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Blockade of D2-like Dopamiergic Receptor Corrects Anxiety-like Behaviour in Gonadectomized Male Rats Treated with Low Dose of Testosterone

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Several preclinical and clinical data suggest that DA, acting on D_2-dopaminergic receptors, is one of the most important neuromodulators of fear and anxiety. On the other hand, both basic and clinical reports showing that steroid hormones are involved in the modulation of anxiety.

The present work was devoted to the comparative analysis of behavioral and hormonal status in the gonadectomized (GDX) male rat chronically treated with high-selective D_2-dopaminergic agonist or antagonist alone or in a combination with a low dose of testosterone propinate (TP).

Two weeks after surgery, GDX male rats of 3-4 months age began 14 days of treatment with the vehicle, low dose of testosterone propionate (1.0 mg/kg, s.c.), D_2-dopaminergic agonist, quinpirole (0.1 mg/kg, i.p.), D_2-dopaminergic antagonist, sulpiride (0.1 mg/kg, i.p.), quinpirole plus testosterone propionate or sulpiride plus testosterone propionate. The animals were then tested in the elevated plus maze and the open field test.

Sulpiride alone or in a combination with TP treatment significantly increased the time spent and number of entrees into the 'open” arms of the elevated plus maze in the GDX rats. The post-hoc test showed that in GDX rats treated with sulpiride, there was a significant increase in the frequency of rearing and grooming compared with the GDX rats.

The results of this study demonstrate that sulpiride and testosterone propionate in GDX rats interact to exert an anxiolytic-like action and that each of these drugs can improve the effects of the other drug.

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