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Exophthalmos in Rabbits Produced by Oxyquinoline Sulphate.*

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The intravenous injection into rabbits of oxyquinoline sulphate solution (5%) in amounts of 0.8 to 1.5 cc. per kilo leads to bilateral exophthalmos within 1 to 3 minutes, and the degree of exophthalmos depends, as a rule, upon the amount of solution injected. This rapidly induced exophthalmos appears easily and repeatedly in the Dutch and Belgian species whereas many members of the albino species do not respond. The suitable rabbits, however, do not fail to show exophthalmos over and over again upon adequate doses of oxyquinoline.

Within 50 to 80 seconds after the introduction of oxyquinoline the ear veins engorge and are very cyanotic, marked hyperpnea appears, the heart rate is rapid, salivation is marked, and from 1 to 3 minutes later, 2 or more limbs become flaccid. From larger doses, 1.5 to 2 cc. per kilo, the animal may die promptly, or—and this is the rule,—it remains almost motionless, all limbs extended and flaccid, the head turned to one side; occasionally convulsions are seen (2 cases) and occasionally opisthotonos (2 cases). This report covers 15 rabbits tested. There was 1 lethal outcome.

The eye manifestations are as follows and in this sequence, as a rule: cyanosis of the fundi, steady increase in the area of corneal surface visible, progressive showing of the third lid, nictitating membrane, dilatation of the pupil. The exophthalmos lasts from 2 to 10 minutes and the bulging of both eye balls is equal, although occasionally more pronounced on one side; the eyes gradually return to normal, the eye balls receding slowly and the dilatation of the pupils persists for another 1 or 2 minutes.

This type of acute bilateral exophthalmos was also produced in rabbits who had the cervical sympathetic trunk severed on one side. Except for the failure of the pupil to dilate on the side where the sympathetic was cut exophthalmos appeared to be similar to the phenomenon observed in normal rabbits and identical on each side.

We are engaged in a study of the mechanism underlying this acute type of bilateral exophthalmos.

* We are indebted to Dr. Marine and Dr. Rosen for help and advice.