ABSTRACT

A MODEL TO ASSESS THE SENSORY FEEDBACK FROM THE EXTERNAL GENITALIA TO THE CENTRAL NERVOUS SYSTEM IN FEMALE RAT.

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BACKGROUND

- Female genital sexual response is a complex vascular-tissue event under neuroendocrine control.
- Female sexual arousal responses are mainly the product of spinal reflex mechanisms, and are under descending excitatory and inhibitory control from supraspinal sites.
- Increasing genital (i.e. vaginal, labial and clitoral) blood engorgement for the treatment of female sexual dysfunctions did not appear as successful as increasing penile blood engorgement for the treatment of male sexual dysfunctions (Modefska K. and Cummings S. Female sexual dysfunction in postmenopausal women: systematic review of placebo-controlled trials. Am J Obstet Gynecol., 2003. 188. 286-293).
- In men, ability to get and maintain good erection: sufficient for feeling as being potent.
- In women, no such physiological performance.
- Discrepancies between subjective feeling of sexual arousal and the objective measurement of vaginal blood flow.

OBJECTIVES

➢ To design an experimental model to investigate the afferent innervation of the vulva which is involved in the regulation of female genital sexual response and thus link the female genital tract to the central nervous system.
➢ To determine the effect of mechanical stimulation of the external genitalia on afferent nerve activity in the L6 dorsal root.
➢ To compare the effect of external genitalia and anal stimulation on afferent nerve activity in the L6 dorsal root.

METHODS

- Female Wistar rats (250-300g) were ovariotomized 7-10 days prior to the experiment.
- Rats were anesthetized with urethane (1.2g/kg) and placed on a stereotaxic frame.
- Mechanical stimulation of the external genitalia was performed with air stream.

RESULTS

- The air stream was generated by connecting a metal tube to a cylinder of compressed air and the stream was directed toward the vulva from a distance of 2 cm.
- The electrical activity on the L6 dorsal root after laminectomy of the corresponding vertebra and the electrical activity (spikes frequency) determined at baseline and after clitoral stimulation.

CONCLUSION

- These experiments represent a preliminary attempt to investigate the afferent limb of the spinal reflex involved in genital sexual response in females.
- Afferent nerve activity recorded in L6 dorsal root is activated by mechanical stimulation of the external genitalia in female anesthetized rats.
- Further characterization of L6 dorsal root single afferent fibers innervating the vulva is mandatory. This will imply to study the responses of these afferent fibers to mechanical and thermal stimulation of the vulva.
- Whether the vulvar sensory stimulation elicits a spinal reflex resulting in clitoral, labial and vaginal engorgement requires further investigation.