

P01.577 PLATELET-ACTIVATING FACTOR INDUCES ALLODYNIA SENSITIVE TO NEONATAL CAPSAICIN-TREATMENT IN MICE

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Statement of the Study: Platelet-activating factor (PAF) is a potent inflammatory lipid mediator in peripheral tissues. However, its role in the regulation of pain is not evident because PAF can decrease the nociceptive threshold in the rat hindpaw at dosages higher than that required to induce edema. In healthy volunteers, PAF injected intradermally induced weal and flare responses and subsequently erythema and cellular infiltration. The effects of PAF were much potent than those of PGE₂, but there was no hyperalgesia demonstrated by PAF, although intradermal PGE₂ induced hyperalgesia. Much less is known on the role of PAF in pain transduction in spinal cord. In the present study, whether PAF plays some role in pain transduction in the spinal cord was studied in mice.

Methods: PAF was injected into the subarachnoid space between the L5 and L6 vertebrate of conscious mice. Neonatal mice were injected subcutaneously with 50 mg/kg capsaicin. Allodynia was assessed by lightly stroking the flank of each mouse with a paintbrush or by measuring the paw withdrawal threshold in response to probing with a series of calibrated fine filaments.

Summary of Results: Intrathecal injection of PAF induced tactile pain, allodynia at as low as 10 fg–1 pg with a peak response at 100 fg. Allodynia induced by PAF was blocked by a PAF receptor antagonist, TCV-309. The expression of PAF receptor mRNA by RT-PCR was observed in DRG and spinal cord in mice. ATP P2X receptor antagonist, pyridoxalphosphate-6-azophenyl-2',4'-disulfonic, NMDA receptor antagonist, MK 801 and nitric oxide synthetase inhibitor, 7-nitroindazole blocked the PAF-induced allodynia. PAF-induced allodynia and hyperalgesia disappeared in neonatally capsaicin-treated adult mice, while allodynia but not hyperalgesia induced by intrathecally injected α,β -methylene ATP, a P2X receptor agonist, was capsaicin-insensitive.

Conclusion: The present study demonstrated that PAF is a potent inducer of allodynia and hyperalgesia of the spinal cord. PAF-evoked allodynia is suggested to be mediated by ATP and the following NMDA and NO cascade through capsaicin-sensitive fiber, different from exogenously injected α,β -methylene ATP which is insensitive to capsaicin treatment.