

PEMF Therapy for Myocarditis Treatment

Myocarditis, a cardiac problem that was once thought to be a rare disease, is on the rise in adolescent and young adult males. According to the Centers for Disease Control, this increased incidence is due to the COVID-19 pandemic and the mRNA vaccines. The disease is said to be a rare side effect of this vaccine.

Myocarditis is often caused by a viral infection, such as the common cold or flu, or may result from an autoimmune disease. The condition causes inflammation and tissue damage in the heart muscles. Typically, myocarditis patients recover completely. But heart inflammation can last for a long time. This may lead to permanent damage to the heart muscle, causing complications like arrhythmias and cardiac failure. To prevent such conditions, effective alternative treatments are required.

Using Pulsed electromagnetic field (PEMF) therapy to repair damaged heart muscle in myocarditis patients is a safe and beneficial approach. According to a study, PEMF treatment has the potential to improve cardiac function.

Read on to understand the benefits of PEMF therapy for myocarditis and heart health.

Myocarditis, a mysterious heart condition

The American Heart Association reports that between one and five percent of people who contract a viral infection get affected by myocarditis. Its symptoms are often mistaken for those of the flu or a cold, making it difficult to diagnose. The exact incidence of myocarditis is difficult to diagnose, as patients often experience very mild or no symptoms.

While others can have severe symptoms resulting in sudden death. In some cases, the condition can also lead to complications like a heart attack, causing intense chest pain and difficulty breathing.

Myocarditis is the leading cause of heart transplants in the United States, and Canada. Protecting yourself from fatal complications begins with understanding the disease.

Causes of Myocarditis

The reason why the heart muscles become inflamed is unclear. But the condition often results from an infection that has affected the heart muscle. When your immune system responds to such infections, the heart muscle becomes inflamed during the process. Furthermore, autoimmune disorders can also contribute to heart muscle damage.

Symptoms of Myocarditis

The symptoms vary widely among individuals. Some may experience no symptoms at all, while others may have a few or many. These include:

- Chest pain or discomfort
- Shortness of breath
- Restlessness
- Dizziness or lightheadedness
- Rapid or irregular heartbeat
- Heart palpitations
- Abdomen pain
- Fever
- No appetite
- Swelling in the legs, ankles, or feet
- Being unable to exercise

Treatment of Myocarditis

The treatment is based on the cause and severity of the inflammation. Some patients recover on their own without treatment. But, in most cases, medical intervention is required. These include:

- Medicines like corticosteroids reduce inflammation
- Antibiotics or antiviral medicines to treat the infection
- Immunosuppressive treatment to minimize autoimmune-related inflammation

In serious cases where myocarditis causes heart failure or abnormal heart rhythms, devices like pacemakers or implantable cardioverter-defibrillators (ICDs) are implanted surgically. A heart transplant may also be advised in some cases.

While conventional treatments can be effective, they are only aimed at reducing inflammation. The treatments work in some cases but do not address the underlying problem of tissue damage. Additionally, medicines like corticosteroids have long-term side effects, such as an increased risk of infection.

Given the various factors involved, it is not surprising that researchers have explored alternative approaches to treating cardiac inflammation. One such avenue of investigation is electromagnetic field therapy. The treatment has the potential to directly address the root cause by stimulating tissue repair and regeneration.

How would PEMF therapy reduce heart inflammation?

PEMF therapy has not been extensively studied or approved specifically for myocarditis. But the therapeutic effect that the treatment provides can indirectly benefit cardiovascular health or cardiac diseases.

Based on PEMFs' general effects on the body, here is how they can positively impact cardiac inflammation:

1. Modulation of the immune response

PEMF therapy has immunomodulatory effects on the body. This means it can influence the body to improve the immune response.

The immune system is responsible for protecting the body from harmful pathogens (like bacteria and viruses) while also being able to tolerate harmless substances. When cells get infected or injured, they release certain molecules that act like danger signals, alerting the immune system to respond. These signals also play a role in controlling the immune response, making sure it doesn't become too intense and cause unnecessary inflammation. This ability to control the immune response is essential for healing wounds and other bodily processes.

Scientists have found that certain types of EMFs, like extremely low-frequency (ELF) and pulsed EMFs, can affect the signals and factors that activate the immune system and its cells. Thus, PEMF therapy may help regulate immune function, potentially reducing excessive inflammation associated with myocarditis.

2. Improved blood flow and oxygenation

PEMF therapy enhances blood flow and oxygenation at the cellular level. By increasing circulation and oxygen supply to the cardiac tissue, it may support the healing process and potentially reduce inflammation.

3. Impact on inflammation

PEMF therapy has been shown to modulate inflammatory processes by affecting various signaling pathways and molecules involved in inflammation.

It may help regulate the production and release of pro-inflammatory cytokines, which are immune system molecules that play a role in promoting inflammation.

4. Enhancement of tissue repair and regeneration

PEMF therapy promotes tissue healing and regeneration by stimulating the production of growth factors. These are substances that facilitate tissue repair. It may enhance the proliferation and migration of cells involved in tissue regeneration, such as fibroblasts and endothelial cells.

PEMF therapy may also support the formation of new blood vessels (angiogenesis) in damaged tissues, aiding in their repair and recovery. In the case of myocarditis, it may assist in the healing of damaged heart tissue, potentially reducing inflammation and improving overall cardiac function.

5. Influence on cellular energy and metabolism

PEMF therapy increases cellular adenosine triphosphate (ATP) production, which is the primary source of energy for cellular processes. By improving ATP production, PEMF therapy enhances cellular metabolism and overall cellular function.

It may also help maintain the balance of reactive oxygen species (ROS) in cells, which are implicated in inflammation and cellular damage.

6. Improvement in cardiac function

PEMF therapy has shown potential for improving heart function and reducing cardiac symptoms in certain cardiovascular conditions. It may enhance myocardial contractility, the ability of the heart muscle to contract and pump blood effectively. PEMF therapy may also improve cardiac electrical stability and assist in restoring normal heart rhythm in some cases.

7. Pain management

Inflammation often causes pain and discomfort. PEMF therapy has been used for pain management in various conditions. Thus, it can aid in reducing the chest pain associated with myocarditis.

What are the benefits of using a PEMF device for heart health?

Incorporating PEMF therapy as part of a comprehensive approach to heart health can benefit both directly and indirectly.

Stress reduction: Under stress, the body goes into overdrive with the sympathetic nervous system. This led to an increase in blood pressure and heart rate. On the other hand, blood pressure and heart rate decrease when a person is relaxed. This is known as the relaxation response. PEMF therapy promotes this relaxation response, helping to counteract the harmful effects of stress on the heart. It is also FDA-approved for treating anxiety and depression.

Induces vasodilation: PEMF therapy is known to induce vasodilation, widening blood vessels, and improving blood flow. This can reduce any strain on the heart muscle and support its function.

Encourages physical activity: A sedentary lifestyle contributes to cardiac problems. Regular PEMF therapy sessions reduce pain and inflammation in the body, which may prevent one from being physically active. Thus, the modality makes it easier to stay physically active and engage in healthy activities.

Potential anti-aging effects: With aging, the function of cells and tissues, including those in the heart, can decline. PEMF therapy promotes cellular health and function, potentially slowing down the aging process at the cellular level. By maintaining healthier cells, the heart may be better equipped to perform its functions effectively.

Non-invasive and drug-free: PEMF therapy offers heart health benefits without the need for invasive procedures or medications. It is a safe and drug-free approach to promoting good cell health and proper cellular function.

Patients with pacemakers should not use PEMF devices. The electromagnetic fields from the device may interfere with the pacemaker electronics.

Takeaway

PEMF therapy is an evolving field of research with promising potential for heart health. As the technology continues to advance, we can expect that soon, it will be further optimized and tried clinically for the prevention and treatment of cardiac disorders.

References

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