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Effects of FK506 Treatment on EFS-induced Responses of Isolated Penile Bulb of Rats

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Tacrolimus (FK506) is a widely used immunosuppressant which is reported to decrease nitric oxide formation without significantly affecting NOS expression and reduced acetylcholine-induced relaxation of thoracic aorta after chronic treatment in rats. The aim of this study was to investigate the effects of FK506 on electrical field stimulation (EFS)-induced responses in penile bulb which has been suggested to play a role in penile erection.

Male Wistar rats (200-250 g) were treated with FK506 (1 mg/kg/day, ip) or its solvent HCO-60, for 30 days. Penile bulbs were isolated and EFS (0.5-50 Hz; 130 V; 2 ms, 10 sec trains)-induced contractile responses were recorded.

EFS produced frequency-dependent transient contractile responses. These responses were not

changed after chronic treatment with FK506 or HCO-60. In muscles precontracted with phenylephrine (10^{-5} M) in the presence of atropin (10^{-6} M) and guanethidine (5×10^{-5} M), EFS produced frequency-dependent nonadrenergic noncholinergic (NANC) relaxations which were blocked in the presence of L-NOARG (10^{-4} M). These relaxations were significantly lower in amplitude in the penile bulbs obtained from FK506- or HCO-60- treated animals and increased after L-arginine (10^{-3} M) administration.

Our results indicate that chronic FK506 treatment does not alter EFS-induced contractile responses, but inhibit NANC relaxations in the rat penile bulb. This inhibitory effect of FK506 appears to be not due to the drug itself, but to its solvent, HCO-60.