LETTER TO THE EDITOR

HYPOTENSIVE EFFECT OF GLUCAGON IN RATS AND DOGS

(Received on January 30, 1980)

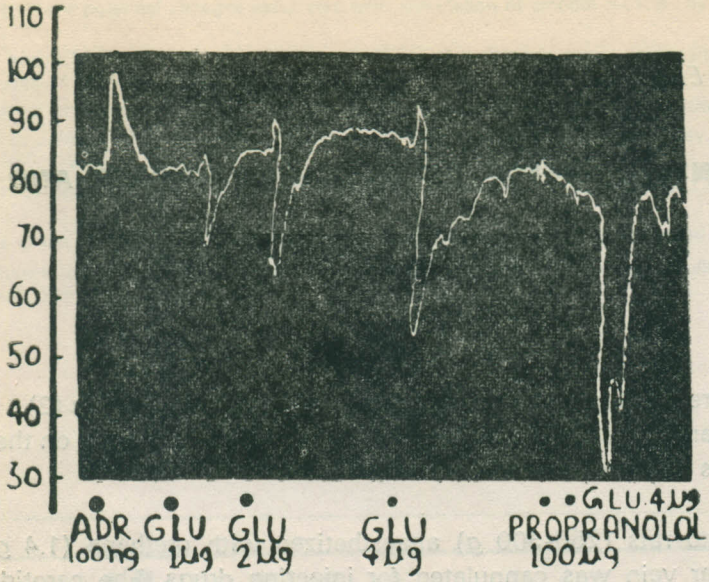
Sir,

Glucagon reduces vascular resistance in man (4) and in animals (3). Its hypotensive effect in man (1) and dogs (2) is also known. The effect of glucagon on the blood pressure of rats and dogs is reported here.

Male albino rats (250-300 *g*) anaesthetized with urethane (1.4 *gm/kg* ip) were used. The jugular vein was cannulated for injecting drugs. The carotid arterial blood pressure was recorded with a Condon manometer. In dogs (10-14 *kg*), the carotid arterial blood pressure was measured by a mercury manometer.

In experiments with rats ($n=10$), the mean blood pressure was (74.2 ± 3.72 mmHg). Intravenous administration of glucagon 1,2 and 4 μg) produced a mean decrease in blood pressure of 14.75 ± 2.89, 24.24 ± 2.43 and 33.75 ± 3.49 mmHg, respectively. The fall in blood pressure was significant ($P < 0.01$) at each dose level. The hypotensive effect lasted for approximately 2–4 min, and in most experiments, was preceded with a small pressor response (Fig. 1). Pretreatment with propranolol (100 μg) failed to abolish the hypotensive effect of glucagon. On the other hand there was potentiation of hypotensive effect of glucagon (Fig. 1). Intravenous administration of glucagon (50, 100 and 200 $\mu g/kg$) in eight dogs caused hypotension which was not dose dependent, and which remained unaffected after pretreatment with propranolol (1 *mg/kg*). The hypotension lasted for 15–20 min with each dose used.

The work confirms that glucagon produces hypotension in dogs and further shows that the effect also is seen in rats. In dogs hypotension was slight in view of doses used, and lasted longer. In rats hypotension was brisk and more profound in comparable doses, and this may indicate a difference in sensitivity of the two species, amongst other factors. In both species, hypotension was not mediated through-adrenoceptor, since propranolol failed to block the effect.



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