heart. This seems to supply additional evidence that beta receptor inhibition is responsible for the benefit of these drugs in angina and not some other non-specific property.

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Cardiovascular actions of glucagon and secretin

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It has been suggested (Robison, Butcher & Sutherland, 1967) that adenyl cyclase is the β-receptor for catecholamines and that the cardiac effects of catecholamines result from myocardial cyclic 3',5'-AMP accumulation. Glucagon also causes cyclic AMP accumulation in certain tissues and produces cardiac chronotropic and inotropic responses. It seemed of interest to determine the peripheral vascular effects of glucagon and to compare them with isoprenaline. The actions of secretin, which closely resembles glucagon in structure, were also examined.

Cats were anaesthetized with pentobarbitone sodium. Arterial blood flows were measured with non-cannulating electromagnetic flowmeters and drugs were given by close intra-arterial injection, or infusion.

Rapid injections of glucagon (1–10 μg) produced dilatation of mesenteric resistance vessels, constriction of the hepatic arterial vascular bed and no effect on the renal and femoral vasculature. Rapid injections of secretin (1–10 μg) produced dilatation of the mesenteric and femoral vasculature, constriction of the hepatic arterial bed and no effect on the renal vessels. Glucagon and secretin appeared to act directly on the resistance vessels, since the responses developed within a few seconds and were unaffected by appropriate denervation. Their vasodilator actions were unaffected by pre-treatment with propranolol.

Isoprenaline dilated the mesenteric, hepatic and femoral vasculature and was without effect on renal vessels.

Since the pattern of vascular responses induced by glucagon and secretin differed from that of isoprenaline, the vasomotor changes induced by these hormones were probably not mediated by β-receptors.

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The excretion of hydroxyphenyltrimethylammonium in bile

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The biliary excretion of quaternary amines varies greatly from compound to compound. For example, benzomethamine and procainamide ethobromide are