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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/14239
DOI URL: <http://dx.doi.org/10.21474/IJAR01/14239>



RESEARCH ARTICLE

WHAT ELEMENTS CONTRIBUTE TO IMPROVING BRAIN CANCER TREATMENTS?

Napas Laohasiripanya, Nichapa Jindachotsiri and Suranchana Juengpanich

Manuscript Info

Manuscript History

Received: 15 December 2021
Final Accepted: 17 January 2022
Published: February 2022

Key words:-

Brain Cancer, Procedures, Supplements,
Therapy, Treatments, Tumors

Abstract

Brain cancer is a serious disease that has recently been discovered in an increasing number of people. It isn't a simple problem to solve, and it involves several procedures to overcome it. Brain cancer is also the 10th biggest cause of mortality for both men and women, according to Cancer.Net. In the coming years, it is also expected that 18,600 persons (10,500 men and 8,100 women) will die from primary malignant brain and CNS tumors. Moreover, people with a malignant brain or CNS tumor have a 36 percent 5-year survival rate. Although there are numerous therapies for brain cancer, such as chemotherapy and radiation, the death rate remains high, and those treatments aren't the most comfortable. As a result, complementary therapies and other supplements are utilized to promote the health and well-being of brain cancer patients. Workout, diet, acupuncture, aromatherapy, talking therapy, and music are some of the various treatments discussed in this article. The primary goal of this article is to learn more about the aspects that can help improve and enhance the success of brain cancer treatment. Furthermore, to investigate and research the advantages of each aspect, as well as how it might be used in future medical treatments.

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Introduction:-

What is brain cancer? Brain cancer is caused by an abnormal development of cells in the brain, which creates masses known as tumors. Brain tumors that are cancerous, or malignant, can develop very fast, depending on the type of tumor. They can cause the body to malfunction, which can be fatal. A primary brain tumor is the one that originates in the brain or spinal cord. In the United States in 2021, an estimated 24,530 persons (13,840 men and 10,690 women) were diagnosed with primary malignant tumors of the brain and spinal cord. Approximately 3,460 children under the age of 15 were diagnosed with a neurological disorder (ASCO KNOWLEDGE CONQUERS CANCER, 2021). Moreover, the number of brain cancer patients in Thailand has been increasing each year since 2005 to 2014 (Veerarn, 2016) The survival rates for many forms of cancer however are increasing in countries with strong health systems, due to the quality of treatment. Brain tumors are often treated with surgery, radiotherapy, and/or chemotherapy. Specifically, radiation and chemotherapy are commonly utilized for malignant, residual, or recurring tumors. Treatment decisions are determined on a case-by-case basis and depend on a variety of factors.

Supplements are not utilized particularly to target or cure cancer. They should not be used as a replacement for chemotherapy or radiotherapy, but rather as an adjuvant to assist and activate the person's immune system so that it might indirectly help fight cancer by encouraging the body's healing response. There are several supplements that contribute to the improved quality of brain cancer therapy such as workout, diet, acupuncture, aromatherapy, talking

therapy, and music. For example, consider a catastrophic injury incident, music can help to restore some of the brain's cognitive, sensory, and motor functions. Music has a greater impact on us than simply putting us in a good mood. It's a wonderful medication that does everything from energizing your mind to easing stress, evoking emotions, and soothing your spirit.

Research purposes

To study further about the factors that can improve and enhance the effectiveness of treatment for brain cancer. Moreover, to research and explore the benefits about each factor, as well as how it can be useful in further medical treatments.

Workout

The majority of the people believe that exercising is necessary. It is an element that keeps our bodies healthy and in good shape. This is true, and it also applies to assisting in the treatment of brain cancer. Exercise improves circulation by increasing blood circulation, getting the heart pumping blood throughout the body quicker, and flushing the blood through the arteries, according to Physiologist Jemelle. As a result, when your circulatory system is functioning properly, oxygen is delivered throughout the body and waste is eliminated.

As stated by the researchers, chemotherapy medicines can modify mitochondria within cells, causing muscle tissue loss through an oxidative stress process. Doxorubicin is a chemotherapeutic agent that is an effective anticancer therapy. It is utilized for brain cancer treatment causing oxidative stress, which affects striated muscle activity. According to one of the research from the National Center for Biotechnology Information, doxorubicin reduced skeletal muscle weight by 14% and muscle fiber cross-sectional area by 17% when compared to vehicle controls. However, exercise and workouts can assist to minimize some of these decreases during treatment: strength training improves bone and muscular health, while aerobic activity improves cardiovascular fitness. When you have a brain tumor, there is evidence that exercise can help your body function at its optimum. Strength, fitness, mood, and general well-being can all be improved via exercise (ScienceDaily, 2021).

Diet

What we consume also has a significant impact on how healthy our bodies are. Eating a well-balanced diet that includes enough energy, protein, and other nutrients will help the patients feel better and aid their body's recovery from treatment side effects. A well-balanced diet can also help patients maintain their strength and vitality while minimizing their infection risk, such as *Pneumocystis carinii* pneumonia infection in a brain tumor. This is true for both brain tumor treatment and other medical conditions as well.

Some of the symptoms of both brain tumors and their therapies can also cause cerebral edema, or swelling in the brain, which raises the pressure in the skull and may affect the blood-brain barrier. Steroids can be given before, during, and after surgery or radiation therapy to help minimize edema. Dexamethasone is the most widely prescribed steroid for patients with brain tumors. However, if patients are taking steroids for an extended period of time, it is critical to monitor their bone health. Make sure they eat enough calcium-rich foods such as milk, cheese, yogurt, and fromage fraise, and consult their doctor about whether or not they should take a Vitamin D supplement. Temozolomide (TMZ) is also used to treat glioblastoma multiforme and anaplastic astrocytoma, two types of brain tumors. It frequently produces nausea and vomiting, both of which are unpleasant. Patients can restore the fluid and minerals they've lost by drinking more water than usual. Nevertheless, patients should seek medical advice if they have other concerns about their diet or eating habits (Mayo Foundation for Medical Education and Research, 2021).

Acupuncture

Aside from the impacts of the patient's diet and eating habits on their bodies, outside supplements to the body, such as acupuncture, assist in improving the treatment's efficacy in some diseases. What exactly is acupuncture? Acupuncture is a procedure that involves inserting incredibly small needles into a patient's skin at strategic points on their body. Acupuncture is an important part of Chinese medicine that is often used to ease the pain. Furthermore, it is increasingly being utilized to maintain the patient's general well-being and to control stress. It also plays a part in helping with brain cancer treatment such as relieving pain and helping with dizziness.

Acupuncture has been a popular supplementary treatment in brain cancer in recent years since it is safe, has few side effects, and is clinically useful for the management of illness symptoms. Typically, treatment begins with simply a few needles. This may alter based on patients' reactions and the symptoms they are experiencing. The practitioner

inserts small, disposable needles made of stainless steel into patients' skin. The needles should not hurt, although they may get a tingling feeling. The needles are often left in place for 10 to 30 minutes. Acupuncture works by activating nerves, according to a medical study. It causes the release of natural morphine-like substances in the spinal cord and brain, such as endorphins, which are chemicals produced naturally by the nervous system to cope with pain or stress and are referred to as "feel-good" chemicals because they can act as pain relievers and happiness boosters. Serotonin is also released by acupuncture. It is a pain reliever that may also produce a sense of well-being. The release of these chemicals has the potential to alleviate cancer symptoms. As a result, it may aid brain cancer patients in reducing discomfort, nausea, dry mouth, hot flushes, exhaustion, and shortness of breath (Cancer Research UK, 2018).

Aromatherapy

Another supplement treatment that could help a patient's rehabilitation and well-being is aromatherapy. It is becoming more well-known and is utilized to treat a wide range of diseases and conditions. Aromatherapy, often known as essential oil treatment, is a holistic healing approach that uses natural plant extracts to promote health and well-being. "Diffusers, scented spritzers, inhalers, bathing salts, body oils, creams, or lotions for massage or topical application, face steamers, hot and cold compresses, and clay masks are all examples of products in aromatherapy that can be used alone or in combination" according to Emily Cronkleton. It is a medicinal technique that involves the use of fragrant essential oils to the body and mind in order to enhance physical and mental well-being.

This is also beneficial in many types of cancer, including brain cancer. Aromatherapy is used by cancer patients because it makes them feel better. Many people claim that it could lead to better productivity and boost their mood. Aromatherapy has also been shown to help with the side effects of treatment. Anxiety, pain, despair, tension, and exhaustion are some of them. Inhaling specific essential oils, according to aromatherapists, can aid with nausea and vomiting, which are common side effects of chemotherapy and radiotherapy. Another side effect that primary and metastatic brain cancer patients have faced is that brain tumors are especially vulnerable to mental morbidity as a result of the tumor's direct neuropsychiatric impact, as well as psychological distress related to its diagnosis, prognosis, or treatment. Aromatherapy is something that will help with the recovery process and treatment, especially with anxiety (Cancer Research UK, 2018).

Talking therapy

A simple conversation may appear insignificant and may be overlooked, However, this can have a major impact on some people, especially cancer patients. Psychological treatments or palliative care for mental and emotional issues such as stress, anxiety, and depression are known as talking therapies. This might be one-on-one, in a group, online, over the phone, with your family, or with your significant other.

A brain tumor, as well as its treatment, causes medical symptoms and side effects, as well as emotional, social, and financial consequences. Talking therapy takes a role of the treatment to deal with all of these side effects. It is an important aspect of your therapy, along with medicines to slow, halt, or remove the tumor. Talking therapy focuses on enhancing your quality of life throughout treatment by treating symptoms and assisting patients and their families with non-medical concerns. This form of care is available to everybody, regardless of age, tumor type, or stage. And it frequently works best when begun immediately following a brain tumor diagnosis. People who receive this therapy in addition to tumor therapy such as chemotherapy frequently have fewer severe symptoms, a higher quality of life, and are more happy with their treatment. People with brain cancer may also find it beneficial to speak with others who have had a brain tumor. Having an online discussion forum for cancer patients is a secure area and one of the best methods to connect with others going through similar experiences, as well as gain information and support (NHS choices, 2018).

Music

What we listen to on a daily basis can have a significant impact on patients' treatment and even serve as a form of therapy. The clinical use of music to achieve individualized goals such as stress reduction, mood improvement, and self-expression is known as music therapy. It is a well-recognized evidence-based therapy in the medical field. Listening, singing, playing instruments, and composing music are all possible music therapy activities. Music therapy can help patients with cancer, heart disease, Alzheimer's disease, and dementia enhance their social, emotional, and quality of life. The reduction of anxiety, despair, tension, tiredness, and perceived pain in hospitalized children, patients undergoing hard therapy, and those with terminal illnesses has also been shown.

Music therapy has also been shown to help children and other adults with brain cancer cope by encouraging them to cooperate and communicate, according to several studies and research. Moreover, it can aid cancer patients in reducing anxiety, improving quality of life, and reducing symptoms and side effects. All children who had music therapy communicated with their music therapist calmly and independently were also reported to be more cooperative with treatments, accepting to enter the operation room comfortably, and having less stress. The positive effects of music therapy were noticed by the clinical personnel as well, who felt more confident and at ease. Karen Popkin, a music therapist, goes on to say that playing soothing music for patients or involving them in musical activities can help them cope with the emotional and physical side effects of therapy, such as weariness, discomfort, and despair. Music, which activates various parts of the brain, may be especially beneficial for brain cancer patients, according to Popkin (Cancer Research UK, 2018).

Conclusion:-

To conclude, in addition to chemotherapy and radiotherapy, some various complementary therapies and supplements can assist improve the quality of brain cancer treatment. Exercising, dieting, acupuncture, aromatherapy, talking therapy, and music, for example, are all beneficial to patients' physical and emotional well-being. Many research and studies have shown that doing these steps can help to reduce the severity of side effects including anxiety, vomiting, and a lot more, as well as improve the patient's mood and general health. However, these do not immediately help to eliminate tumors, and the primary treatment must still be conducted properly. It's also worth noting that these additional treatments can be really advantageous to a large number of people. Hence, attention should be devoted to these alternative treatments in order to widen and improve their use throughout the medical profession.

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