New antinociceptive agents related to dihydrosphingosine

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Abstract:
The main objective of this study was to evaluate the antinociceptive activity of three ethylenediamine derivatives and three β-aminoethanol lipidic derivatives structurally related to dihydrosphingosine. These derivatives were selected on the basis of previous results from in vitro and in vivo anti-inflammatory studies. For all of the assayed compounds, an intraperitoneal dose of 3 mg/kg caused pronounced pain inhibition as measured by the acetic acid-induced writhing model in mice. Compounds 3 and 6 demonstrated strong antinociceptive activity at doses as low as 1 mg/kg and proved to be considerably more potent than the common nonsteroidal anti-inflammatory drugs (NSAIDs), acetylsalicylic acid (ASA) and acetaminophen (ACE). We further analyzed these compounds using the capsaicin- and glutamate-induced pain tests. Compounds 3 and 6 also exhibited considerable antinociceptive effects under these conditions, but their inhibitory effects in the formalin test were less pronounced. The exact mechanism of action for these compounds has yet to be established. However, based the results from a hot-plate test, it can be stated that these new drugs do not interact with the opioid system.

Key words:
antinociceptive, ethylenediamine, aminoalcohol, pain models, mice