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JOURNAL ARTICLE

[Tyr1]-nociceptin and nociceptin have similar naloxone-insensitive erectile activity in the cat

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The heptadecapeptide nociceptin, also known as Orphanin FQ, is a newly discovered endogenous ligand for the opioid-like G-protein-coupled receptor ORL1. The present study was undertaken to investigate responses to intracavernosal injections of the nociceptin analog [Tyr1]-nociceptin and to investigate the effects of naloxone on erectile responses in anesthetized cats to [Tyr1]-nociceptin and to nociceptin. Intracavernosal injections of [Tyr1]-nociceptin and of nociceptin in doses of 0.3-30 nmol elicited dose-related increases in cavernosal pressure, which, at the highest dose studied, were comparable to increases induced by the triple-drug standard (papaverine, phentolamine, and prostaglandin E1), a preparation used in the treatment of erectile dysfunction. Responses to [Tyr1]-nociceptin were rapid in onset and had a time course similar to responses to nociceptin. Metenkephalin increased cavernosal pressure, whereas injections of nociceptin-(2-17), dynorphin A, and beta-endorphin did not alter cavernosal pressure. Erectile responses to nociceptin and to [Tyr1]-nociceptin were not altered after administration of the opioid receptor antagonist naloxone at a time when erectile responses to metenkephalin were attenuated. These data show that [Tyr1]-nociceptin and nociceptin have similar naloxone-insensitive erectile activity in the cat.

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