result from deficiencies in the fundamental energy sources. A more detailed examination of the tricarboxylic acid cycle in the nerve tissue of the EAE animal is now in progress.

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PHARMACOLOGY

Possible Neurotoxicity of Diisopropyl Phosphorofluoridate in Guinea-pigs

Neurotoxicity (demyelination and axon degeneration) caused by various organophosphorus compounds is said to occur only in certain species[1,2]. According to Davies[1], guinea-pigs show no delayed paralytic effect after treatment with one of the neurotoxic compounds. We have found that guinea-pigs treated with diisopropyl phosphorofluoridate (DFP) show delayed paralytic effects. This report outlines the gross signs of neurological damage observed.

Ten male guinea-pigs each weighing about 800 g were treated subcutaneously with 1 mg/kg of DFP per day for 4 days. This amount of DFP was not sufficient to cause convulsions. However, the animals were highly excitable for the 4 days and subsequent few days.

The development of symptoms generally occurred as shown in Table 1. As might be expected, there are overlaps in the times at which the symptoms were first noticed.

The peculiar gait of the two guinea-pigs (walking with raised quarters) appeared to be due to spasticity of the hind limbs. Otherwise, the paralysis was flaccid. The walking on the hocks indicated that the lower muscles of the hind limb were initially weakened and that afterwards the muscles of the entire limb became paralysed.

Table 1. Development of Symptoms in DFP-treated Guinea-pigs

Days	Symptoms
1–4	Injections of 1 mg/kg daily; excitable
5–7	Excitable
10–14	Walked on hocks of hind legs. Sores on hocks. Pronounced thumping sound when walking, heavy-footed
15–20	Ataxic– hind quarters wobbled when walking
20–35	In two animals, ataxia became worse until hind limbs were completely paralysed. These animals scrambled with fore limbs when trying to move, but the hind quarters were completely paralysed. These two died, one at 28 days, the other at 35 days. Both showed large loss in body-weight. Two animals walked with hind quarters higher than the front quarters
35–50	Started to recover
75 days	All seven survivors appeared normal except one, which still had a weak right hind limb. One was killed for histological examination

This description is a composite picture and not all animals showed the severest signs. The least affected showed symptoms no worse than the sores on hocks and heavy-footedness (two animals).

We believe that the neurological signs shown by the guinea-pigs treated with DFP indicate that neurotoxicity is brought on by organophosphorus anticholinesterases in this species. It must be emphasized that the neurological lesions which one would have expected to accompany the symptoms described were not observed.

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HAEMATOLOGY

Synthesis of α_2-AP (Acute Phase) Globulin of Rat Serum by the Liver

The appearance of a new protein in rat serum in a wide variety of pathological and physiological states has been reported by several investigators in recent years[1,2]. The protein which we have designated α_2-AP (acute phase) globulin[1] has also been referred to as slow α_2-globulin (SA_2G) (ref. 1), abnormal serum component[1], reproduction-associated protein[1], and α_2-glycoprotein (α_2-GP) (ref. 2). The presence of the protein in serum has been detected by immunological procedures[1,2] and by filter paper-[1] and starch-gel-electrophoretic analyses[1]. The present communication reports the demonstration of the synthesis of α_2-AP globulin by the liver during the acute phase of an inflammatory response.

An anaesthetized, adult, male rat of Sprague–Dawley origin, weighing about 400 g, was injected with 1·0 ml. of a sterile solution of spirits of turpentine, N.F., in corn oil (v/v) as previously described[3]. Twenty-four hours later the rat was exsanguinated by cardiac puncture under ether anaesthesia and the liver removed aseptically. Tissue culture and radioimmunoelectrophoretic techniques were the same as those described in an earlier publication[3], with the exceptions that the film was exposed for 3 weeks, and an antiserum specific for α_2-AP globulin was used. Antiserum was prepared by immunizing rabbits with pooled sera from 'turpentine-stimulated' rats. The antiserum specific for α_2-AP globulin was obtained by absorbing the original with normal rat serum[1].

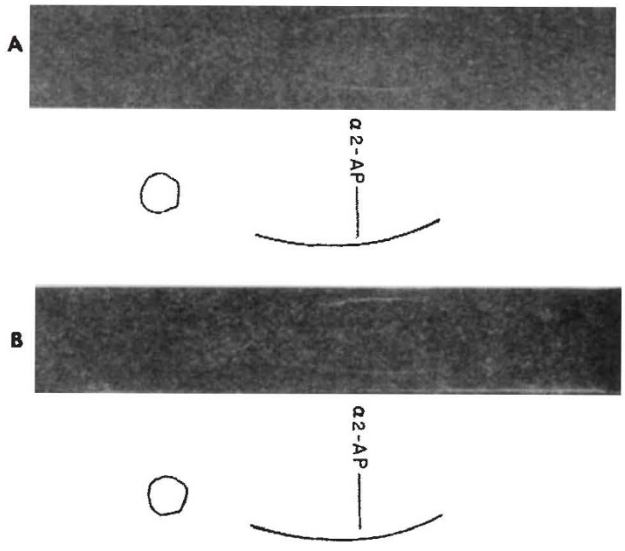

Fig. 1. *A*, Photograph and schematic representation of immunoelectrophoretic analysis of mixtures of tissue culture fluid and carrier serum proteins from donor rat using monospecific antiserum. *B*, Photograph and schematic depiction of autoradiograph of same slide

Fig. 1*A* shows a photograph of the immunoelectrophoretic analysis of the concentrated tissue culture fluid with carrier proteins using the monospecific antiserum. Fig. 1*B* is the autoradiograph of the same slide. Hepatic synthesis of α_2-AP globulin was unequivocally demonstrated by the radioactive labelling of the specific precipitin arc.

When the unabsorbed antiserum was used to develop the immunoelectrophoretic patterns, incorporation of the radioactive label into twelve other proteins was observed, as noted in a previous report[3].