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Ventrolateral orbital cortex oxytocin attenuates neuropathic pain through periaqueductal gray opioid receptor

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Short title: oxytocin in VLOC-PAG modulation of neuropathic pain

Ventrolateral orbital cortex oxytocin attenuates neuropathic pain through periaqueductal gray opioid receptors

Highlights

- ・Intra-VLOC microinjection of oxytocin attenuated mechanical allodynia.
- ・Atosiban and naloxone prevented antiallodynic effect of oxytocin.
- ・Intra-vlPAG administration of naloxone prevented intra-VLOC oxytocin-induced antiallodynia.
- ・Opioid receptors of VLOC and vlPAG may be involved in VLOC oxytocin-induced antiallodynia.

A B S T R A C T

Background: Oxytocin plays an important role in supraspinal modulation of pain. In the present study, we investigated the effects of ventrolateral orbital cortex (VLOC) microinjection of oxytocin on neuropathic pain after blockade of opioid receptors in this area and ventrolateral periaqueductal gray (vlPAG).

Methods: Neuropathic pain was induced by complete transcection of preoneal and tibial branches of sciatic nerve. The VLOC and vlPAG were unilaterally (contralateral to the sciatic nerve-injured side) and bilaterally implanted with guide cannulas, respectively. Mechanical paw withdrawal threshold (PWT) was measured using von-Frey filaments. Area under curve (AUC) was also calculated.