Antinociceptive effects of Ca2+ channel blockers

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The antinociceptive action of four Ca2+ channel blockers, nifedipine, nimodipine, verapamil and diltiazem, was evaluated and compared to that of morphine using three algesiometric tests in mice and rats, namely, formalin, writhing and modified hot-plate test. Dose-response curves for all the drugs tested were similar and a significant dose-dependent antinociceptive action was evident in the formalin and writhing tests. However, in the hot-plate test, only nimodipine exhibited a significant analgesic effect, confirming the misleading results previously reported for this test. The findings suggest a pharmacological role of Ca2+ channel blockers in the modulation of antinociception under acute conditions. The analgesic action of Ca2+ channel blockers could be mediated by an increase in the nociceptive threshold resulting from interference with Ca2+ influx at opioid receptors, because Ca2+ influx is critical for the release of neurotransmitters and other substances implicated in nociceptio