

Biphasic effect of apomorphine on rat nociception and effect of dopamine D2 receptor antagonists

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Studies on the effect of dopaminergic agonists in behavioral measures of nociception have gathered numerous but rather conflicting data. We studied the effects of the D1/D2 receptor agonist apomorphine, as well as the modulatory effects of (S)-(-)-sulpiride (selective D2 receptor antagonist) and domperidone (peripheral D2 receptor antagonist), on thermal, mechanical and chemical nociception on rats. Apomorphine induced a biphasic dose-response relationship, low doses producing hyperalgesia and high doses inducing antinociception. Tonic (chemical) pain was more sensitive to apomorphine than phasic (thermal and mechanical thresholds) pain. (S)-(-)-sulpiride, but not domperidone, fully antagonized the antinociceptive effect of apomorphine in all three measures of nociception, pointing to a participation of D2 dopaminergic receptors for the antinociceptive action of apomorphine. Although spinal sites for dopaminergic ligands mechanistically may account for the effects observed, involvement