



REVIEW ARTICLE

Magnetic Therapy of Tooth Diseases

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Abstract

In my paper I describe the magnetic therapy of tooth problems, occurring after extraction of a tooth, and I explain the physical processes underlying this therapy. The objective of my paper is to describe the magnetic therapy of tooth diseases. The methods are theoretical investigations, and the materials are magnetic processes. The results are that there is a very effective magnetic therapy of tooth diseases. The conclusion is that magnetic therapies can be performed for many human diseases, also for tooth diseases. This is the clinical relevance.

Possible Problems Occurring after the Extraction of a Tooth

Tooth extraction is often associated with general post-surgery effects like pain, inflammation, bruising bleeding and infection. Poor healings can lead to excess bone loss in the jaw. Bones require for their recovering several materials like vitamin A and D and nutrients like sodium and phosphorus, which are in the blood [1]. In reference 1 the occurrence of the pain is described in the following way. The human body contains natural electromagnetic fields. These energy fields sometimes come out of balance, and this generates pain. When applying an external magnetic field, then the balance is restored so that there is a relief of the pain.

In the literature are reports on successful magnetic therapies of these problems [2,3]. In the next section I describe the magnetic therapy of tooth diseases, and I explain the physical processes underlying this therapy.

Magnetic Therapy of Tooth Diseases

As described in the last section, the application of external magnetic fields restore the balance between the natural energy fields in the body, and by this the pain is released. Details on this are given in reference

[4]. I now describe the physical processes underlying the magnetic therapy of inflammations and bone recovery. To cure inflammations requires oxygen particles which are in the blood. The recovery of the bone requires vitamin A and D and particles like sodium and phosphorus. The magnetic therapy has the effect that all these materials come more rapidly and more frequently to the sites where they are required. The mechanism underlying this effect is the following. When applying a time-oscillating external electromagnetic field, then an electromagnetic wave is generated in the tissue. An electromagnetic wave is described by

$$\mathbf{E} = E_0 \cos(\omega t - \mathbf{k} \cdot \mathbf{r}), \quad (1)$$

$$\mathbf{B} = B_0 \cos(\omega t - \mathbf{k} \cdot \mathbf{r}), \quad (2)$$

\mathbf{E} is the electric part of the electromagnetic wave, and \mathbf{B} is the magnetic part, with the magnetic induction

$$\mathbf{B} = \mathbf{H} + 4\pi\mathbf{M}, \quad (3)$$

with the magnetic field \mathbf{H} and the magnetization \mathbf{M} . The quantity ω in equations 1 and 2 describe the angular frequency of the electromagnetic wave, and \mathbf{k} is its wave vector. An electromagnetic wave carries energy, and part of this energy is absorbed in the tissue, generating a certain amount of warming up the tissue. When the blood vessels are warmed up, then their diameters increase and the blood flow increases. As a result the particles required to heal the inflammations and to recover the bone come more rapidly and more frequently to the sites where they are required, and this helps to cure the inflammations and to recover the bone loss in the jaw.

Furthermore, in the blood are particles with charge q , mainly Ca^{2+} ions with positive and negative charge respectively. The electromagnetic wave exerts Lorentz

forces **F** on the ions

$$\mathbf{F} = q (\mathbf{E} + \mathbf{v} \times \mathbf{B}), \quad (4)$$

Where v is the velocity of the ions in the blood, and where the symbol \times in the second part of equation 4 describes the vector product. When the electromagnetic field is applied in a direction perpendicular to the direction of the blood flow, then the ions are accelerated by the Lorentz forces in directions perpendicular to the blood flow. They hit the walls of the blood vessels, and in each hit they deliver part of their energy to the blood vessels, generating a certain amount of warming up the tissue. When the blood vessels are warmed up, then their diameters increase and the blood flow increases. As a result the particles required to cure the inflammations and to recover the bone loss in the jaw come more rapidly and more frequently to the sites where they are required.

I want to note that Lorentz forces do not appear only when applying external time-oscillating electromagnetic fields, but also when applying a static electric or magnetic external field.

Conclusion

In my paper I described possible problems which can appear after the extraction of a tooth, such as pain, inflammation and bone loss in the jaw. All these problems can be reduced by a magnetic therapy. This therapy restores the balance between the natural electromagnetic energies in the body, and this relieves the pains [4]. The time-oscillating external electromagnetic fields or the static electric or magnetic external fields lead to an increase of the blood flow, so that the particles required to cure the inflammations

and to recover the bone loss in the jaw come more rapidly and more frequently to the sites where they are required.

This is a very interesting magnetic therapy to treat problems occurring after the extraction of a tooth. Magnetic therapies are also used to cure many other human diseases, e.g., the pulsed electromagnetic field of cancer [5].

Ethical Statements

The study is in accordance with ethical statements.

Conflict of Interest

There is no conflict of interest.

Ethical Approval

Ethical approval not required.

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