

a. Rh.) (1-[3, 5-Dihydroxyphenyl]-1-hydroxy-2-isopropylaminoäthansulfat) bei Albinoratten. Die Wirksamkeit beginnt mit 3,0 mg (in isotoner Kochsalzlösung s.c. verabreicht), erreicht ihren Höhepunkt mit 10,0 mg (46% Überlebensrate), nimmt mit höheren Dosen langsam ab und endet bei einer Dosis von 50,0 mg. Die Letaldosis liegt bei etwa 200 mg (s.c.), also etwa dem zwanzigfachen der optimalen Dosis. 43 Kontrollratten, die eine letale RGKB unter gleichen Bedingungen erhielten, verendeten alle innerhalb von 17 Tagen.

In Figur 2 werden die Ergebnisse je eines Versuches mit Adrenosan bzw. Alupent graphisch dargestellt. Hierbei werden die Absterbensraten tageweise bei behandelten sowie unbehandelten (Kontrollen) letal bestrahlten Ratten aufgezeigt.

Bei oraler Verabreichung von Alupent (mittels Magensonde) wurden höhere Dosen (50 mg) angewendet. Die

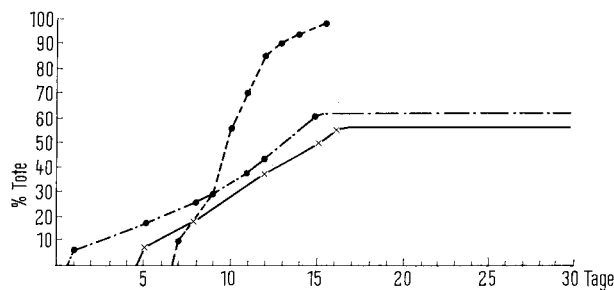


Fig. 2. — 15 Albinoratten, 800 R RGKB, etwa 5 min nachher 10 mg Alupent s.c. 7 Tiere überlebten (46%). - - - 15 Albinoratten, 800 R RGKB, etwa 5 min nachher 0,4 ml Adrenosan s.c. 6 Tiere überlebten (39%). . . . 20 Albinoratten, 800 R RGKB, Kontrollen, 0% überlebten.

therapeutischen Erfolge waren bei den bisherigen Versuchen mit 4 überlebenden Ratten (22%) von 18 Versuchstieren geringer als bei subcutaner Gabe.

Nach unseren Versuchen ist Alupent ein schonendes und leicht anwendbares Strahlenschadengegenmittel. Es besitzt im Gegensatz zu den anderen, bisher erprobten Substanzen keine abrupte, sondern eine protrahierte Schockwirkung, und es kann durch Überdosierung, im Gegensatz zu Adrenosan, C 48/80 und Anaphylatoxin, mit therapeutischen Dosen kein irreversibler Schock erzeugt werden. Gegenüber Endotoxin des *E. coli* hat Alupent den Vorteil, beständiger zu sein und nicht im Lauf der Zeit seinen therapeutischen Effekt zu verlieren.

Ähnlich wie bei den eingangs erwähnten Strahlenschadengegenmitteln dürfte auch bei Adrenosan und Alupent die Auslösung eines schockartigen Zustandes knapp nach der letalen RGKB mit einigen hundert R entscheidende therapeutische Bedeutung haben. Man kann annehmen, dass es durch diesen Schock zur Freisetzung vasoaktiver Stoffe und zu Folgeaktionen kommt, die ein hypotonisches Zustandsbild und eine Hypoxämie herbeiführen. Hierbei dürften günstige Voraussetzungen zur Einleitung reparativer Vorgänge nach letaler Bestrahlung geschaffen werden.

Summary. After exposure to lethal whole-body X-irradiation the survival rate ranged from 39–60% in white rats and guinea-pigs given adrenalin and Alupent subcutaneously. The effect of the two substances is ascribed to a shock-like response and sequential reactions.

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Giant Neurosecretory Cells in the Thoracic Ganglion of *Potamon magnum magnum* (Pretzman)

The occurrence of different types of neurosecretory cells and their products has hitherto been demonstrated in *Brachyura*¹⁻⁷. These neurosecretory cells are distributed as distinct groups in the nervous system of these crustaceans. The most significant and functional neurosecretory cells are the giant cells of thoracic ganglion which are thought to control many metabolic processes in *Brachyura*.

We have recently shown the presence of giant neurosecretory cells containing abundant granules that stain deeply with Gömöri's Chrome-alum hematoxylin and phloxine (CHP) in the thoracic ganglion of *Potamon magnum magnum* (Figure 1). The cells are 85–115 μ with or without axons. These are mainly found in the anterior, medial and posterior parts of the dorsal and ventral sides of the ganglion. The cytoplasm shows dense granular structure full of mitochondria and Nissl's bodies, but the outer region is sometimes vacuolated. These cells show extreme modification of nuclear shape which varies from flat to crescent shape. The nucleoli and other chromatin-like basophilic elements are present in the nuclei of these

nerve cells as in the ordinary somatic cells. Minute secretory granules which are stained dark blue with CHP appear on the nuclear membrane as well as in the cytoplasm. Most of the secretory granules are discharged from the perikaryon to the tissue fluid or into the axons. The initial cytoplasmic change in these cells is the appearance of a colloidal granular small spherule which is attached to the nucleus. The nucleus changes its shape to an ellipsoid and a crescent (Figures 1 and 2). This structural feature indicates that some intranuclear substance may be released from the nucleus to form the dark spot. This granule migrates to the periphery of the cell and is finally discharged into the surrounding fluid. Simultaneously, many dark blue granules are seen close around the nucleus. The cytoplasm becomes vacuolated in the peripheral region of the cell. It appears that the minute

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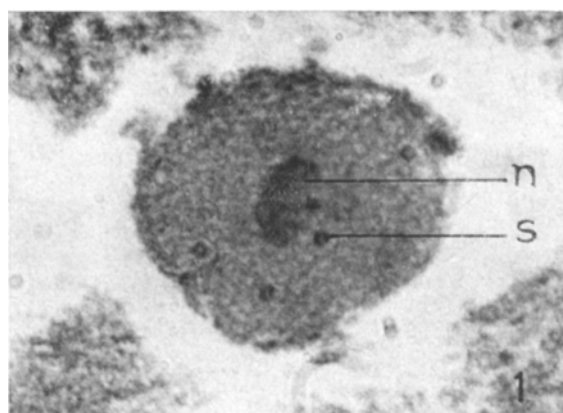


Fig. 1. Horizontal section of the thoracic ganglion of *Potamon magnum magnum* (Pretzman) showing giant cell. n = nucleus; s = secretory droplet, Gömöri.

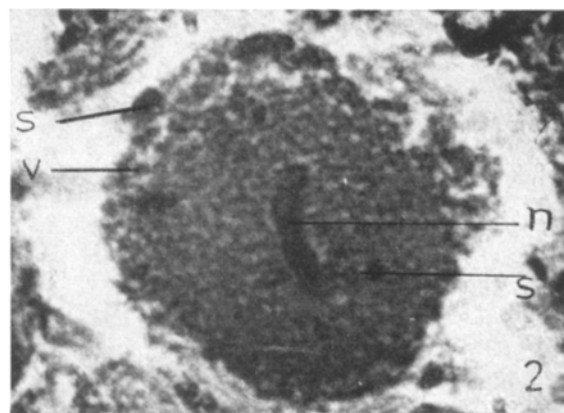


Fig. 2. Horizontal section of the thoracic ganglion of *Potamon magnum magnum* (Pretzman) showing giant cell in secretory phase. n = nucleus; s = secretory droplet; v = vacuole, Gömöri.

granules which appear in the vicinity of the modified nucleus spread over the entire cytoplasm. Many small vacuoles containing the neurosecretory substance appear in the cytoplasm and later migrate towards the periphery of the cell. During these secretory cycles, the nucleus shows changes in shape, i.e. a round nucleus gradually becomes flat or crescent-shaped, later becomes invisible and then expands and regains its shape. There is a direct relationship between the granules discharged and the nucleus, and it appears that the nucleus and cytoplasm of giant cells have secretory activities.

The existence of chromatophorotropins in the thoracic ganglion of crustaceans has been demonstrated by SMITH⁸, ENAMI², and BROWN^{1,9}, but the physiological significance of the giant cells in the thoracic ganglion of *Potamon* is as yet unknown. Work on these lines is in progress and a detailed account and the results of further related observations will be published elsewhere¹⁰.

Zusammenfassung. Im Thorax-Ganglion von *Potamon magnum magnum* wurden neurosekretorische Riesen-

zellen mit oder ohne Axone nachgewiesen. Diese zeigen während des sekretorischen Zyklus eine extreme Modifikation der Kerngrösse. Die Neurosekret-Granula wandern in das Perikaryon oder in die Axone ein. Sowohl Kern wie Cytoplasma zeigen sekretorische Aktivität.

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University of Baghdad, Mosul (Iraq),
March 31, 1966.

⁸ R. I. SMITH, Biol. Bull. 95, 169 (1948).

⁹ F. A. BROWN JR., Biol. Bull. 98, 218 (1950).

¹⁰ We wish to thank Professor A. A. HASWAN, Dean of the College of Science, Mosul, for the help he gave us in this work and Dr. I. GORDON, British Museum, London, for identification of the crab.

Triglyceride Behaviour in Liver and Serum of Rabbits Treated with Diphtheria Toxin

In liver diseases due to different hepatotoxic agents, such as CCl₄ and ethionine, or to nutritional causes, such as a diet deficient in choline, a marked and early increase in the triglyceride content of the liver has been demonstrated¹⁻³. Many hypotheses have been formed about this fat accumulation⁴⁻⁹. These hypotheses demonstrate that there are many kinds of liver injuries; it remains to demonstrate whether for all kinds the same mechanism can be applied and whether it depends upon the same causes. For this reason we thought it interesting to study the damage produced by diphtheria toxin on triglyceride

content both of liver and serum of rabbits. It is well known that such agents produce the so-called cloudy swelling accompanied by biochemical damage, such as fall in total high energy bond phosphorus and then fat liver^{10,11}.

Materials and methods. Rabbits of the same strain and breed, maintained on laboratory chow and weighing about 2.5 kg, were used. A group of rabbits was used as control: such rabbits were starved during the 21 h before killing. Another group of rabbits was injected i.p. with diphtheria toxin (kindly supplied by the Istituto Sieroterapico Toscano Sclavo) at a dosage of 1 d.m.m. per 250 g of body weight, and was starved for 6 h before treatment and throughout the subsequent experimental