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Pain 1
Unexpected meningeal reaction to pain in trigeminal region: association with calcitonin gene related polipeptide

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Background: Recently we observed that two different types of pain: infraorbital nerve constriction injury (IONC) and facial formalin injection in rats (Filipović et al. Plos One 2012) are accompanied by dural neurogenic inflammation (DNI) characterized by extravasation of plasma proteins and inflammatory cells. This previously unknown phenomenon is specific only for trigeminal region, since peripheral types of pain like partial transection of the sciatic nerve (ScNT) and sciatic nerve constriction injury (SCI) are avoid of extravasation of lumbar or cranial dura (Filipović et al., J Neural Transmission 2004).
Objective: To investigate possible association of pain induced DNI with calcitonin gene-related peptide (CGRP).
Material and methods: We investigated third type of pain in trigeminal region: Freund adjuvant induced inflammation and pain in temporomandibular joint (TMJ) of rat. DNI was investigated by Evans blue-plasma protein extravasation, and cell histology. CGRP was investigated by immunohistochemistry and radioimmunoassay. Effect of several analgesics drugs (aspirin, morphine, sumatriptan) was tested as well
Results: TMJ induced pain was accompanied by dural plasma proteins and inflammatory cells and increase in CGRP level in dura.
Conclusion: In addition to IONC and facial formalin injection, TMJ induced pain is accompanied by neurogenic dural extravasation, as well. Pain induced DNI is associated with CGRP expression in meninges.

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Pain 1
Thermal-specific, thermal-pain thresholds and pain estimation in patients with peripheral (PNP) and central (CNS) somatosensory pathology with and without pain

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Background: Quantitative thermotests evaluate small diameter afferents but thermal thresholds may not be significantly different in PNP patients with and without pain.
Objective: To determine thermal and thermal pain thresholds, and pain estimation after suprathreshold stimuli, in upper and lower limbs in patients with PNP, or CNS lesions, with and without pain.
Methods: Patients with PNP ($N = 60$), and CNS lesions ($N = 26$) with sensory symptoms, with and without pain, were recruited and compared to controls ($N = 13$). Thermal thresholds (average x3) were obtained from the thenar eminence, lateral leg 10 cm above the ankle and tarsal area with a 3x3cm thermode (TSA-Medoc). Pain estimations (0–10) to nociceptive thermal stimuli (5 sec 20 °C, 5 °C, 40 °C and 45 °C) were recorded.
Results: Cold and warm thresholds were lower in controls compared to all patient groups ($p < 0.001$). Cold and heat pain thresholds were lower in healthy controls compared to all groups ($p = 0.001$) except for patients with CNS pathology without pain. Only cold threshold was significantly higher in patients with painful PNP.

($p = 0.05$) compared to painless PNP. Thermal and thermal pain thresholds were otherwise similar in the other patient groups. Pain estimation for cold was higher in patients compared to controls but not statistically significant.
Conclusions: Patients with PNP or CNS pathology display significantly thermal and thermal pain hypoesthesia with a tendency to thermal hyperalgesia with suprathreshold stimuli. Cold hypoesthesia was the only parameter distinguishing painful from painless PNP.

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