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JOURNAL ARTICLE

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

H. C. Champion, T. J. Bivalacqua, R. Wang, W. J. Hellstrom and P. J. Kadowitz
Department of Pharmacology, Tulane University School of Medicine, New Orleans, Louisiana 70112, USA.

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.