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JOURNAL ARTICLE

Intracavernosal pressure monitoring in mice: responses to electrical stimulation of the cavernous nerve and to intracavernosal drug administration

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With the development of transgenic mice to evaluate mechanisms of erectile function, it appears particularly advantageous to develop a standardized mouse model of penile erection. The purpose of the study reported here was to evaluate the novel application of intracavernosal pressure (ICP) monitoring in the mouse during electrophysiologic and pharmacologic induction of penile erection. In anesthetized adult male mice, the cavernous nerves (CN) were isolated unilaterally, and the corpora cavernosa were exposed. A 24-gauge angiocath (intravenous catheter) was inserted into the right corpus cavernosum to monitor the ICP, and a 30.5-gauge needle was inserted into the left corpus cavernosum for intracavernosal drug administration. ICP was recorded during CN-stimulated or pharmacostimulated erections. Electrical stimulation of the CN significantly increased the ICP (from 10.09 +/- 2.01 to 34.62 +/- 2.71 mm Hg, P < .05), which then returned to baseline pressure after termination of the electrical stimulation. Pretreatment with intracavernosal administration of the nitric oxide synthase inhibitor, nitro-L-arginine methyl ester (0.1 mg), inhibited the electrical stimulation-induced changes in ICP (7.17 +/- 1.46 vs 10.38 +/- 2.17 mm Hg, not significant [NS]). Also, intracavernosal administration of papaverine (0.4 mg) produced a significant increase in ICP (from 8.51 +/- 0.69 to 26.37 +/- 5.7 mm Hg, P < .05). We concluded that this technique might be applied to perform quantitative erection physiologic experiments with the mouse as an economical and experimentally advantageous animal model, particularly with the development of transgenic mice to evaluate mechanisms of erectile function.

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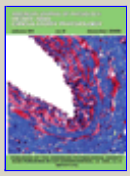

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