

Facilitator effect of melanotan II (MT-II) on reflexive penile erections monitored by telemetry in conscious rats

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OBJECTIVE

- ✎ Melanotan II (MT-II), a potent exogenous non selective agonist of melanocortin receptors (MCRs), has been shown to both induce and facilitate non-contact erection in conscious rats.
- ✎ We aimed to test the effect of MT-II on reflexive glans erections in the *ex copula* test in conscious rats.

MATERIALS & METHODS

Surgical preparation

- ✎ Telemetric recording was performed according to Bernabé et al. (Am J Physiol, 1999). Wistar male rats (350-400 g) were implanted under isoflurane anesthesia with a telemetric device (C40, Data Sciences, St Paul, MN, USA) (Figure1) allowing measurement of intracavernosal pressure (ICP) after MT-II (0.1, 0.3 mg/kg) or vehicle (saline) injections in the vein (i.v.) of the tail.
- ✎ Insertion of the tip of the recording catheter into the proximal shaft of the right corpus cavernosum (Figure 2). The implanted transmitter was placed subcutaneously at the lateral aspect of the abdominal wall (Figure 3).

Treatment administration

- ✎ Rats (n=14-19 per treatment) were restrained on their back in a plastic cylinder for a 5-min adaptation period and then i.v. injected with MT-II (0.1 or 0.3 mg/kg) or saline under light isoflurane anesthesia.

Behavioral observation

- ✎ Before awakening of the rat, the preputial sheath was tonically retracted with a loose metal loop. Tests lasted for 30 min. Penile reflex responses were divided into 3 categories: glans erections (glans engorgement involving some dilation of the glans - Figure 4), cups (intense glans erection with flaring of glans extremity), and flips (dorsiflexions of penile body - Figure 5).

Data analysis

- ✎ Mean number of glans erections, cups and flips were measured during the 30-min recording after treatment injection and expressed as % saline. Amplitude of ICP rises were also determined in rats displaying glans erection, cups and flips and expressed as % saline.

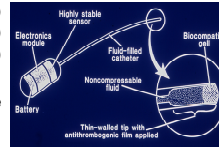


Figure 1

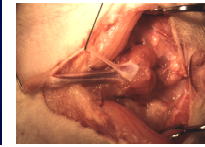


Figure 2

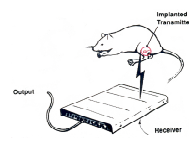


Figure 3

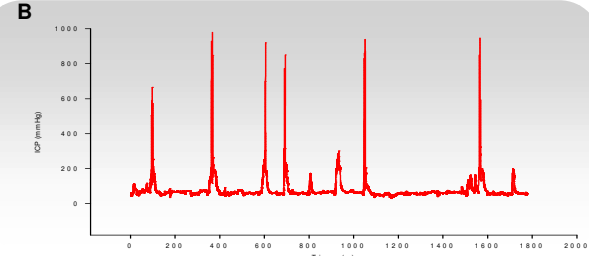
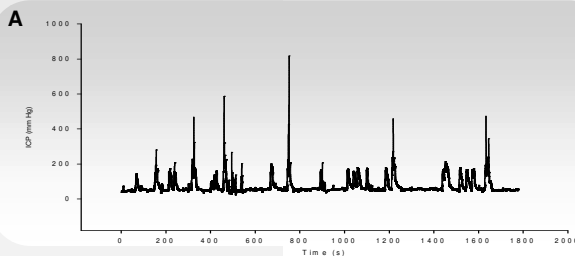


Figure 4

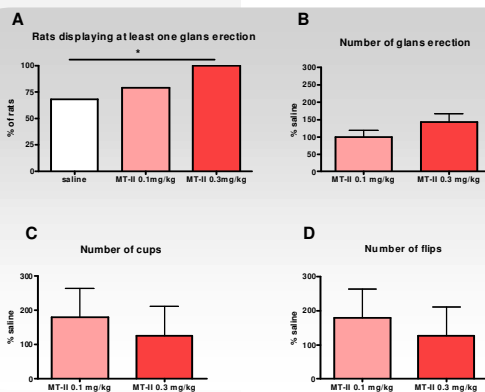


Figure 5

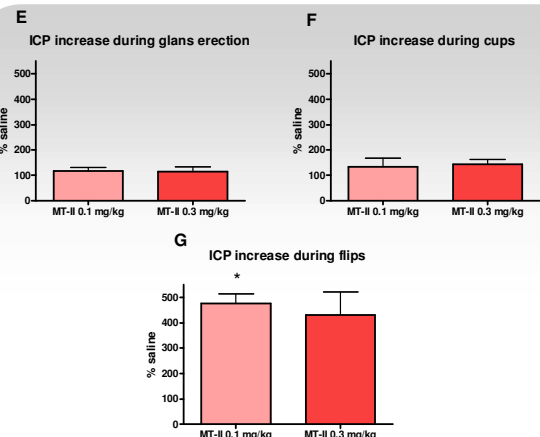
RESULTS



- ✎ Typical recordings of ICP increases during a 30-min lasting test in a rat i.v. injected with saline (A) and in a rat injected i.v. with MT-II 0.3 mg/kg (B).



- ✎ Effects of MT-II i.v. 0.1 mg/kg (n=14) and 0.3 mg/kg (n=15) delivered on the percentage of rats displaying glans erections (A) Mean number (% saline) of glans erections (B) cups (C), and flips (D) Statistical analysis with Fisher's exact test revealed a significant effect of MT-II 0.3 mg/kg in A- the percentage of rats displaying at least one glans erections (* p<0.05). Statistical analysis with one sample t-test (100% as theoretical value) did not reveal any significant effect of MT-II in B, C and D



- ✎ Effects of MT-II i.v. 0.1 mg/kg (n=3-11) and 0.3 mg/kg (n=3-15) delivered on the ICP increase (% saline) during glans erections (E) cups (F), and flips (G). Statistical analysis with one sample t-test (100% as theoretical value), (*, p<0.05).

CONCLUSION

This study shows that MT-II potentiates the proerectile effect of sexual peripheral stimulus in conscious rats and provides arguments for a role of melanocortin agonists in the treatment of erectile dysfunction.