

Zusammenfassung

Die Aktivität der Azetylcholinesterase von einzelnen Megakaryozyten verschiedener Reifegrade wurde mit Hilfe des Cartesischen Tauchers bestimmt. Die Megakaryozyten zeigen auf dem Megakaryoblasten- und Promegakaryozytenstadium grosse Unterschiede der Azetylcholinesteraseaktivität. In der letzten Phase der Reifung, wenn die Zellen einen Durchmesser von 45 μ erreichen, wird das Ferment am stärksten wirksam.

Post-heparin Esterase in Man

It is known that heparin has an influence on the enzymatic activity of serum and plasma. The nature of these changes has already been investigated¹. In the investigation described, the effect of heparin on the esterolytic activity of serum in man was observed. The esterase level was determined by the titrimetric method², using ethyl butyrate as substrate. Human blood serum was investigated before and 10–15 min after the injection of 5000 units of heparin intravenously. An increase of from 10 to 100% was found in 30 examinations. This finding was observed in both serum and plasma; heparin, however, acted only *in vivo*. When substrates other than ethyl butyrate were used, an increase was also observed with ethyl isobutyrate; with other esters, e.g. ethyl acetate, isopropyl acetate, butyl acetate, amyl acetate, triacetin and tributyrin, the increase was small or absent. The level of esterase rose as early as 2 min after injection, it then gradually fell; however a higher value was still evident after 60 min (Table I).

Table I

Time after injection minutes	Esterase ml 0.05 n NaOH
0	2.72
2	4.00
20	3.68
40	3.52
60	3.32

Table II

Concentration of NaF	Pre-heparin esterase ml 0.05 n NaOH	Post-heparin esterase ml 0.05 n NaOH
—	2.68	3.56
0.001 m	1.62	2.98
0.01 m	0.72	2.36
0.1 m	0.18	1.60
1 m	0.08	0.32

Post-heparin esterase acts at pH 7–11, a higher pH is more favourable to it. It is resistant to various in-

hibitors, e.g. NaF (Table II), physostigmine (10^{-3} m), diethyl-*p*-nitrophenylphosphate (10^{-5} m). Similarly, it shows a somewhat greater resistance to heat than the esterase of normal serum. Sodium taurocholate decreases its effectiveness. Similarly, protamine inhibits it *in vitro*. The effect of protamine, however, can be eliminated by the addition of heparin in excess.

J. SKOŘEPA and H. TODOROVIČOVÁ

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Zusammenfassung

Es werden einige Eigenschaften der menschlichen Serumesterase nach Heparinapplikation beschrieben.

Tubular Factors in the Renal Response to Arterial Hypotension

The extreme oliguria in posthaemorrhagic hypotension is well known¹. In a previous communication² we were able to demonstrate that the posthaemorrhagic diminution of diuresis is less expressed in the transplanted, i.e. completely denervated kidney, than it is in its innervated partner. So the role of nervous impulses in the mechanism of posthaemorrhagic oliguria seems to be proved. There is no doubt that one of the factors responsible for oliguria is the reduced filtration rate (GFR), but an accurate analysis of our data³ suggested that an increase in tubular reabsorption is also involved in the process.

In a series of experiments performed on dogs under chloralose, innervated and transplanted kidneys were compared for renal bloodflow (RBF), GFR, renal resistance ($R = B.P./RBF$), and excretion of sodium and water. Part of the experiments were done in osmotic or saline diuresis, part of them without any diuretics at all. RBF was determined directly by cannulating the renal vein. GFR is the product of RPF (determined directly) and the extraction ratio of inulin. Measurements were made both in the basal state, i.e. with arterial pressure normal, and in hypotension induced by constriction of the aorta just above the origin of the renal arteries.

The results are tabulated (arithmetic means with s. d.). In the basal state there was no significant difference between the behaviour of the innervated and transplanted kidneys except for RBF, which was lower; consequently, resistance was higher in the transplanted kidney. After induction of a hypotension of about 70 mm Hg, RBF decreased to about 80% in both series, leading to a decrease of renal resistance. (The hypotensive values are expressed as percentages of the corresponding basal rates.) The response of the renal vessels to hypotension of the lower half of the body was

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