OBJECTIVE

We aimed at clarifying the role of brain, spinal, and peripheral oxytocin receptors (OTR) in the control of ejaculatory and erectile responses using an already described pharmacological model in anaesthetised rats (Clement et al., 2007).

METHODS

Surgical preparation

Adult male Wistar rats weighing 250-300 g were anaesthetised, with urethane (1.2 g/kg), tracheotomized, and the carotid artery catheterized for blood pressure measurement. All animal experiments were carried out in accordance with the European Community Council Directive (86/609/EEC) on the use of laboratory animals.

Intracerebroventricular cannula implantation

A guide cannula (22G) was stereotaxically placed above the cerebral ventricle (coordinates according to Paxinos and Watson rat brain atlas: 0.5 mm posterior to bregma, 1 mm lateral to midline, and 4 mm below the skull). The intracerebral cannula (with 0.5 mm projection below the guide cannula) was connected to a Hamilton syringe placed in a micropump allowing delivery of microvolumes. At the end of the experimental session, methylene blue dye was injected through the cannula, and the brain, removed and grossly dissected, was inspected for the presence of blue dye in the ventricles.

Intracerebroventricular OT antagonist i.c.v.

The effects of a peptide OT antagonist administered via different routes [i.c.v., intrathecal (i.t.), i.v.] were tested on 7-OH-DPAT-induced sexual responses.

RESULTS

Effects of the OT antagonist delivered via different routes on 7-OH-DPAT-induced sexual responses. The number of ejaculations (expulsion of a seminal plug), isolated seminal vesicle (SVP) and bulbospongiosus muscle (BS) responses elicited by i.c.v. delivery of 7-OH-DPAT.

CONCLUSIONS

In the 7-OH-DPAT model, erections (reflected by ICP responses) are likely reflexive.

Delivered i.v. the OT antagonist has no effect on 7-OH-DPAT-induced sexual responses.

Delivered i.c.v. the OT antagonist dose-dependently inhibits 7-OH-DPAT-induced sexual responses.

Delivered i.t. at L6 but not T13 level the OT antagonist has a modulatory role on 7-OH-DPAT-induced ejaculation.

The results indicate the key role that brain OT receptors may play in ejaculation.