on 30 cancer patients. Duration of each massage was about 45 minutes. Present Pain Intensity Visual Analog Scale (PPI-VAS) and McGill pain questionnaire as well as BPI with some modification were used to measure pain. Cronbach's alpha for the quality of pain was 0.78 and reliability 0.82 for test re-test of pain intensity in this study. Initial mean pain score was 5.4 ± 1.2 . The findings suggest that MT has a positive effect on short-term as well long term pain reduction. Study results showed statistically significant decrease in pain sites at 16 to 18 hours $p < 0.04$ and the mean pain score decreased to 3.2 ± 2 .²⁰ Present pain as well as worse pain reduced from base-line after getting MT. However, it was statistically not significant.²⁰

Another pilot study carried out in Pennsylvania was a randomised control trial with repeated measures.²⁶ Study sample was 18 patients aged 75 and above, living in a nursing home, and diagnosed with solid tumour and had completed cancer treatment. They used a checklist of Non-verbal Pain Indicators (CNPI) to measure pain. It is a behavioural observation scale for non-verbal older adult having cognitive impairment. One group received Swedish massage, and the second one reflexology. Baseline mean pain score was 2.29 ± 1.2 which decreased to 1.58 ± 1.2 after the massage therapy. However after reflexology, pain score was 2 ± 0.79 . Results showed that both groups had reduced pain scores but statistically it was not significant.

Precautions and Side Effects

There are some side effects of massage therapy such as pulmonary embolism, strangulation²⁷ bruises, fatigue and headache.²⁴ Severe side effect may occur when unqualified and untrained personnel perform massage on patients.²⁴ It is essential that therapeutic massage should be performed by trained therapists in order to provide a safe intervention.^{10,20} No patient reported experiencing any adverse effect of MT.^{20,25,28} Massage was safe and feasible for patients with advance level of cancer to improve their quality of life.²⁹ There are some health conditions in which a therapist needs to take precautions, and modify MT such as skin fragility, oedema, postural limitations and bone metastasis.^{22,25} In addition, sometime therapists need to avoid particular sites for massaging; such as the site of inflammation, tumour, trauma and deep vein thrombosis.²⁵

Framework

Gate-control theory (GCT) has been used by many researchers when they discussed action of massage therapy for pain management.³⁰ Melzack and Wall offered gate-control theory for the first time in 1965.³⁰ Chronic pain increases anxiety and it opens the gate and increase the pain perception.³¹ According to GCT as mentioned in Helms & Barone,³² there is a gate in the nervous system which inhibits or facilitates pain signal. There are certain stimuli which cause pain, when they are transmitted to the spinal cord and then to the central area of brain. Pain impulses reach the dorsal horn of the spine and finally the brain with basic sensations at the thalamus. Stimulation of fibers that transmit non painful stimuli can block pain transmission at the dorsal horn. If touch receptors are stimulated they can close the gate and massage is also a type of touch that could control the pain.³²

Conclusion

Many of the cancer patients experience tremendous pain

which makes pain management important for health-care providers. Few studies on the effectiveness of massage therapy for cancer pain management are available in the developing world. None could be found in Pakistan. There is a need to conduct an interventional study to assess effectiveness of massage therapy to control cancer pain on Pakistani patients. It is a non-invasive, cost-effective method of symptom control for patients with a chronic illness. However, to provide safe patient care, there is need to have a trained and certified therapist. Massage could be introduced as a supportive therapy by healthcare providers along with pharmacological intervention for the pain management of oncology patients.

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