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# EVALUATION OF DESCENDING ENDOGENOUS PAIN-MODULATING SYSTEM IN DAUGHTER OF PATIENTS WITH FIBROMYALGIA: CASE-CONTROL STUDY

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## ABSTRACT

Fibromyalgia syndrome presents main characteristics as pain and widespread sensitivity, neuropathic and nociceptive pain, neural alterations, changes in peripheral and central physiology mechanisms. Additionally, it can be related genetic, neurobiological and environmental factors. On the other hand, the brain-derived neurotrophic factor **(**BDNF) is a neurotrophin, which exerts an important role in the maintenance mechanism, survival, growing, neuroplasticity, neural reparation, and neuronal differentiation. It is found in the central nervous system, on the descending modulation of pain pathways and it can be linked to fibromyalgia syndrome. The Conditioned Pain Modulation (CPM) has been studied in the clinical research assessing the descending modulation of pain pathways, measuring the pain threshold in the absence of endogenous analgesia. The real functional mechanism of CPM is related to application of an intense stimulus upon different part of the body, which decreased the perception of pain for the patient; this is an important tool to modulate the pain processes. It is a case-control study. Seventy-six women were evaluated, 38 daughters of patients with fibromyalgia diagnosis (case group), and 38 daughters of women without this syndrome (control group). We used sociodemographic questionnaire and realized blood collection. We analyzed BDNF (ng/ml) and estradiol (LOG pg/ml) serum levels. Pain thresholds were assessed by Quantitative sensory testing (QST) and CPM. Data analyzed by SPSS program. Continuous variables presented non normal distribution and were analyzed by Mann Whitney test. We did not observe any difference in BDNF and estradiol serum levels between case and control groups ($P>0.05$). However, we observed an important difference in the CPM response, where the case group presented higher response in relation to control group ($P<0.05$). Our results showed that the case group already presents modifications in the descending modulation of pain, reinforcing that CPM can be an important tool to assess this system. Furthermore, it is possible that the case group did not present the main symptoms of syndrome yet, thus the BNDF levels were not altered, and there are no alterations in the homeostasis sufficiently to promote changes in the nervous system. It is interesting to conduct a cohort design to analyze the possible alterations in mechanism of pain modulation in fibromyalgia patients' daughters.

**Keywords:** Fibromyalgia,CPM, BDNF, Pain.