DOPAMINE D2-LIKE RECEPTORS MEDIATE THE EXPULSION PHASE OF EJACULATION ELICITED BY 8-HYDROXY-2-(DI-N-PROPYLAMINO)TETRALIN (8-OH-DPAT) IN ANESTHETIZED RATS

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ABSTRACT

Ejaculation consists in two distinct and successive phases i.e. emission and expulsion with the latter caused by synaptic contractions of pelvic floor striated muscles (BS) (Gerstenberg et al., 1990).

Among the different central neurotransmitters which are involved in mediating the neural control of ejaculation, serotonin and dopamine are of primary importance and play respectively an inhibitory and activatory role (Hull et al., 2004).

It was shown in copulating male rat that 8-hydroxy-2-(di-N-propylamino)tetralin (8-OH-DPAT), a 5-HT1A agonist of reference, facilitated ejaculatory behaviour (Hillegaert and Ahlenius, 1986). However it was later reported that the 8-OH-DPAT effects on ejaculatory behaviour of rat was partially reversed by dopamine D2-receptor antagonist but not by 5-HT1A antagonist (Matuszewich, 1999).

We have previously shown that intracerebroventricular injection of 8-OH-DPAT was capable to induce rhythmic bursts of contractions of BS muscles in anesthetized rats (Clément et al., 2005). The present study using this experimental model was undertaken for clarifying whether 5-HT1A or D2-like receptors are involved in mediating 8-OH-DPAT activity on ejaculation. The results of this study have been recently published (Clément et al., 2006).

CONCLUSION

The 5-HT1A antagonist WAY100635 did not reverse bulbo cavernosus (BS) muscles rhythmic contractions elicited by 8-OH-DPAT i.c.v. delivery whereas the two tested D2-like antagonists raclopride and spiperone did.

The D2-like agonist quinelorane i.c.v. delivered was capable to induce BS muscles rhythmic contractions more efficiently than 8-OH-DPAT.

These data indicate that the facilitator effect of 8-OH-DPAT on ejaculation in rats is a central one and is very likely mediated by D2-like receptors.

We propose i.c.v. delivery of a D2-like agonist does represent a pertinent model to investigate the expulsion phase of ejaculation in anesthetised rats. It is however unclear whether D2, D3 or both dopamine receptor subtypes are involved (see poster #163).