

DEVELOPMENT OF NEW THERAPEUTIC APPROACH ON PATIENTS SUFFERING FROM FIBROMYALGIA AND NEUROPATHIC PAIN FEEL

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Many patients with fibromyalgia and neuropathic pain feel to response to the available treatment : there is an enormous clinical need for the development of new therapeutic approach for this condition.

Therapy that directly modulates brain activity in specific neural network might be particularly relevant to release chronic pain.

Among the method of central neurostimulation, two of them, rTMS (repetitive transcranial magnetic stimulation) and tDCS (transcranial direct current stimulation) are particularly appealing as they can change brain activity in a non-invasive, painless and safe way. These methods are associated with a significant elevation of quality of life in fibromyalgia and neuropathic pain syndrom.

In FMS patients, we would like to confirm the long-term effectiveness of rTMS or tDCS, understand the mechanism underlying the analgesic effect and assure combination with exercises of cognitive therapy.

PATHOPHYSIOLOGY OF PATIENTS SUFFERING FROM CRPS AND FMS

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Chronic regional pain syndrom (CRPS) and fibromyalgia are heterogenous entity. A major goal in CRPS and FMS research will be to better identify subgroups and to explain the pathophysiology so that individualized treatment can be developed and administered.

We begin to use the functional assessment of the nociceptive system in CRPS and FMS patients with psychometrics questionnaire, Quantitative Sensory Testing (QTS) and nociceptive evoked potentials, based on CO2 laser stimulation.

RESEARCH ABOUT THE EFFICACY OF SPECIFIC EXERCICES OR DRUGS ON MUSCULO-ARTICULAR STIFFNESS IN FMS PATIENTS OR OTHER CHRONIC PAIN PATIENTS

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We have observed recently and for the first time that younger and middle-aged female subjects with fibromyalgia have a significant increase of passive elastic and viscous stiffness of ankle. The results also suggest a premature increase of passive elastic stiffness of ankle in FMS subjects. How can we explain these results ?

The significant increase of muscular-articular stiffness in FMS patients can be explained by different factors : alteration of the collagen metabolism, dysfunction of the autonomic nervous system or the gamma feedback loop hypothesis.

In the next future, we have the plan to compare this population with other chronic pain patients and with sedentary people. We would develop research studies about the efficacy of specific exercices, drugs or rTMS on muscular-articular stiffness.

RESEARCH ABOUT THE LINK BETWEEN REPRESENTATIONAL AND BEHAVIOURAL HYPERACTIVITY IN CHRONIC WIDESPREAD PAIN IN FIBROMYALGIA

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Several quantitative and qualitative studies have suggested a premorbid overactive lifestyle in FMS patients.

Hyperactivity or overactivity could be viewed as a two-sided concept, with a representational side and a behavioural one. In a recent study, regarding representational hyperactivity, we observe positive correlation with the number of children at home, self sacrifice, self oriented perfectionism and neglect of basic bodily need.

The only variable significantly associated with the behavioural hyperactivity was the number of children at home.

We have the plan to clarify the concept of hyperactivity in chronic pain patients and the link with the etiopathogenesis.

RESEARCH PROJECT IN COLLABORATION WITH POLE CEMO

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Research about animal model of chronic widespread pain and the determination of the degree of involvement of glial cells and immune system mediators in the pathophysiology of FMS and CRPS.

Animal model of FMS would be very helpful to advance an understanding of the basis of this condition. FMS is a unique pain syndrom because it is diagnosed by symptoms, not actually by underlying pathology. There are several animal models of FMS : biogenic amine depletion, repeated intramuscular injection of acidic saline, intermittent cold stress, exposure to unpredictable sound stress....Each model is unique and may be useful for understanding different aspects of the disease process.

Recently, activation of glial cells has been implicated in the development, mechanism and amplification of chronic pain. The activation of glial cells could be implicated in the altered pain modulation in FMS patients. Markers for glial cell activation in the CNS, like a CSF level of cytokines, begin to be study in FMS patients or CRPS patients. We have the plan to assess intrathecal concentrations of pro-inflammatory substance in fibromyalgia and to observe the modulation by pharmacological of non pharmacological treatment.