1-P-002

Poster Sessions

Accumbal GABA_A and GABA_B receptors each inhibit acetylcholine efflux without affecting dopamine efflux in the nucleus accumbens of freely moving rats

Yuri Aono¹, Yuriko Watanabe², Manabu Ishikawa³, Masataka Kimura⁴, Tadashi Saigusa¹

¹Dept. Pharmacol., Nihon Univ. Sch. Dent. at Matsudo, ²Dept. Oral surgery, Nihon Univ. Sch. Dent. at Matsudo, ³Dept. Anesthesiol., Nihon Univ. Sch. Dent. at Matsudo, ⁴Dept. Removal Prosthodont., Nihon Univ. Sch. Dent. at Matsudo

We analyzed the roles of GABA_A and GABA_B receptors (-Rs) in regulating acetylcholine (ACh) efflux in the nucleus accumbens (NAc) of freely moving rats using *in vivo* microdialysis. The effects of GABA-R ligands on accumbal dopamine (DA) efflux were also analyzed as accumbal cholinergic and dopaminergic neurons could mutually interact. Drugs used were infused directly into NAc. The GABA_A-R agonist muscimol (30 pmol) and the GABA_B-R agonist baclofen (300 pmol) each reduced accumbal ACh. The GABA_A-R antagonist bicuculline (60 pmol) counteracted the muscimol (30 pmol)-induced decrease in ACh and the GABA_B-R antagonist saclofen (12 nmol) counteracted the baclofen (300 pmol)-induced decrease in ACh. Each of muscimol (30 pmol), baclofen (300 pmol), bicuculline (60 pmol) and saclofen (12 nmol) did not alter baseline accumbal DA when given alone. Doses of compounds indicate total amount infused (mol) during 30-60 min infusions. These results show that GABA_A and GABA_B-Rs exert inhibitory roles in the control of accumbal ACh efflux. This study provides *in vivo* evidence that GABA_A and GABA_B-Rs each reduce accumbal cholinergic activity without affecting accumbal dopaminergic activity.