SHORT COMMUNICATION

EFFECT OF PROPRANOLOL ON PITUITARY ADRENAL AXIS

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Summary: In an attempt to correlate the anti-inflammatory activity of propranolol (3) its effect on the adrenal ascorbic acid content in rats was studied since the adrenal ascorbic content can serve as an index of the activity of the pituitary-adrenal axis. Propranolol in a dose of 5 *mg/kg* (ip) significantly reduced theadrenal ascorbic acid content suggesting that there may be a possible correlation between this effect and its reported anti-inflammatory activity.

Key words: propranolol adrenal ascorbic acid *A.C.T.H.*

INTRODUCTION

In rats propranolol has an anti-inflammatory action which is abolished after hypophysectomy and adrenalectomy (3), suggesting that the drug might be stimulating the secretion of A.C.T.H. from anterior pituitary and through it the secretion of corticoid hormones from adrenal glands. As adrenal ascorbic acid content is a reliable index for the secretion of A.C.T.H. (2) the effect of propranolol was studied on rat's adrenal ascorbic acid content.

MATERIALS AND METHODS

Thirty albino rats weighing between 100-150 g were divided in two groups of 15 each. Propranolol (5 *mg/kg*, ip) was administered to rats of one group while normal saline in equivalent quantity (0.2 *ml*, ip) was administered to rats of the other group. After one hr the rats were decapitated, their adrenal glands were removed, dried and weighed. The adrenal ascorbic acid was estimated spectrophotometericaly by a modified method of Roe and Kuether (1).

RESULTS AND DISCUSSION

TABLE I: Effect of propronolol on the ascorbic acid content of adrenal glands of rats.

Mean ascorbic acid (*mg*/100 g ± S.E.) content of adrenal gland.	
Control	*Propranolol-treated*
279.4 ± 11.25	211.6 ± 5.4 $P < 0.01$

As shown in Table I, the adrenal ascorbic acid content of propranolol-treated group was significantly less as compared to that of the control group. The reduction in the ascorbic acid content could be attributed either to an indirect effect of propranolol through the secretion of

A.C.T.H. or a direct effect on adrenal glands. Since previous workers (3), have shown that the anti-inflammatory action of propranolol is absent in hypophysectomised rats, it is more likely that propranolol might be stimulating the secretion of A.C.T.H. and thereby exerting its anti-inflammatory action.

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