

Pelvic nerve-evoked female sexual response

Objectives:

In women, sexual arousal includes two components : genital and psychogenic arousal. Genital sexual arousal is characterized by a rapid increase of blood supply to the vaginal epithelium and at the same time a reduction of venous drainage, thus creating vasocongestion and engorgement with blood. Such an increase in blood flow combined with an enhanced permeability of the capillary tufts induces a neurogenic transudate, which results in vaginal lubrication. We have developed a reliable and standardized model to study the physiology/pharmacology of female vaginal sexual arousal in the adult female rat.

Summarized methodology:

In this model, vaginal sexual arousal is induced by electrical pelvic nerve stimulation (nerves placed on bipolar platinum stimulating electrodes connected to an electrical stimulator delivering a series of square-wave pulses while direct measurements of various vaginal physiological variables are performed. Blood pressure, vaginal LDPM, vaginal PO₂, vaginal wall tension, and vaginal temperature were the physiological parameters measured. For each parameter, we determined the baseline value before the stimulation and the maximal value reached with the stimulation.

Endpoints:

Latency (i.e. time separating the onset of the electrical stimulation from the parameter to rise over the mean ± 3 SDs of the value before the stimulation) and duration of the variation of :

- 1) vaginal laser Doppler perfusion measurement (LDPM)
- 2) vaginal O₂ tension
- 3) vaginal temperature
- 4) vaginal contractile activity
- 5) pelvic nerve stimulation
- 6) clitoris stimulation



Figure1:Recording of the vaginal response elicited by repeated electrical stimulations (boxes with tag number) of the pelvic nerve in anesthetized ovariectomized female rat. Pelvic nerve electrical stimulation elicits reproducible increases in vaginal laser Doppler perfusion measurement (B), vaginal O₂ tension (C), vaginal contractile activity (D) and vaginal temperature (E). (Pelvipharm, internal data)

Related Pelvipharm bibliography:

Giuliano, F. et al. *Am J Physiol Regul Integr Comp Physiol* (2001) : 281:R140-149

Links to applicable therapeutic areas / targeted disorders:

- Sexual pharmacology

* Female sexual dysfunction (FSD)