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NSAID loxoprofen inhibits high threshold or wide dynamic range neuronal responses in the rat at different time-courses

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Abstract:
The onset of the antinociceptive effect with loxoprofen sodium (LOX), a non-steroidal anti-inflammatory drug, was examined electrophysiologically during carrageenan-induced hindpaw inflammation in the rat. Extracellular recordings were made from either wide dynamic range (WDR) or high threshold (HT) neurons in the dorsal horn. Recordings from the same neuron were continued for at least 3 h after the injection of carrageenan. Three hours after the induction of inflammation, either a fresh solution of LOX (1 mg/kg) or distilled water was directly administered into the stomach through PE 50 tubing. LOX significantly reduced inflammation-increased background activity and noxious heat-evoked responses in both HT and WDR neurons, whereas distilled water did not produce any change. A significant difference in the onset of the inhibitory effect of LOX was observed between HT and WDR neurons. The results show that WDR neurons precede HT neurons regarding inhibition of nociceptive processing in the dorsal horn after administration of LOX.

Key words:
loxoprofen sodium, antinociception, dorsal horn neurons