(224) Daily caffeine consumption is associated with fibromyalgia pain

S Harte, A Hassett, C Brummett, R Harris, and D Clauw; University of Michigan, Ann Arbor, MI

It is well established that caffeine can produce intrinsic antinociceptive effects and augment the action of non-steroidal anti-inflammatory drugs and acetaminophen in animal models and in acute pain states (Sawynok, Handb Exp Pharm, 2011). However, few studies have addressed the influence of caffeine on chronic pain. Here we assessed the association between daily caffeine consumption and pain severity in patients with fibromyalgia (FM). New chronic pain patients (n = 123) presenting to a university-based tertiary care pain clinic who met American College of Rheumatology survey criteria for FM completed the Brief Pain Inventory (BPI) as part of a larger battery of self-report instruments. Patients also reported their daily caffeinated beverage consumption in cups/day and were subsequently classified as low (0.25-1.5 cups/day, n = 46), moderate (2-3.5 cups/day, n = 43), and high (4-12 cups/day, n = 34) caffeine users. Data were entered into the APOLO Electronic Data Capture system and analyzed using SPSS 19. Caffeine consumption was significantly associated with BPI pain severity ($r = 0.282$, $p = 0.002$) and this relationship was not influenced by age or education level. One-way analysis of variance revealed a significant effect for caffeine consumption on pain severity ($F = 4.85$, $p = 0.009$). Post hoc analysis showed that patients in the high caffeine user group reported significantly greater pain severity compared to patients in the low user group (Tukey HSD, $p = 0.007$). No difference in pain severity was observed between low and moderate caffeine user groups. As this was a cross-sectional analysis, pain severity (or other co-morbid symptoms such as fatigue) in FM patients may influence dietary caffeine intake, or alternatively caffeine consumption may increase pain severity. Additional studies examining a causal effect for caffeine on pain and sensory thresholds in FM are warranted.

(225) Long-term differences in ratings of daily fatigue and pain following lifestyle physical activity (LPA) intervention in fibromyalgia patients

L McCauley, S Bounds, C Campbell, L Conn, M Simango, R Edwards, and K Fontaine; Johns Hopkins University, Baltimore, MD

Fibromyalgia (FM) is characterized by chronic widespread pain and debilitating fatigue. Current treatments tend to produce modest and inconsistent benefits. Lifestyle physical activity (LPA: accumulating 30 minutes of self-selected moderate intensity physical activity per day) may provide a way to improve symptoms and functioning in adults with FM. As part of a larger study investigating the effects of LPA, adults with FM who were randomized to either 12 weeks of LPA or an FM education control (FME), wore an Actigraph® (a watch-like device worn on the non-dominant wrist) to record their daily physical activity. They also used the device to rate (0=none to 10=extreme) their levels of pain and fatigue at pre-determined times throughout the day. Participants wore the Actigraph® for baseline and post-intervention follow-ups. Complete data on 18 of the participants were analyzed using a Repeated Measures Analysis of Variance (ANOVA). There was a significant group difference in fatigue ratings ($F(1,15) = 402.5$, $p = .045$). The LPA group had a reduction in their mean fatigue ratings over the course of the study with a baseline of 5.22 (SD = 1.11); 3 month post-intervention of 4.45 (SD=0.95) and 6 months post-intervention of 4.00 (SD=1.04). While the mean fatigue ratings of the FME group were 5.93 (SD=2.08), 6.06 (SD=0.89) and 6.20 (SD=1.04), respectively. There was also a difference for the mean pain ratings between the groups ($F(1,15)=322.7$, $p=.003$). The ratings for the LPA group were 3.13 (SD=0.95), 3.41 (SD=0.90) and 3.11 (SD=1.15) for the baseline and 3 and 6 month post assessments, respectively. The FME group's pain ratings were 5.17 (SD=1.53), 5.04 (SD=1.34) and 5.94 (SD=1.23), respectively. These preliminary findings suggest that LPA may reduce fatigue. LPA's effects on real-time pain ratings, however, appear inconsistent.

B11 Neuropathic Pain – Human

(226) Exercise-induced modulation of pain in adults with diabetic peripheral neuropathy

M Knauf and K Koltyn; University of Wisconsin-Madison, Madison, WI

Very little research has been conducted examining the impact of exercise on pain modulation in diabetic adults with painful diabetic peripheral neuropathy (PDPN). Therefore, the purpose of this study was to examine exercise-induced pain modulation in diabetic adults with PDPN in comparison to diabetic adults without PDPN. Eighteen adults diagnosed with Type 2 diabetes with and without PDPN (mean age of 49 yrs, sd = 11) completed two sessions. During the familiarization session, participants completed a packet of questionnaires, were familiarized with the pain testing protocols, completed maximal isometric contractions, and were given a pedometer to wear for five days. During the exercise session, experimental pain testing was completed before and following exercise consisting of three minutes of isometric exercise performed at 25% MVC. Ratings of perceived exertion (RPE) and muscle pain were assessed every 30 seconds during exercise. The data were analyzed with repeated measures ANOVAs, Mann-Whitney U Test, and independent samples t-tests. The results indicated that RPE and muscle pain ratings during exercise were significantly higher for diabetic adults with PDPN compared to diabetic adults without PDPN ($p < 0.05$). In addition, diabetic adults with PDPN did not experience changes in thermal pain ratings following exercise while diabetic adults without PDPN reported significantly lower ($p < 0.05$) pain ratings following exercise. It is concluded that diabetic adults with PDPN experienced high levels of muscle pain during exercise and a lack of exercise-induced hypoalgesia following exercise in comparison to diabetic adults without PDPN who experienced lower levels of muscle pain during exercise and a hypoalgesic response following exercise.

(227) Neuropathic pain in a patient with metastasis of a desmoplastic neurotropic melanoma to the trigeminal nerve: a case report

H Chen, J Hata, J Soung, and E Chang; UCI Medical Center, Orange, CA

A 39-year-old female presented to our clinic with nonradiating, sharp, burning pain localized to the left ear and left neck. The patient has a history of desmoplastic neurotropic melanoma (DNM) in her left chin area and had undergone previous resections and chemoradiation. She was initially diagnosed with DNM sixteen years prior. Shortly after, she underwent resection of the melanoma. One year after the resection, the patient had a recurrence of her cancer. She had a second surgery with subsequent interferon chemoradiation. The patient remained in remission until three years later, when she was found on MRI to have a metastasis to her left temporal lobe and left trigeminal nerve. Along with a complete resection of the tumor, she underwent a course of cisplatin and radiation. Subsequent to this treatment, she started experiencing worsening pain in her left ear and left neck. On examination, the patient had decreased sensation in her left face along the jawline towards the left lip. She was initiated on gabapentin and the dosage was slowly titrated to 800mg BID and 1200mg QHS. Unable to tolerate the high dosage of gabapentin, she was started on methadone 5mg BID and gabapentin was titrated to 800mg TID. On this regime, the patient achieved adequate control of her neuropathic pain. DNM is a rare type of spindle cell melanoma that is locally aggressive with a high risk of local recurrence. Metastasis to the trigeminal nerve from a DNM is a rare presentation and has been reported in four cases in the literature. Aggressive chemoradiation usually ensures diagnosis and resection. As a result, chemoradiation induced neuropathic pain can also be an expected complication in these patients. However, this is the first report of successful treatment of the neuropathic pain due to local tumor invasion or a side effect of chemotherapy treatment.