type II neurons and enhances inhibitory synaptic transmission to type III neurons in the dLNST. We also demonstrated the critical role of CRF neurotransmission within the dLNST in aversive responses induced by formalin-evoked pain. However, the roles of CRF within the dLNST in the regulation of negative emotions under the chronic pain condition remain to be elucidated. In this study, we examined the effects of CRF and a CRF receptor antagonist on the synaptic currents in the dLNST neurons using the whole-cell patch-clamp recordings. Brain slices including the dLNST were prepared from chronic pain model rats in which neuropathic pain was induced by spinal nerve ligation (SNL). In sham-operated rats, spinal nerves were exposed without ligation. Bath application of CRF significantly increased the amplitude of evoked excitatory post synaptic current (eEPSC) in type II neurons of the sham-operated rats, but not of the SNL model rats. By contrast, the amplitude of eEPSC was significantly decreased by bath application of NBII7914 (CRF1 receptor antagonist) in type II neurons of SNL model rats, but not of the sham-operated rats. Next we examined the spontaneous inhibitory synaptic current (sIPSC) in type I-II dLNST neurons. The frequency of sIPSC in type I-II neurons of the sham-operated rats was increased by bath application of CRF, but not of the SNL model rats. Furthermore, the frequency of basal sIPSC in type I-II neurons of the SNL model rats was higher than that of the sham-operated rats. These data suggest that neurotransmission via CRF1 receptors within the dLNST are continuously activated under the chronic pain condition. (283 words)

PT633
Involvement of astrocyte Activation in Locus Coeruleus on the Exacerbation of Neuropathic Pain by Maternal Separation and Social Isolation Stress
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Abstract
In our previous study, emotional dysfunction associated with early life stress exacerbated nerve injury-induced mechanical allodynia, but the mechanism remains unclear. In this study, we investigated the involvement of astrocytes in emotional dysfunction and enhancement of nerve injury-induced mechanical allodynia in mice subjected to maternal separation combined with social isolation (MSSI) as an early life stress. The glial fibrillary acidic protein (GFAP) expression in the locus coeruleus (LC) of female, but not of male mice, significantly increased in MSSI mice corresponding to the behavioral changes at 7–9 weeks of age. Intra-LC injection of conditioned media from cultured astrocytes treated with lipopolysaccharide (LPS) increased GFAP expression, anxiety-like behavior and mechanical allodynia in both male and female mice. These findings demonstrate that emotional dysfunction and enhanced nerve injury-induced mechanical allodynia after exposure to MSSI are mediated, at least in part, by dysfunctional astrocytes in the LC. However, male mice, but not female mice, might show the resistance to MSSI stress during growing.

PT634
Alleviation of neuropathic pain treated with opioid by electroconvulsive therapy
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Abstract
There are a number of reports which indicate electroconvulsive therapy (ECT) has an analgesic effect on neuropathic pain. Some of them reported that a demanded amount of opioid to alleviate their pain was decreased after ECT. But there is no report that examines the relationship between the analgesic effect of ECT and an amount of opioid administered at ECT.

We investigated the charts of eleven neuropathic pain patients who received ECT at our institute to alleviate their pain from March, 2003 to March, 2012 with using opioid. We searched in their charts for their illnesses which caused their pain; currently treated psychiatric diseases; body weights; ages of onset; ages of ECT; past experiences of ECT; medications to alleviate pain including opioid, antidepressants, anticonvulsants, and cyclooxygenase; and scores on Numerical Rating Scale (NRS) before/after ECT.

We examined their prescriptions, the latest one before and the earliest one after ECT, and the averaged daily doses of opioid were calculated according to them. These doses were converted into the doses of equianalgesic oral morphine to compare each other. Interestingly, there is a strong positive correlation between the ratios of decrements of NRS to the scores before ECT and the doses of opioids administered before ECT. This result suggests that ECT and opioid may complementarily alleviate on neuropathic pain.

PT635
Opposite associations between the rs3845446 single-nucleotide polymorphism of the CACNA1E gene and postoperative pain-related phenotypes in gastrointestinal surgery versus previously reported orthognathic surgery
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Abstract
Ca2.3 (R-type) voltage-activated Ca2+ channels (VACCs), encoded by the CACNA1E gene, are responsible for transmission of somatic inflammatory pain, and activation of antinociception elicited by visceral inflammatory pain stimuli. The rs3845446 single-nucleotide polymorphism (SNP) of the CACNA1E gene is an intronic Tag SNP in the linkage disequilibrium block from intron 46 to exon 47, a region that contains a stop codon. Carriers of the minor G allele of the rs3845446 SNP had less opioid requirements for controlling pain after orthognathic surgery, suggesting that this SNP downregulates Ca2.3 VACCs functions responsible for transmission of somatic inflammatory pain. Unknown is whether this SNP influences pain-related phenotypes after splanchnic organ surgery involving both somatic and visceral inflammatory pain, where visceral inflammatory pain stimuli should activate Ca2.3 VACC-mediated antinociception. In the present study, two groups of patients who underwent gastrointestinal surgery were examined. Group 1 included 351 patients who underwent laparoscopic colectomy and postoperative intravenous patient-controlled analgesia with opioid.