

ROLE OF NITRIC OXIDE IN BENZODIAZEPINES-INDUCED ANTINOCICEPTION IN MICE

Sylwia Talarek[#], Sylwia Fidecka

Department of Pharmacodynamics, Medical University School, Staszica 4, PL 20-081 Lublin

Role of nitric oxide in benzodiazepines-induced antinociception in mice.
S. TALAREK, S. FIDECKA. Pol. J. Pharmacol., 2002, 54, 27–34.

The influence of nitric oxide (NO) on antinociceptive activity of diazepam (DZ), chlordiazepoxide (CDP) and clonazepam (CZ) was examined using the writhing test in mice. The effect of DZ was also studied in mice using hot plate and tail flick tests. DZ (1.25, 2.5 and 5 mg/kg), CDP (1.25, 2.5, 5, 10 and 20 mg/kg) and CZ (0.075, 0.3125, 0.625, 1.25 and 2.5 mg/kg) produced significant, dose-dependent (DZ, CDP) antinociception in mice. The benzodiazepines (BZs)-induced antinociception was antagonized by flumazenil (5 mg/kg) and was not changed by naloxone (2.5, 5 and 10 mg/kg), except that of CZ, which was reversed by 5 mg/kg of naloxone. N^G-nitro-L-arginine methyl ester hydrochloride (L-NAME) as well as 7-nitroindazole (7-NI) intensified antinociceptive activity of BZs. The antinociceptive effect resulting from co-administration of L-NAME with CZ and 7-NI with CDP was reversed by L-arginine. Methylene blue (MB) increased, whereas L-arginine (but not D-arginine) decreased antinociceptive effects of the studied BZs. These results suggest that the NO-cGMP pathway is involved in the mechanism of BZs-induced antinociception in the writhing test in mice.

Key words: nitric oxide, benzodiazepines, nociception, mice

[#] correspondence