

Effect of Tubocurarine on the Adrenal Medulla

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In experiments of suprarenal-jugular anastomosis on dogs, MALMÉJAC and GROSS²⁾ provided evidence that tubocurarine was capable of preventing the accelerating action of anoxia on the adrenaline secretion. In this view, the present study was attempted to investigate quantitatively how tubocurarine interferes with the adrenaline-secretory action of acetylcholine.

Experiments were performed on six dogs anesthetized with Evipan-sodium, whose adrenal venous blood was collected by the lumbar route method.³⁾ The adrenaline content of the blood specimens was determined by the method of BLOOR & BULLEN.¹⁾ Intravenous injections of acetylcholine in a dose of 2 mg/kg were made twice before and after application of tubocurarine.

In the first place, tubocurarine was injected into the central end of the ligated coeliac artery in a dose of 1 unit/kg. When the first injection of acetylcholine was made before tubocurarine, the rate of adrenaline secretion reached its maximal value such as 0.64–1.7 $\mu\text{g}/\text{kg}/\text{min}$. in the first sixty-second period after the start of injection. After tubocurarine, the rate of adrenaline secretion was also increased by the second acetylcholine injection, 0.53–1.7 $\mu\text{g}/\text{kg}/\text{min}$. being estimated there. Thus, no inhibitory effect of tubocurarine upon the augmented adrenaline secretion causable by acetylcholine was observed.

In the second place, an injection of tubocurarine was made directly into the adrenal tissue in a dose of 4 units. On receiving acetylcholine before tubocurarine, the adrenaline secretion rate was found to be 0.99–1.3 $\mu\text{g}/\text{kg}/\text{min}$. After tubocurarine, the second acetylcholine injection resulted in an increase in adrenaline secretion rate, 0.31–0.78 μg being determined. In this case, the inhibitory effect of tubocurarine was slight and not definitive.

Hereupon, in doses we have used, we failed to confirm the inhibitory effect of tubocurarine on the adrenaline-secretory action of acetylcholine.

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