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Pulsed Magnetic Field Resonance Therapy

Erich Ebner

ABSTRACT

Medical-therapeutic and especially alternative procedures are increasingly developing in parallel with subspecialized high-performance medicine and are increasingly losing the understanding and advantages of integrative therapy. However, a look at the basic prerequisites of life toward physical laws reveals a different picture. A picture that questions this development of an isolated subspecialization. Magnetism, as a fundamental physical force, is the basis of life and thus one of the decisive forces in the origin and development of all life on Earth, as well as in all biological processes, chemical, biochemical, and physiological processes. It will be shown how the effect of magnetism, in its manifestation of diamagnetism, develops and affects biological molecules. Pulsed magnetic field resonance therapy therefore offers itself as an adjuvant therapy option.

Keywords: Pulsed magnetic field resonance therapy, physical principles, physiotherapy.

INTRODUCTION

Specialization in medicine is linked to the effort to develop subtle forms of treatment. In the process, the idea of integrative medicine is increasingly lost. This is regrettable. Using pulsed magnetic resonance therapy (pMRI) as an example, we will demonstrate that basic processes, the laws of physics, describe and justify the therapeutic benefits, thus recommending its use.

DISCUSSION

The understanding of supportive procedures is often subject to lethargy, inertia, and often disinterest, so that therapeutic content is sometimes underestimated. Undoubtedly, the enormous increase in knowledge brings with it the problem of complexity. This does not absolve scientifically minded people from ignoring fundamental connections. After all, in the medical sense, the preservation and care of the human organism is the focus. The human body, as a highly complex system, is considered "above all else," and its connections to the laws of nature, the foundation of life, are often neglected.

The definition of the term "life" is often imprecise and thus difficult (3). Generally, depending on the field, one focuses on criteria that could describe a living being.

The difficulty of defining this is evident in the many attempts to do so, four of which will be cited below. The Space Agency uses the definition by **G. Joyce (1955):** *"Life is a self-sustaining chemical system possessing the capacity for Darwinian evolution."* The Canadian information theorist **St. Kauffman (1996)** stated: *"Life is an expected, collective capacity of catalytic polymers for self-organization."* And the physicist **E. Schroedinger (1944)** explained that *"living organisms can produce wellordered patterns of molecules, thereby creating greater disorder in their environment."* In his view, the evolution of molecular structures is thus

compatible with the Second Law of Thermodynamics. This points to the fact that life and its processes, such as human physiology and pathophysiology, exist on the basis of natural laws. The most modern and comprehensive definition was presented by **P. Nurse (2020)** (4) with his so-called Five Answers to Biology, in which the author made special reference to computer science. Insight into the diversity, complexity, and interconnectedness of all the participants in the discussion implies a view of the laws of nature as the basis of life. Natural laws determine the sequence of processes and control, or, conversely, by using natural physical forces, biological processes can be recognized and influenced. Seen in this way, the lawfulness of nature goes beyond the attempt at autopoiesis involved in systems theory and leads to the idea of making these systems-theoretical processes fundamentally influenceable.

If one restricts oneself to the concept of biological evolution and understands it as the gradual change of heritable characteristics of living beings or merely organic structures, one must note that evolutionary biology is an interdisciplinary field of knowledge (5). The fundamental and thus permanently existing factors lead to a stable dynamic of life processes.

If one can distance oneself from the term "alternative treatments" in medical usage and instead embrace the idea of integrative therapy, one will find a broad field of application in connection with the natural force of magnetism. The descriptive definition of magnetism initially appears rigid as a physical phenomenon. However, it is a description of the properties of substances and bodies that are associated with magnetic fields, where these are either magnetic fields themselves or react in a certain way as such when introduced into such fields.

Electromagnetism is responsible for the chemical properties of matter. It binds electrons to atomic nuclei and regulates the bonding of atoms into molecules. The technical development of medical-therapeutic device systems, which enable the application of pulsed magnetic fields, has opened up a new form of treatment for physiotherapeutic possibilities. The basis for this is diamagnetism with its effect on large molecules (1). These diamagnetic fields can influence chemical and biochemical interactions, the dynamics and speeds of chemical processes, and structural reaction mechanisms.

The energetic fluctuations resulting from magnetism are explained by quantummechanically defined mechanisms. The magnetic moments of the molecules and the external magnetic field cause a reaction cycle defined as magnetic susceptibility. The orbital angular momentum of the molecules plays a role here. Furthermore, angular momentum exists due to the rotation of the electrons around their own axis. Its formal meaning is defined as spin. It is a vector-directed quantity expressing high-energy processes. This quantity characterizes the properties of diamagnetism. This is what constitutes molecular dynamics. By maintaining these fundamentals, it is therefore possible to intervene medically and therapeutically. The resonance energy of the external magnetic field regulates and stimulates biological matter. The magnetic field effect is therefore a physically determined process that is a prerequisite for biological processes and thus a fundamental prerequisite for life.

The magnetic field is defined by frequency, amplitude, and intensity, and thus, with regard to its therapeutic effect, primarily by the resonance capacity of the organism and the varying sensitivities of specific organs and tissues. The therapeutically effective frequency spectrum of the magnetic field fluctuations lies in the lowfrequency range. In general, the frequency

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spectrum covers the range from <1 to approximately 20,000 Hz. The flux density is in the range of 2 - 400 micro-Tesla. The different resonance properties of the tissues make it essential for the therapy system to adapt the frequency output and intensity strength.

The pMRI is only effective within the range of the respective tissue's resonance capability. Resonance is thus synonymous with effectiveness. If the magnitude of the magnetic field application exceeds this effective range, toxic reactions, changes, or disruptions in metabolic processes occur. These are spontaneously reversible in the borderline range but are classified as side effects. The classic example is hyperpolarization, which reverses the polarization of pain-conducting nerves. This effect can also be used therapeutically, but hyperpolarization characterizes this borderline range and is not a therapeutic option.

The effect of magnetic fields can be fundamentally supported by two observations from everyday life. Firstly, the pulsating magnetic field directly affects the biochemical processes of tissue through the described quantum mechanical processes. Secondly, it has been proven that the Earth's magnetic field influences the autonomic nervous system. It has been demonstrated that a loss of the erg magnetic field leads to the death of plants and animals. Conversely, this means that using pulsating magnetic fields, the magnetic field effect must be linked to the autonomic nervous system in such a way that the tissue is influenced via the autonomic nervous system, increasing its effectiveness.

The use of pulsed magnetic field resonance therapy requires a high technical level of the application system, as this is crucial for the effectiveness of the therapeutic measures.

As a consequence of the physical conditions that explain the usability of pMRI, the following individual aspects can be listed, for which extensive literature references can be found (6):

- A conditioning of the body functions takes place.
- It has been proven that the oxygen molecule releases more effectively from hemoglobin during circulation in the capillary system. This increases oxygen yield and, in effect, oxygen supply in the body, as greater oxygen solubility in the tissue promotes new oxygen uptake in the lungs.
- Stabilizing effects occur in chronic neurological diseases, as demonstrated by the extensive research of T.R. Sandyk in the 1990s adduced.
- It strengthens the immune system.
- The healing of all types of wounds is promoted.
- Bone metabolism is stabilized.
- Free radicals are broken down more quickly, so that burns such as sunburn or other types of burns can heal more quickly.
- The body’s vegetative regulation is stabilized.
- Damage or disturbances at the molecular level are prevented. Molecular function is normalized as a result of the application of resonance energy (2).
- Thus, pMRI is a suitable measure for improving and stabilizing body functions in general and for overcoming pathological disorders (7). However, the basic prerequisite is the regular and/or targeted disease-related use of the system. It is not an acute therapy, but suitable as part of physiotherapeutic treatment concepts for improving health in cases of illness and as a preventative healthcare measure.
- There is evidence that life expectancy increases due to continuous use.

The difficulties in defining life mentioned at the beginning cannot and will not be described in more detail with the explanations of pMRI. Nor is that intended. However, this therapeutic method proves that life is governed by fundamental physical laws. These physical laws have led to development, and in the context of the evolution of the most diverse life forms, these laws can be found in all chemical and biochemical processes. A dependency still exists. Bodily dynamics is a single energy transfer and can be explained physically and quantum mechanically. In this respect, pMRI is understood as a valid form of therapy within integrative medicine. Medicine is not an isolated discipline, and in this sense, one should not overlook the fact that, as the definition of life states, information is a fundamental phenomenon that ranges from natural laws to the complexity of our environment.

The mystery of magnetism has haunted humanity since ancient times. Increasingly significant discoveries, ostensibly focused on formally scientific physical aspects, have been made since the 18th century. However, by the end of the 19th century, these discoveries had provided fundamental insights into the meaning and nature of magnetism. Thus, it is not surprising that the phenomenon also found its way into medical considerations. This, however, led to contradictory inter-intellectual discussions. Despite all the pros and cons of the dispute, the philosopher **A. Schopenhauer** summed up the significance of magnetism by saying*: "Whoever denies magnetism is not to be called unbelieving, but ignorant."* A statement that is more significant today than ever.

CONCLUSIONS

Pulsed magnetic field resonance therapy is a physical procedure based on scientific principles. Its advantages can be utilized as an integrative therapy. Its effectiveness and usability depend on the technical validity of the application systems, although the fundamental properties of the technical variants are currently maintained. The energetic stimulation is complex but free of side effects, as it only strengthens physiological processes, not alters them. Magnetic energy is a fundamental energy upon which life depends. This corresponds to the principle that energy determines matter. PMRI essentially supports and strengthens physiological processes and thus also supports the opinion of a balanced and life-prolonging effect.

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