noxious inhibitory control (DNIC), also referred to in humans as conditioned pain modulation (CPM). This measure demonstrates analgesia to a noxious stimulus in the presence of a secondary noxious stimulus applied elsewhere on the body. We assessed hindpaw analgesia to noxious mechanical stimulation induced by forepaw capsaicin injections to measure CPM in male and female Sprague Dawely rats. Rats received left TMJ injection of high (80 mg/ml, males only) or low (16 mg/ml, males and females) concentrations of MIA or equivolume saline (50 μl). Day 14 post-injection, rats were tested for capsaicin-induced mechanical analgesia (CPM) using the Randel Silletto test. Baseline withdrawal thresholds to noxious mechanical stimulation of the hindpaw were recorded followed by an intraplantar injection of capsaicin (125ug/ 50ul) into the right forepaw under light isoflurane anesthesia. Paw withdrawal thresholds were again measured 15, 30, 45, and 60 minutes post-capsaicin. Saline-treated males demonstrated longer-lasting capsaicin-induced analgesia compared to female rats. MIA diminished capsaicin-induced analgesia in a dose dependent manner in the male rats. To determine whether endogenous opioids protect males from low dose MIA-induced TMJOA pain, we assessed whether systemic naloxone (3 mg/kg, i.p.) induced conditioned place aversion (CPA) and FOS expression in the medullary dorsal horn. Our results demonstrate that naloxone produces CPA and FOS expression in the medullary dorsal horn of low-dose MIA treated males and not in saline treated controls. In conclusion, male rats show stronger capsaicin-induced analgesia compared to females and naloxone unmasked TMJOA pain resulting in CPA and FOS expression in the medullary dorsal horn of low-dose MIA treated male rats. These observations indicate that endogenous opioids protect male rats from developing TMJOA-induced ongoing pain. These findings suggest that males and females inherently differ in descending pain modulation with males having stronger descending pain inhibitory systems than females and that blocking endogenous opioids in males unmasks TMJOA-induced pain. This research was supported by a COBRE award (P20GM103643).

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Poster

482. Somatosensation: Descending Modulation of Pain

Location: Hall A

Time: Tuesday, October 22, 2019, 8:00 AM - 12:00 PM

Program #/Poster #: 482.09/J4

Topic: D.03. Somatosensation – Pain

Support: FIPE-HCPA #140635

Title: Evaluation of descending endogenous pain-modulating system in daughters of patients with fibromyalgia

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Abstract: Introduction: fibromyalgia syndrome is characterized by pain and widespread sensitivity, neural changes, and alterations in the peripheral and the central physiology mechanisms. This syndrome can be related with genetic, neurobiological and environmental factors. It is known that, in different chronic pain processes, descending modulation of pain pathways can present some dysfunctions. The Conditioned Pain Modulation (CPM) task has been used to assess the descending endogenous pain-modulating system in clinical research field. And, data from literature has described the role of the brain-derived neurotrophic factor **(**BDNF) in the maintenance mechanism, sucha as survival, growing, neuroplasticity, neural reparation, and neuronal differentiation, and also in the pain process mechanisms. Thus, our objective was to characterize differences in the pain response between case and control groups, which consisted by daughters of fibromyalgia patients and daughters of women pain-free, respectively. Methods: this is a case-control study, approved by IRB#140635. Seventy-six women were enrolled after signed the informed consent form, 38 daughters of patients with fibromyalgia diagnosis (case group), and 38 daughters of women without this syndrome (control group). Psychophysical tests were: pain threshold by quantitative sensory testing (QST) and conditioned pain modulation (CPM). Sociodemographic questionnaire was applied and blood serum sample was collected. BDNF (ng/ml) and estradiol (pg/ml) serum levels were measured. Data were analyzed by SPSS; $P<0.05$ was considered significant and considering the non-normal distribution data, Mann-Whitney test was used. Results: no differences were found in BDNF and estradiol serum levels between case and control groups ($P>0.05$). However, we found interesting results, the case group presented lower delta response in CPM-task than control group taking into account levels of BDNF and estradiol ($P<0.05$), suggesting a descending endogenous pain-modulating system less efficient. Conclusion: our results showed that the case group already presents changes in the descending endogenous pain-modulating system assessed by CPM. Important to highlight that all women enrolled in the current study were healthy (without fibromyalgia syndrome). And, further studies needs to be encouraged to analyze possible changes in pain modulation mechanisms in daughters of fibromyalgia patients, for example, a cohort design study.

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Poster

482. Somatosensation: Descending Modulation of Pain

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