



Can vitamins C and E restore the androgen level and hypersensitivity of the vas deferens in hyperglycemic rats?

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Abstract:

Diabetic neuropathy can affect the male reproductive system. The aim of this study was therefore to evaluate whether antioxidant (vitamins C and/or E) treatment could attenuate reproductive dysfunctions in hyperglycemic adult male rats. The animals were randomly assigned to one of four experimental groups: hyperglycemic control (Hy), hyperglycemic + 150 mg/day vitamin C (HyC), hyperglycemic + 100 mg/day vitamin E (HyE) or hyperglycemic + vitamins C and E (HyCE). The normoglycemic group (n = 10) received only the vehicles. The testosterone level and noradrenergic response of the vas deferens were analyzed. Both vitamins significantly decreased the TBARS (thiobarbituric acid reactive species) level in the hyperglycemic groups. There was a significant reduction in the testosterone level in the Hy and HyE groups when compared to the normoglycemic group. However, the testosterone levels were partially recovered in the HyC and HyCE groups. In addition, an increased sensitivity of the α -1 adrenoceptor in the vas deferens of the hyperglycemic control group was observed. Treatment with vitamins partially restored (vitamin E or in combination with vitamin C) or totally (vitamin C alone) this dysfunction. Moreover, the maximum response values to norepinephrine were similar among all groups. Thus, we concluded that vitamin C is more efficient than vitamin E in attenuating the effects of hyperglycemia on the male reproductive system of adult rats.

Key words:

vitamin C, vitamin E, hyperglycemia, testosterone, vas deferens, norepinephrine, male reproductive system, male rat
