

Pharmacological properties of a cholinergic-receptor antiserum

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A cholinergic receptor-rich fraction was isolated from the electric organs of '*Torpedo marmorata*' by centrifugation on a sucrose density gradient, according to the method of Cohen, Weber, Huchet, Maud & Changeux (1972).

Rabbits treated subcutaneously with 1 mg/kg protein of the receptor-rich fraction emulsified in Freund's adjuvant, developed a progressive flaccid paralysis which affected the hind-legs first, and which led, at the end, to complete head drop due to relaxation of the neck muscles.

At variance with the data reported by Patrick & Lindstrom (1973), the animals did not show any respiratory distress.

Complete recovery from the diffuse paralysis could be obtained after intravenous injection of prostigmine.

Sera obtained from treated rabbits showed during the immunodiffusion test the presence of antibodies versus cholinergic receptors.

Pharmacological activity of these sera was tested in several preparations *in vivo* and *in vitro*. A clear antagonism against acetylcholine-induced contractions could be demonstrated using the rectus abdominis muscle of the frog.

In the 'phrenic nerve-diaphragm' preparation of the rat, the sera exerted a progressive and severe inhibition of the neuromuscular transmission, and this effect could be reversed by eserine.

Reference

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Preliminary observations on the effects of eledoisin on ruminant's forestomach and abomasum

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The endcapeptide eledoisin is well known for its powerful effects on vascular and extravascular smooth muscles (Anastasi & Erspamer, 1962; Erspamer & Falconieri Erspamer, 1962; Erspamer & Glaesse, 1963).

Contrary to what occurs in other species where the peptide affects blood pressure either with hypotensive or biphasic effects (Erspamer & Glaesser, 1963; Miele & De Natale, 1967), in sheep it lacks cardiovascular actions eliciting only inconstant and moderate hypertension (due to catecholamines release) at very high dosages (0.5-3.0 µg/kg i.v.) (Ormas, Pompa, Beretta & Faustini, 1974).

We have now tested synthetic eledoisin administered by rapid i.v. injection to check its activity on the smooth musculature of forestomach of sheep in view of a possible

therapeutic use in forestomach atonia or hypomotility.

Reticular, omasal, ruminal (dorsal sac) and abomasal movements in ten sheep (Italian breed) weighing 45-55 kg and fasting from 24 h under sodium pentobarbitone (25-30 mg/kg i.v.) anaesthesia were recorded by means of strain-gauges connected to carrier-preamplifiers of an ink-pen polygraph (OTE mod. R 35 g-t).

The results obtained can be summarized as follows:

(1) Eledoisin stimulated the motility both of three forestomachs and of the abomasum.

(2) The threshold doses were 25-50 ng/kg for omasal musculature and 50-100 ng/kg for that of the other stomachs.

(3) The recorded effects proved to be proportional with the doses administered both for intensity and duration except in the reticulum where doses higher than 0.5 µg/kg provoked initially more frequent and smaller contractions.

(4) As regards reticulum, eledoisin was able to excite the rhythmic activity both when this was absent or blocked by a previous administration of caerulein (10-25 ng/kg i.v.).

(5) The pretreatment of the animals with atropine sulphate (1.5 mg/kg i.v.), mepyramine HCl (2 mg/kg i.v.), hexamethonium HBr