

Effects of Massage Therapy on Clinical Symptoms of Older People

Abstract

Nurses can improve outcomes of patient care by integrating complementary and alternative therapies with traditional medical practices. Among the non-pharmacological methods that can be used in geriatrics and gerontology are massage, aromatherapy, relaxation, meditation, therapeutic touch, biofeedback (neurotherapy), guided affective imagery (creative psychotherapy), reflexology, acupressure, and naturopathy. Massage therapy attracts the attention of healthcare professionals, patients, and families because it improves many symptoms, it has no side effects, it is easy to learn and apply, and is safe, effective, and economical. Massage therapy is used in geriatric patients for various purposes. For instance, it is effective in the management of pain, agitation, stress, anxiety, worry, and depression, it relieves constipation and improves the range of motion of the joints. Massage therapy together with pharmacological treatments reduces many symptoms of neurological diseases and neurological disease-associated risks, and it has a safe, supportive and positive effect. It is thought that this review, based on the effects of massage therapy, can be a guide especially for nurses working with elderly patients in the neurology clinic.

Keywords: Elderly, symptom, massage therapy

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Introduction

Aging is a universal and irreversible process of change, starting from birth continuing to death, which causes a reduction in all functions.¹ The aging process is accompanied by symptoms such as loneliness, depression, physical dysfunction, pain, and helplessness, and there is a need for a multidisciplinary approach to remove or relieve these symptoms. In this regard, the use of complementary and alternative therapies is a supportive approach to the treatment of symptoms and rehabilitation in old people.² Nurses can improve the results of patient care by integrating complementary and alternative therapies with traditional medical interventions.³ Among the non-pharmacological methods that can be used in geriatrics and gerontology are massage, aromatherapy, relaxation, meditation, therapeutic touch, biofeedback (neurotherapy), guided affective imagery (creative psychotherapy), reflexology, acupressure and naturopathy.²

Older adults, compared to young people, are prone to long-term chronic illnesses such as arthritis, heart and lung diseases, Parkinson's disease, dementia, Alzheimer's disease, and diabetes. This increases the cost of health care, and so increases the use of complementary therapies.⁴ In America, 31% of adults aged 50 or over use complementary therapies.^{3,4} Studies found that the frequency of use of massage therapy, herbal remedies, and acupuncture in elderly women coming for breast and cervical cancer scans (n=3660) and in aged individuals with diseases of the musculoskeletal system (n=3157) was higher than that of other complementary therapies.^{5,6}

Chronic illnesses, brought by the changing demographics of an aging population, have forced a long-term and costly care process on nurses. In the management of the symptoms of chronic diseases, massage therapy should be given a place in nursing care practice. Massage therapy increases the quality of life by meeting the physical and psychological needs of old people, and at the same time strengthens the relationship between patient and nurse. This review considers the use of massage therapy by aged patients, its importance for nurses, its physiology, and its effectiveness on geriatric symptoms.

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The Physiology of Massage Therapy in Geriatrics

Massage therapy, according to the Complementary and Alternative Medicine Center, is a sub-category of mind-body therapies,⁷ and is an important part of physiotherapy. It is a therapy practiced by touching the muscles of the body to manipulate the soft tissue.⁸ Massage is a practice that stimulates the body by the application of still or moving pressure as effleurage, petrissage, friction, and percussion.^{9,10} Nurses can apply back massage to a patient to calm a geriatric patient in the clinic, to bring on sleep, or to reduce anxiety. Back massage is a traditional nursing intervention and is also accepted as a complementary and alternative treatment.⁹

In massage, when the tissues are stimulated, stimulation is sent to the brain, providing calming. Massage has benefits such as speeding up blood circulation and lymphatic drainage so as to reduce muscle tension, hardness or slackness, pain and stress, and encouraging mental and physical relaxation, and a feeling of wellbeing.^{9,11} Massage prevents the transmission of pain stimuli by secretion of the natural morphine, endorphin, and in this way reduces the feeling of pain.¹² According to gate control theory, in massage therapy, large-diameter fibers close the gate to stimuli carried by small-diameter fibers. Sensory touch (massage) activates mechanoreceptors that perceive sensory stimuli in the brain and increases the stimulation of large nerve fibers on small C nerve fibers in the spinothalamic system via the spinal cord. In this way, pain and its transmission are reduced by increasing blood flow to the tissues.^{13,14} In the effleurage technique, the whole plantar surface of the hand and fingers is used to provide touch stimuli with increasing pressure.¹⁵ In old individuals, the application of a medium level of pressure has positive effects on back, chest, shoulder and knee pain, osteoarthritis, reduced joint range of motion, and on symptoms such as worry, anxiety, depression, and social isolation.¹⁶ It is also used to ease the pain caused by cancer, to reduce stress, to increase relaxation, and to increase mental anxiety.¹⁷ Individuals experiencing depression have high levels of cortisol and low levels of serotonin and dopamine. Application of a medium level of pressure increases vagal activity, and thereby lowers cortisol levels in the saliva and urine through an increase in serotonin and endorphin by activation of the parasympathetic nervous system.¹⁶ Saliva cortisol and saliva alpha-amylase enzymes are recognized as a bioindicator relating to the activity of the sympathetic nervous system and are accepted as a suitable measure of changes in stress level.¹⁸

Geriatric Symptoms and Massage Therapy

Pain and Massage Therapy

Pain is one of the symptoms most commonly reported by old people. Between 25% and 65% of old people living independently in the community, 79% of patients aged over 85, and 45-80% of aged patients confined to bed have a significant amount of daily pain.^{19,29}

The main reasons for pain in old people are diseases relating to the muscles, bones, and joints. These include osteoarthritis, spondylosis, osteoporosis, back and leg pain, rheumatoid arthritis, fibromyalgia, myofascial pain, tenosynovitis, contractures relating to movement, unhealed fractures, Paget disease, and secondary myopathies. Other reasons for chronic pain in old people are malignities, neurological diseases such as nerve root pain and peripheral neuropathy, vascular diseases such as angina pectoris and arteritis, and pain of visceral origin such as peptic ulcers or constipation.³¹ Pain in old people can

lead to reduced functionality, increased risk of falling, sleep disorder, anxiety, agitation, delirium, and poor quality of life.¹⁹

For many reasons, pain in the geriatric population cannot easily be treated. The primary reason for this is that both health professionals and patients have the mistaken idea that pain is an expected and natural result of old age. Second, many old people are unable to report pain because of physical problems such as sight or hearing loss, or cognitive disorders such as memory loss. Thirdly, old people in the terminal period may often conceal pain because of a fear of more tests and treatments. Finally, health professionals may be unwilling to act on the effective management of pain because of a lack of knowledge of pain management strategies, and because of their perceptions of opioids. Patients may also be afraid of dependence on opioid analgesics, and generally choose to live with pain rather than take these agents.^{19,22} America has seen an increase in the prescription of opioids to treat chronic pain, and this has been related to increasing opioid and heroin addiction.²² In the treatment of pain, local treatments and non-pharmacological treatments are recommended in progressively combined form.¹⁹ There has been no critical evaluation of old people suffering from pain other than cancer, for non-pharmacological interventions in pain management.²³ Considering the side effects of pharmacological agents in old people, the most effective non-pharmacological methods which can be safely used in the reduction of pain in the geriatric population while eliminating sleep disorders and improving the quality of life include physiotherapy, osteopathic manipulation, transcutaneous electrical nerve stimulation, acupuncture, biofeedback, cognitive behavioral therapy, psychotherapy, and massage therapy.^{20,21}

In a randomized controlled study by Ardigo et al.²⁰ hypnosis (n=26) and massage therapy (n=27) were applied to 53 old people. A reduction in pain severity was seen in both groups, but this was found to be at a clearer level in the hypnosis group. Boitor et al.²⁴ applied hand massage for 15 minutes to old people in intensive care who were undergoing elective heart surgery. A significant level of reduction in pain severity was seen in the experimental group to whom hand massage was applied (n=21) compared with the control group, whose hands were held (n=19).

A significant increase is expected in the number of geriatric cancer patients in the next 20 years. Approximately 60% of all cancers and 70% of cancer mortality are in those aged 65 or more.²⁵ Between 83% and 93% of old people in health institutions with a diagnosis of cancer complain of chronic pain, and this limits their activities of daily life.²⁶ The American Geriatrics Society has reported that pharmacological pain control methods used along with non-pharmacological methods may reduce chronic pain in older adults.¹⁹ In the national and international literature, no study was found which examined the effect of massage therapy on pain in old people with cancer.^{27,28} In this regard, studies are recommended with a high level of evidence.

Constipation and Massage Therapy

Constipation is a condition that lowers an individual's quality of life, causes exhaustion and loss of work power, increases health care costs, has adverse effects on the level of health, and is particularly seen in old people. After the age of 60, the incidence of constipation increases, and there is a great increase after the age of 70 or 75.^{29,30} Constipation occurs at a rate of 11-55% among old people worldwide.³⁰ In the UK, 1 in 500 Parkinson's patients experience constipation

problems before motor symptoms at a rate of 80-90%. This causes difficult or painful defecation, a feeling of discomfort, a reduction in the quality of life, and an increase in the length of hospital stays and care costs.^{30,31} The incidence of constipation in Parkinson's patients is related to the side effects of medications taken, a reduction in mobility and poor nutrition.³¹ Among the risk factors for constipation in the aged population are gender, medical conditions such as a low level of physical activity, stress, stroke, heart problems and hemorrhoids, and medications such as diuretics, calcium canal blockers, antidepressants, and hypnotics.³⁰

The side effects and the high cost of the laxatives used in the treatment of constipation show the need for non-pharmacological methods.²⁹ Among non-pharmacological methods used for constipation in old people are physical exercise, massage therapy, reflexology, biofeedback (neurotherapy), and lifestyle modifications.³² Massage therapy is a non-pharmacological, easily understood, cheap or free, harmless, non-invasive, and side-effect free method in the management of constipation.³¹ In patients with constipation, massage therapy balances tension of the muscles, fascia, and joints. The definition of tension is the long-term semi-contraction of muscles, fascia, and ligaments. Therapy consists of massaging the muscles, fascia, and joints structurally connected to the painful or excessively tense tissue. In this way, the distribution of tension in the abdominal cavity will normalize, the abdominal organs will have better conditions to work, the autonomic nervous system responsible for the smooth muscle of the colon will be activated, and peristalsis in the colon will increase.³² Nurses have an important role in the care and treatment of constipation. In particular, abdominal massage has recently been widely used by nurses. Abdominal massage is a non-invasive intervention of applying patting, kneading, and vibration in a clockwise direction to the abdomen, resulting in the stimulation of peristalsis. Abdominal massage of the rising, transverse, and descending colons when carried out daily improves intestinal mobility and is effective in reducing medications used for constipation and in regulating bowel movements.³⁷

It was determined by Cevik et al³⁴ that abdominal massage applied to 22 old people with constipation increased bowel movements and the weight of feces, improved consistency, and reduced mean scores for abdominal tension, and also that on days when it was not applied, the bowels were not completely emptied. In a randomized controlled study by McClurg et al.³¹ abdominal massage was applied once a day for 10 weeks to 32 old patients with Parkinson's disease. However, despite an improvement in signs of constipation in the experimental group (n=16), to whom abdominal massage was applied, compared with the control group (n=16), the difference was not found to be significant. Although the time spent on defecation fell from 10 minutes to 4.5 minutes, no difference was found between the groups in frequency of defecation. In a study by Yıldırım³⁵ with 204 patients taking opioid analgesics for cancer and non-cancer pain and who had a problem with constipation, 15 minutes of abdominal massage was given twice a day 30 minutes after breakfast and supper for 4 weeks to the experimental group. It was found that the severity of constipation, the feeling of incomplete voiding, the severity of straining, pain felt in the anus and the severity of gas were statistically significantly reduced, the consistency of feces improved, and the number of defecations and the quality of life scores statistically significantly increased. In conclusion, abdominal massage is recommended in the

management of constipation and constipation-related symptoms and the reduction of their severity.

Behavioral and Psychological Symptoms and Massage Therapy

With the aging of the world's population, it is expected that the prevalence and incidence of dementia, delirium, and Alzheimer's disease will increase. Alzheimer's disease is the most frequently seen type of dementia in old people. More than 55 million people in the world are living with dementia, and every year, approximately 10 million new cases are seen. By 2030, there will be more than 78 million people with Alzheimer's disease, and by 2050 there will be 139 million.³⁶ Delirium is resistant to drug treatment; every year, it affects more than 2.3 million hospitalized old people and increases health care costs. It also increases the possibility of readmission to hospital and health care costs.¹⁵ These aged patients have behavioral and psychological symptoms such as agitation, aggressiveness, anxiety, and depression.^{37,38}

According to family members and nurses, agitation is one of the most difficult behaviors seen in Alzheimer's patients. The prevalence of agitation or aggressive behavior in individuals with dementia is 13-50.4%. The treatment of agitation is difficult because patients refuse to take the medications.³⁹ Families and caregivers experience mental and material stress because of the reducing cognitive function in dementia patients. Because the psychotropic drugs used in the treatment of dementia and Alzheimer's disease increase the risk of falling, interest has recently increased in non-pharmacological methods as a support to increase cognitive function and to improve morale and the quality of life.^{37,38} Among the non-pharmacological methods which can be applied to individuals with dementia are bright light therapy (phototherapy), physical exercise, music therapy, aromatherapy and massage therapy.³⁹ With aging, while tactile sensitivity is reduced, sensitivity to sensory touch increases. It is thought that persons with dementia retain the ability to distinguish the therapeutic and compassionate intentions of stimuli which include physical contact such as touch and massage through the preservation of limbic systems.¹⁸

Schaub et al¹⁸ applied hand massage for 16-20 minutes for 3 weeks to 40 old people with dementia. It was found that stress and agitation levels were significantly lower in the experimental group (n=20) to whom hand massage was applied than in the control group (n=20) who received no intervention. In a randomized controlled study, Dimitriou et al³⁹ applied 1 of 3 non-pharmacological methods (physical activity, music therapy, and massage therapy) every night for 5 days for 20 minutes before going to bed to reduce the level of agitation or aggressive behavior in 60 old people with dementia. In the same study, it was found that the non-pharmacological method that had the most effect in reducing agitation and aggressive behavior was music therapy, followed by massage therapy, and the least effective was physical exercise. In a randomized controlled study by Ardigo et al²⁰ with 53 old people with chronic pain, the depression scores of a hypnosis group (n=26) showed a significant improvement compared with those of a massage group (n=27). In a semi-experimental study by Tannous et al⁹ conducted with 50 male geriatric patients who had suffered a stroke, anxiety levels were 13.3 ± 8.9 , but fell to 8.2 ± 5.6 after light back massage. It was found that the mean depression score improved significantly by 26.41 ± 25.33 after back massage. In conclusion, back massage significantly reduces the

levels of depression and anxiety in geriatric patients in the clinic and is an effective nursing intervention. In a study by Keshavarz et al³⁸ with 70 geriatric patients with Alzheimer's disease (experimental group n=35, control group n=35), agitation scores before head and face massage were found to be 77.2 ± 14.4 and 82.1 ± 17.3 in the 2 groups respectively, while after head and face massage they were 49.7 ± 6.0 and 80.8 ± 18.3 . As a result, no significant difference was found between the 2 groups after head and face massage. However, Basiri et al⁴⁰ carried out 15 minutes of medium intensity back massage for 3 days in a study with 80 elderly women with breast cancer, and a reduction in levels of anxiety was seen in the experimental group (n=40) compared to the control group (n=40). In both studies, the use of back massage was recommended by nurses in clinics to relieve agitation and anxiety. Also, Makinian et al¹⁵ applied face and head massage twice a day (at 10:00 AM and 6:00 PM) to 88 old people in a coronary intensive care unit. There was no significant difference between the study groups (experimental=44, control=44) in pre-test total delirium scores, but after the massage therapy, the delirium total mean score of the experimental group was seen to be significantly higher than that of the control group.

Contractures and Massage Therapy

Contractures can occur in old people because of chronic diseases, particularly Parkinson's disease, or because of being confined to bed. These decrease the patient's activities of daily life, affect the quality of life, and increase health burden.^{15,41}

Souh et al⁴¹ applied 30-40 minutes of shoulder, neck, chest, and back massage once a day for 7 weeks to 11 old people with Parkinson's disease, using petrissage and tapotement movements. One week after the treatment was completed, the range of motion (ROM) of shoulder joints was measured. It was observed that shoulder abduction was improved by performing ROM exercises on the shoulder joints. As a result, it is felt that there is a need for studies with larger sample groups and high evidence levels in order to determine the effectiveness of massage therapy on the range of motion of joints in individuals with Parkinson's disease.

Conclusion

The changing sociodemographic structure in Turkey and the rest of the world focuses attention on the aged population. Old people may have more than 1 chronic disease, and this makes their care long-term, costly and tiring. In Turkey, place should be given to the nursing use of massage therapy in the management of care of old people with chronic diseases, as it is cheap, safe, and of proven effectiveness. The use of massage therapy with old people is effective on the symptoms of neurological diseases, especially pain, constipation, agitation, stress, worry, depression, and joint range of motion, but research is needed on its effectiveness with symptoms relating to other chronic diseases, such as diseases of the cardiovascular system, cancer, diseases of the respiratory system and endocrine system diseases. In particular, there is a need for studies to contribute to the literature, as no studies were found examining the effect of massage therapy on pain in old people with cancer.

Patients with neurological illnesses form the group with the most need for autonomy and self-care. There is a complex process necessitating the use of a number of different methods at the same time which can help in symptom management of neurological diseases.

Massage therapy can secure improvement in many neurological symptoms, and so it is recommended that it can be used safely with old people by nurses in neurology clinics.

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