

In vivo β -adrenergic blockade by propranolol prevents isoproterenol-induced polycystic ovary in adult rats

Luna, S. L.

Neuman, S.

Aguilera, J.

Brown, D. I.

Lara, H. E.

Increasing evidence in animal models and in humans shows that sympathetic nerve activity controls ovarian androgen biosynthesis and follicular development. Thus, sympathetic nerve activity participates in the follicular development and the hyperandrogenism characteristics of polycystic ovary syndrome, which is the most prevalent ovarian pathology in women during their reproductive years. In this study, we mimic sympathetic nerve activity in the rat via "in vivo" stimulation with isoproterenol (ISO), a β -adrenergic receptor agonist, and test for the development of the polycystic ovary condition. We also determine whether this effect can be reversed by the administration of propranolol (PROP), a β -adrenergic receptor antagonist. Rats were treated for 10 days with 125 μ g/kg ISO or with ISO plus 5 mg/kg PROP. The ovaries were examined 1 day or 30 days following drug treatment. While ISO was present, the ovaries had an increased capacity to secrete androgens; ISO + PROP reversed this effect