

Introducing electromagnetic information transfer through aqueous system.

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The Electro Magnetic Information Transfer Through Aqueous System (EMITTAS) reported a number of interesting and positive experimental effect on cells, receptors, bacteria, fungi, and seeds [1-5]. So far, no evidences were available about the possibility to employ the same procedure aimed to transfer endogenously generated pattern of electromagnetic signals. On these premises, this procedure has been translated into some clinical applications in order to investigate its potential benefit, safety, reliability, feasibility and patient compliance [6]. Interestingly, information flow in biological systems can either be studied by a chemical and molecular approach, either by a biophysical approach focused on endogenous electrodynamic activities [7]. Indeed, electro-magnetic signals are endogenously generated at different levels of the biological organization and, very likely, play an active role in synchronizing either internal cell function either the local and systemic adaptive response [8]. In this framework, all the local or systemic adaptive responses can be additionally described by their specific electromagnetic patterns [9]. Consequently, each specific adaptive pattern, for each living organism, and for each person, at any time correlates with a unique and specific electromagnetic signature encoding health or disease potential, and leading toward resilience or toward weakness [10,11]. A biophysical procedure (Med Select 729) synchronously integrating the EMITTAS procedure has been, so far, applied to treat pain [12,13], low back pain [14], neck pain and mobility, fluctuating asymmetry, early stage of chronic kidney disease, refractory gynaecological diseases, early stage of anxiety and depression. This clinical strategy consists of a single treatment since the EMITTAS procedure allows the patient to continue his own personal treatment at home by mean of the self-administration of the recorded aqueous system (Nomabit Base). A significant and long-lasting improvement has been reported showing a potential beneficial use of such biophysical procedure in the management of the most common illnesses in an efficient, effective, and ecological way. Aqueous systems seem to play the key role providing the basis for recording, storing, transferring and retrieving effective quanta of biological active information [15-18] based on the occurrence of a resonance effect [15,16,18,19,20]. Additionally, aqueous systems seem to be very sensitive even to smallest environmental electromagnetic signals [21], and moreover, they seem to represent the primary target accounting for the interaction of low intensity, non-ionising, electromagnetic signals with biological systems [22]. Taken together all the aforementioned features of the endogenous electromagnetic signals transferred to an external aqueous system in order to achieve synchronously a temporal, spatial and phase symmetry breaking enable us to hypothesize that it could exert its effect by triggering the self-regulation and of the self-regeneration potential of the organism itself at local and systemic level at once [5-6] restoring the disrupted coherence of the nonlinear, complex system constituting a living organism [15]. By mean of the Electro Magnetic Information Transfer Through Aqueous System procedure a number of potential applications for therapeutic and preventive application in medicine [23] as well as for environmental, agriculture and veterinary possible applications should be envisaged and systematically investigated in order to establish their indications and limits [24].

References:

1. Ayrapetyan S.N., Hunanyan A.Sh., Hakobyan S.N. (2004) 4 Hz EMF treated physiological solution depresses Ach-induced neuromembrane current. *Bioelectromagnetics*, 25(5): 397-9.
2. Heredia-Rojas J.A., Torres-Flores A.C., Rodriguez-De la Fuente A.O., Mata-Cardenas B.D., Rodriguez-Flores L.E., Barron-Gonzales M.P., Torres-Pantoja A.C., Alcocer-Gonzales G.M. (2011) "Entamoeba histolytica and Trichomonas vaginalis: Trophozoite growth inhibition by metronidazole electro-transferred water.", *Exp Parasitol.*, 127(1): 80-83.
3. Jerman I., Ružic R., Krašovec R., Škarja M., Mogilnicki L. (2005) "Electrical transfer of molecule information into water, its storage, and bioeffects on plants and bacteria.", *Electromagn Biol Med.*, 24(3): 341-353.
4. Thomas Y., Schiff M., Belkadi L., Jurgens P., Kahhak L., Benveniste J. (2000) "Activation of human neutrophils by electronically transmitted phorbol-myristate acetate.", *Medical Hypotheses*, 54: 33-39.
5. Ke Y.L., Chang F.Y., Chen M.K., Li S.L., Jang L.S. (2013) "Influence of electromagnetic signal of antibiotics excited by low-frequency pulsed electromagnetic fields on growth of Escherichia coli." *Cell Biochem Biophys*. 2013;67(3):1229-37.
6. Foletti A., Ledda M., Piccirillo S., Grimaldi S., Lisi A. (2014) "Electromagnetic Information Delivery as a new tool in translational medicine.", *Int J Clin Exp Med.*, 7(9): 2550-2556.
7. Foletti A., Grimaldi S., Lisi A., Ledda M., Liboff A.R. (2013) "Bioelectromagnetic medicine: The role of resonance signaling.", *Electromagn Biol Med.*, 32(4): 484-499.
8. Pokorný J., Pokorný J., Kobilkova J. (2013) "Postulates on electromagnetic activity in biological system and cancer.", *Integr Biol (Camb)*, 5(12): 1439-46.
9. Muehsam D., Ventura C. (2014) "Life Rhythm as a Symphony of Oscillatory Patterns: Electromagnetic Energy and Sound Vibration Modulates Gene Expression for Biological Signaling and Healing. *Global Adv Health Med.*, 3(2): 40-55.
10. De Ninno A, Pregolato M. (2017) "Electromagnetic homeostasis and the role of low-amplitude electromagnetic fields on life organization." *Electromagn Biol Med.*, *Electromagn Biol Med.*, 36(2): 115-122.
11. Brizhik L., Foletti A. (2014) "Nonlinear quantum phenomena and biophysical aspects of complexity related to health and disease.", *J Biol Regul Homeostat Agents.*, 28(3): 367-376.
12. Foletti A., Baron P., Schlauzero E., Bucci G., Rinaudo A., Rocco R. (2014) "Assessment of biophysical therapy in the management of pain in current medical practice compared with ibuprofen and placebo: a pilot study.", *J Biol Regul Homeostat Agents.*, 28(3): 431-439.
13. Foletti A., Egan C.G., Baron P. (2018) "Effect of biophysical therapy on articular pain in a primary care setting compared to ibuprofen and placebo: a randomized controlled trial." *J Biol Regul Homeostat Agents.*, 32(2): 407-413.
14. Foletti A., Pokorný J. (2015) "Biophysical approach to low back pain: a pilot report.", *Electromagn Biol Med.*, 34(2): 156-159.
15. Brizhik L.S., Del Giudice E., Tedeschi A., Voeikov V.L., (2011) "The role of water in the information exchange between the components of an Ecosystem.", *Ecological Modelling.*, 222: 2869–2877.
16. Foletti A., Ledda M., Grimaldi S., D'Emilia E., Giuliani L., Liboff A., Lisi A. (2015) "The trail from quantum electro dynamics to informative medicine.", *Electromagn Biol Med.*, 34(2): 147–150.
17. Ovchinnikova K., Pollack G.H. (2009) "Can water store energy?," *Langmuir.*, 25(1): 542-547.
18. Smith C.W. (2004) "Quanta and coherence effects in water and living systems." *J Altern Complement Med.*, 10(1): 69-78.
19. Funk R.H.W. (2017) "Does electromagnetic therapy meet an equivalent counterpart within the organism?" *J Transl Sci.*, 3(2): 1-6.
20. Funk RHW. (2018) "Biophysical mechanisms complementing "classical" cell biology." *Front Biosci (Landmark Ed)*, 23: 921-939.
21. Ayrapetyan S.N. (2006) "Cell aqua medium as a primary target for the effect of electromagnetic fields." In: *Bioelectromagnetics Current Concepts*. NATO Security through Science Services. Springer, Netherlands: pp. 31-63.
22. Lobyshev V.I. (2005). "Water is a sensor to weak forces including electromagnetic fields of low intensity." *Electromagn Biol Med.*, 24(3), 449-461.
23. Foletti A., Ledda M., Lolli M.G., Grimaldi S. Lisi A. (2017) "Electromagnetic Information Transfer Through Aqueous System." *Electromagn Biol Med.*, 36(3): 289-294.
24. Norman R.L., Dunning-Davies J., Heredia-Rojas J.A, Foletti A. (2016) "Quantum Information Medicine: Bit as It—the future direction of medical science: antimicrobial and other potential nontoxic treatments.", *World Journal of Neuroscience.*, 6 (3): 193-207.