

Study Gaps Relevant to Use of Complementary Medicine in Patients With Leukemia: A Review Study

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Abstract

Context: A review of the literature of recent decades has shown that few studies have been conducted on the effects of various types of complementary medicine on patients with leukemia. Therefore, the present study aimed to find research gaps in the use of different types of complementary medicine in patients with leukemia to be applied in future studies.

Evidence Acquisition: The present study was a review-type design based on a review of the literature on different types of complementary medicine in patients with leukemia, up to 2015. The search was conducted through electronic databases and search engines. According to the inclusion and exclusion criteria, 8 studies which had been conducted on the use of complementary medicine in patients with leukemia were selected for the identification of gaps.

Results: The overall results showed that few studies have been conducted on the use of exercise, massage therapy, music therapy, acupressure, and healing touch in patients with leukemia, and these subjects are potential research areas for many different studies. However, no studies have been carried out on the effects of acupuncture, relaxation, and yoga on these patients.

Conclusions: The results of this review showed that the number of studies on the use of complementary medicine in leukemia patients is very limited (especially in Iran), and it can be the subject of numerous studies in the future.

Keywords: Cancer, Complementary Medicine, Pain, Review Article

1. Context

1.1. Leukemia

Leukemia is a chronic disease involving the bone marrow that increases the number of abnormal blood cells, and decreases the number of normal blood cells (1). Leukemia is one of the hematological malignancies, with a variety of clinical and pathological types. According to the lineage cells involved, leukemia falls into two categories, myeloblastic and lymphoblastic, and may be either acute or chronic (2). The prevalence and mortalities caused by leukemia have been increasing worldwide (3, 4). In the first five months of 2015, 54, 270 new cases of leukemia were diagnosed, and 24, 450 deaths caused by this disease have been registered (5).

Leukemia patients experience many problems due to leukocyte infiltration in the tissues, anemia, neutropenia, thrombocytopenia, and metastasis, as well as treatments such as chemotherapy, radiotherapy, and bone marrow transplantation. These problems include pain, fatigue, anxiety, depression, stress, weight loss, nutritional deficiencies, impaired body image, sleep disorders, nausea,

and vomiting, which can affect different aspects of the quality of life of these individuals (6, 7). Nowadays especially, the quality of life is considered to be one of the most important healthcare issues, and an important part of the evaluation criteria for the treatment of cancer (3).

1.2. Complementary Medicine

Complementary therapies include a collection of measures and beliefs for the prevention and treatment of diseases, and improving the health status of patients, that are applied along with conventional treatments (8). In recent decades, the use of complementary medicine, as tolerable treatments without complications or interference with other therapies and drugs, has gained considerable popularity (9). In addition, complementary medicine methods are easy and cost-effective to be implemented, so that they are easily accepted by patients (6). Some of these treatments include massage therapy, acupuncture, exercise therapy, acupressure, music therapy, and yoga (10). Currently, in most developed countries, like the US, England, France, and Germany, these methods and techniques are used along with other medical treatments (11).

1.3. Complementary Therapy for Patients With Leukemia

A review of the studies in recent years on the impact of different types of complementary therapies on cancer patients showed us that many studies have been carried out in this field. However, most of these studies have generally dealt with various types of cancer, and few of them are exclusive, although there are some exclusive studies on some types of cancer, such as breast cancer. Unfortunately, few studies have been conducted on the effects of complementary therapies on patients with leukemia (4, 6). Given that the nature, intensity, and duration of treatment varies in different types of cancer, it is essential that various types of complementary medicine be exclusively studied in each type of cancer. Therefore, the findings of the present study can identify the gaps in the studies on the effects of complementary medicine on patients with leukemia, so that the objectives of future studies will be specified, and care for leukemia patients will be based on valid clinical evidence.

1.4. Objective

The present paper aims to review the domestic and foreign studies conducted on the effects of complementary medicine on leukemia patients, in order to find the research gaps in the application of various types of complementary medicine in these patients.

2. Evidence Acquisition

The present study was a review-type design based on the review of the literature on different types of complementary medicine in patients with leukemia, up to 2015.

2.1. Data Source and Study Selection

The inclusion criteria were clinical trials (full text and abstract), studies in which only patients with any kind of leukemia were studied, and studies in Persian and English. If several other types of cancer were studied along with leukemia in a paper, it was excluded from the study. In addition, the age range of the studied patients was also taken into account. The search was conducted through electronic databases and search engines, such as MagIran, Medlib, SID, Google Scholar, PubMed, ScienceDirect, Scopus, ProQuest, and ISI. In addition, some specialized journals in the field of leukemia and complementary medicine research were searched separately.

In this study, 8 of the most important and accessible branches of complementary medicine were searched. The search terms included leukemia or all or AML or CLL or CML, complementary or alternative, clinical trial, and exercise or acupuncture or relaxation or massage or music

or acupressure or yoga or touch. All of the terms were searched in both Persian and English. Finally, based on the inclusion and exclusion criteria, and after the elimination of duplicate studies, 8 studies in which complementary medicine was used for the treatment of leukemia patients were selected. Only one of these was domestic, while the rest were foreign, and among these, studies 5, 2, and 1 were conducted in the US, Asia, and Europe, respectively.

3. Results

3.1. Study Gaps

3.1.1. Massage Therapy (MT)

Massage therapy (MT) is the purposeful manipulation and rubbing of the muscles and soft tissues of the body, which produce physiological, psychological, neurological, and biomechanical effects (12). MT can control symptoms such as pain, fatigue, sleep disorders, stress, anxiety, depression, nausea, and vomiting (6, 10). Therefore, MT can be used along with pharmaceutical methods for the treatment of leukemia.

In the review of the literature, only one study was found which dealt with the effects of massage therapy on patients with leukemia. A study was conducted by Taylor et al. (7) (2009) in the US in order to determine the impact of MT on variables such as pain, stress, anxiety, depression, and the quality of life in adult patients with acute myelogenous leukemia (AML). Thus, the number of studies in the field of MT is very limited.

Since only AML patients were selected as the sample in the mentioned study, the impact on MT should be studied on other types of acute and chronic leukemia, because they are different from each other in terms of the nature, intensity, duration, and treatment regimens. In addition, Taylor et al. (2009) only studied adult individuals, so it is necessary that the impact of MT be evaluated on people of other ages, such as children and the elderly, because people of different ages perceive pain differently, and MT has certain impacts on each age group. On the other hand, some variables such as fatigue, sleep disorders, and nausea were not measured in their study (7). However, it is worth noting that patients with leukemia have thrombocytopenia, and applying deep massage to them may be associated with risks; therefore, future studies should use surface massage as therapy for leukemia patients. As a beneficial and low-risk method, massage therapy can generally be an appropriate treatment for leukemia patients (6), and further research should be conducted on the impacts of MT on patients with leukemia.

3.1.2. Yoga

Yoga is a form of mind-body medicine aimed at physical, mental, and spiritual improvement. Combining specific postures (asanas) with breathing exercises (pranayama), yoga establishes an equilibrium between the body and the emotions (10). Possible mechanism of yoga include increasing flexibility, oxygen delivery to tissues, relaxation effects, secretion of enkephalin and endorphin, reducing the sympathetic activity, and reducing the inflammatory markers (13). Yoga can have beneficial effects on pain, fatigue, sleep disorders, anxiety, and depression, and it can also produce positive impacts in patients with breast cancer (14). In the review of the literature, no studies were found on the effects of yoga on leukemia patients. Therefore, this could be an interesting area of research in future studies, and yoga's effects on the various problems of leukemia patients should be evaluated. This method has no side effects and can be an appropriate treatment for leukemia patients who suffer from neutropenia and thrombocytopenia.

3.1.3. Acupuncture

Acupuncture, with thousands of years of history, is based on applying special needles to specific points on the body. Acupuncture experts believe that there are special channels (meridians) in the human body that the life-energy (Qi) flows through (15). Any increase or decrease in this energy can cause disease. By applying the needles to the body and stimulating certain points, this energy can be brought into balance, and the disease and its symptoms can be improved. Acupuncture can improve a wide range of problems such as nausea, pain, fatigue, sleep disorders, anxiety, and depression, and this method has also been used in cancer patients (16).

In the review of the literature, no studies were found on the application of acupuncture for the treatment of leukemia patients. One of the reasons for the lack of research in this field is probably the special conditions of patients with leukemia who suffer from neutropenia and thrombocytopenia, and are susceptible to infection and bleeding. The side effects of acupuncture occur rarely, and include mechanical damage, pneumothorax, cardiac tamponade, spinal cord injury, infection, and bleeding. However, thrombocytopenia is not considered a contraindication for acupuncture, unless the platelet count is less than 50,000 (6, 17). Therefore, since acupuncture has not been studied in patients with leukemia, many studies should be conducted in this field in order to specify both the effects and safety of this technique.

3.1.4. Acupressure

Adopted from acupuncture, acupressure uses the hands or elbows for applying physical pressure to the acupuncture points. The main objective of acupressure is to raise the body energy. Accordingly, there are certain points in the body known as paraflex pressure points which have high capabilities for energy direction (18). Unlike acupuncture, acupressure does not pose a risk of infection or fear of pain, and is safer. Another advantage of this method is its simple application, and the patients can easily learn and apply it themselves (18, 19).

In the review of the literature, only one study was found which focused on the effects of acupressure on patients with leukemia. A study was conducted by Bastani et al. (20) (2011) in Iran in order to determine the effects of acupressure on the nausea and vomiting caused by chemotherapy in children with acute lymphoblastic leukemia (ALL). Therefore, since this method is safer than acupuncture, more studies should be conducted on the beneficial effects and safety of this method in leukemia patients. Bastani et al. (2011) only studied children, so it is necessary for similar studies to be conducted on adults and the elderly. In addition, the sample in their study only included patients with ALL; therefore, other types of acute and chronic leukemia could be areas of research for future studies. Moreover, this study only considered one of the problems of leukemia patients, and the effect of acupressure should be studied on the other problems of these patients, such as pain, fatigue, and sleep disorders (20).

3.1.5. Music Therapy

Using music and musical programs, music therapy can improve one's physical, mental, psychological, and social status. This method probably has psychological, psychodynamic, behavioral, and neurobiological effects, and can improve a wide range of the problems of patients. In addition, music intervention is less expensive and less risky than other methods of complementary medicine (21). Therefore, music therapy can be an appropriate intervention for leukemia patients, especially those who have severe thrombocytopenia, in which more invasive procedures would be associated with risks.

In the review of the literature, only two studies were found which used music therapy for leukemia patients. Kemper et al. (22) (2008) conducted a study in the US in order to determine the effects of music on anxiety, depression, and stress in children with acute leukemia. Another study was carried out by Nguyen et al. (23) (2010) in Vietnam for determining the effects of music on pain and anxiety in children with leukemia undergoing lumbar punctures. Since these studies only examined the effects of music on children with leukemia, it is essential that these ef-

fects be studied in leukemia patients of other ages. Additionally, the effects of music therapy should be studied on the other problems of these patients, such as fatigue and sleep disorders. Therefore, future studies should focus more on the effects of music therapy on leukemia patients.

3.1.6. Exercise Program

Exercise programs can improve physical activity and reduce the morbidity of patients. It is also a safe method which produces positive physical and psychosocial effects for the patients (24). More studies have been conducted on the use of exercise in patients with leukemia, compared with other methods of complementary medicine.

In the review of the literature, three studies in this field were found. Klepin et al. (25) (2011) studied the effects of exercise on older adult AML patients in the US, and Jarden et al. (24) (2013) studied the effects of exercise on patients with acute leukemia in Denmark. In addition, Battaglini et al. (26) (2009) conducted a study in the US on the impact of exercise on patients with acute leukemia. These three studies indicate that exercise programs have only been used for patients with acute leukemia; therefore, future studies can focus on the effects of exercise on chronic types of leukemia.

3.1.7. Relaxation

In relaxation, the principles of psychoneurology and immunology are used for regulating the physiological activities in different systems of the body. In this method, a person can alter the physical and emotional status and the behaviors caused by stress through conscious thinking (27). Relaxation also frees people from daily life stress, saves energy in their body, and gives them a sense of calm and safety for themselves and their lives. Relaxation can be effective in controlling the symptoms and problems of patients (28).

In the review of the literature, no studies were found on the application of relaxation in leukemia patients. Since relaxation is an inexpensive, safe, non-invasive, and easy method, it can be suitable for patients with leukemia, and many studies should be conducted in order to identify the effects of this method on the problems of these patients.

3.1.8. Healing Touch

Healing touch (HT) is an energy-based therapy aimed at the restoration of balance, harmony, and the sense of well-being. Affecting the autonomic nervous system, HT increases the parasympathetic activity and reduces the sympathetic activity. HT also has relaxing effects and increases

immune activities, and it can improve a wide range of patient problems, such as nausea, pain, fatigue, sleep disorders, and mood disorders (29).

In the review of the literature, only one study was found which dealt with the application of healing touch in leukemia patients. This study was conducted by Danhauer et al. (30) (2008) in the US in order to determine the effects of HT on the symptoms of acute leukemia in adult patients. Since Danhauer et al. only studied acute leukemia in their research, it is necessary that the effects of HT on chronic leukemia also be studied, because the natures of acute and chronic leukemia are different. In addition, they only studied adult patients, so future research is recommended to study the effects of HT on leukemia patients of other ages, including children (30).

4. Conclusions

The results of this review showed that the number of studies on the use of complementary medicine in leukemia patients is very limited (especially in Iran), and it can be the subject of numerous studies in the future. Generally, a few studies have been conducted on leukemia patients in the fields of exercise, massage therapy, music therapy, acupuncture, and healing touch, while no studies have been carried out on the effects of acupuncture, relaxation, and yoga on these patients. The findings of the present study showed new information on the gaps in the research on the application of complementary medicine methods in patients with leukemia. Therefore, these findings can be the basis for future research and the care provided for these patients, in order to reduce their pain and suffering and improve the quality of their lives.

Overall, this study had several strengths. For example, it focused on one particular type of cancer. In addition, it was the first review study to investigate the study gaps relevant to the use of complementary medicine in the patients with leukemia in Iran. Moreover, the findings of this study can be the basis for future clinical trial studies. We recommend that further studies be conducted on the effects of different types of complementary medicine (such as massage therapy, acupuncture, exercise therapy, acupuncture, music therapy, and yoga) in patients with leukemia, especially in Iran.

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Footnotes

Authors' Contribution: Shahram Baraz and Mojtaba Miladinia: Study conception and design, analysis, interpretation of data, drafting the manuscript, and critical revisions for important intellectual content. Mostafa Javadi, Elham Mosavi Nouri, and Mehdi Gholamzadeh Baeis: Study conception and design, and acquisition of data.

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