PHARMACOLOGICAL REVIEWS
Vol. 18, No. 1, Part I

Printed in U.S.A.

N. SUMMARY OF DISCUSSION AND COMMENTARY

T. BRODY

Department of Pharmacology, University of Michigan, Ann Arbor

Wenke commented on the specificity of the lipolytic receptor site in adipose tissue. The lipolytic actions of the catecholamines can be blocked by *alpha* and *beta* adrenergic blocking agents. Studies by Wenke and his collaborators indicated that the *beta* adrenergic blockade of lipolysis was more specific and appeared to be competitive. Comparing the dose-response curves of the lipolytic action of norepinephrine (NE) and ACTH on rat adipose tissue and their interaction with the *beta* adrenergic blocking agent propranalol (Inderal), Wenke observed a difference in the actions of NE and ACTH. Inderal antagonized the NE response competitively ($pA_2 = 5.5$) while the lipolytic action of ACTH is antagonized by the blocking agent in a noncompetitive manner ($pD_2 = 3.4$). They concluded that NE and ACTH do not act on the same receptor site in the fat cell. Stock and Westermann have also reported differences in the antagonism of the lipolysis induced by NE and ACTH by *beta* adrenergic blocking agents.

Westermann noted that in the presentation by Butcher, an activation of adenyl cyclase by thyroxin was postulated. This is based upon the observation that the lipolytic effect of the catecholamines is enhanced after thyroxin pretreatment. Westermann has recently been able to show that pretreatment of rats with triiodothyronine potentiated not only the lipolytic effect of NE but also that of ACTH. Both agents increased lipolysis to the same degree after the thyroid hormone either *in vivo* or *in vitro*. Since ACTH does not produce its actions *via* catecholamine mediation and can independently elevate cyclic 3′,5′-AMP levels in adipose tissue, these studies with triiodothyronine serve as additional evidence that thyroid potentiation of lipolysis by several agents may result from the ability of the thyroid hormone to increase the amount of adenyl cyclase in the fat cell.

Kuntzman remarked that the reason for the failure of Garattini to block the catecholamine-induced rise in FFA with butoxamine may be related to the species used, since Burns and Salvador demonstrated the efficacy of this agent in lowering FFA in the dog. This parallels the studies with isopropylmethoxamine, which also could reduce the FFA rise in the dog but did not block lipolysis in the rat. Both compounds are known to be metabolized more rapidly in the rat than in the dog.