

The data given in the table are typical. Death, both in protracted anaphylactic shock and in tuberculin shock might occur with high, normal, or very low sugar values in the blood. In anaphylactic shock during the first 2-3 hours after the injection (also when the guinea pig dies in acute shock, or survives) the sugar content of the blood is increased. Later in the severe or fatal shock we find very low sugar values. This regularity was not as pronounced in tuberculin shock, probably because the stage and extent of the disease influences the reaction of the animal.

It is probable that the excessive hypoglycemia plays a rôle in the death of the animal. The occurrence of death both with high and with very low sugar values indicates that death is caused by different combinations of factors, both in protracted anaphylactic shock and in tuberculin shock.

The sugar determinations were made with the new method of Folin and Wu,⁴ and in a number of cases we made parallel determinations, using the method of Hagedorn and Jensen.⁵ The blood was taken from the heart before the death of the animal.

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Ergotoxine Miosis.

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In 1906 Dale¹ demonstrated constriction of the cat's iris by ergotoxine and attributed this to direct stimulation of the iris sphincter. Recently Koppanyi² reported that a sufficient concentration of ergotamine injected intraocularly paralyzes the motor sympathetic terminations in the dilatator pupillae and stated that the abolition of sympathetic tonus was sufficient basis for explanation of ergotoxine constriction.

Our results of numerous studies on the isolated sphincter muscle of the iris in an oxygenated Locke-Ringer bath warrant the support of Dale's conclusion that ergotoxine constricts this muscle to a con-

⁴ Folin, O., *J. Biol. Chem.*, 1929, lxxxii, 83.

⁵ Hagedorn, H. C., and Jensen, B. W., *Biochemische Z.*, 1923, cxxxv, 46.

¹ Dale, H. H., *J. Physiol.*, 1906, xxxiv, 163.

² Koppanyi, T., *J. Pharm. and Exp. Therap.*, 1930, xxxviii, 101.

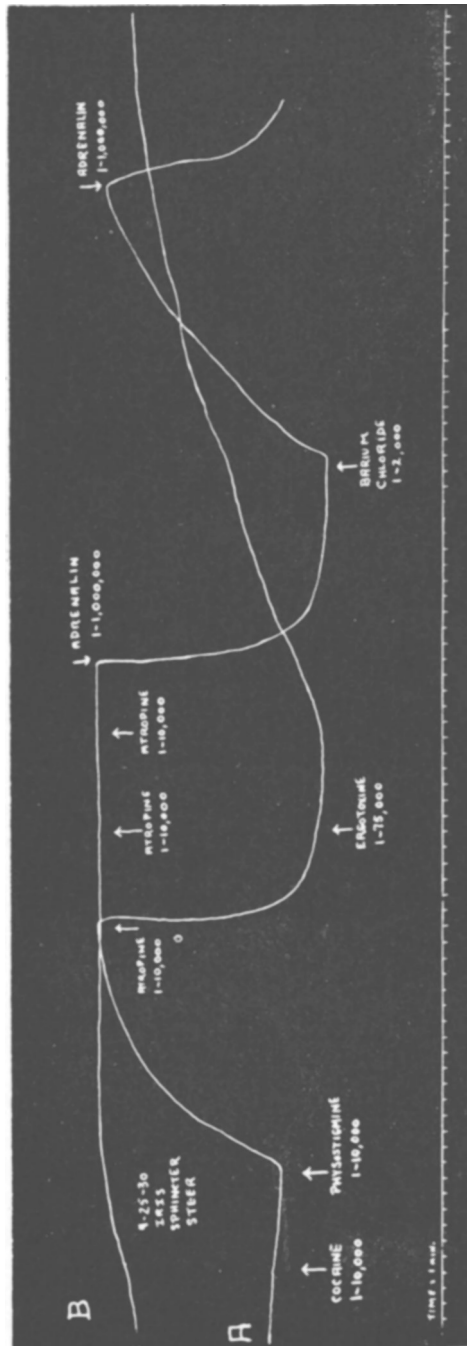


FIG. 1.

Continuous composite tracing of effects of various drugs on an isolated strip of iris sphincter muscle of steer's eye.

At A, drugs added in order, cocaine, 1-10,000; physostigmine, 1-10,000; atropine, 1-10,000; ergotoxine, 1-75,000; and at B (continued around the drum), atropine, 1-10,000 (twice); adrenalin, 1-1,000,000; barium chloride, 1-2,000; and adrenalin, 1-1,000,000.

Drum Speed = 5 mm. per minute.

siderable degree. Ergotamine tartrate produces the same effect as ergotoxine. However, the results do not support the conclusions of Zunz,³ Hess⁴ and Poos⁵ that ergotoxine causes this increased tonus by the parasympathetic route. Atropine in considerable concentration fails to "break through" the tonus elicited by ergotoxine and it does not prevent this tonus increase if applied before ergotoxine (Fig. 1).

In the intact eye of 7 cats, after recovery from light ether, ergotoxine miosis, produced by Koppányi's intraocular method, was partially lessened by atropine intraocularly. The pupil of the eye thus treated did not correspond in size to the normal pupil of 7 mm. but was several millimeters smaller, indicating a direct action of ergotoxine on the iris sphincter muscle. (See Table I.)

TABLE I.
Cat—Male—Wt., 3.5 kg. Normal pupils = 7 mm. Light reflex present.

Time	Right P.	Left P.	Remarks
10:53 a. m.	7 mm.	7 mm.	Ergotoxine (0.12 mgm.) intraocularly into right eye.
10:58	6	8	
11:13	4	8	
11:19	3.5	8	
11:24	3.5	8	Instilled 0.03 mgm. Ergotoxine into right conjunctival sac.
11:40	2.5	8	Light reflex still present, sluggish return in right eye.
12:05 p. m.	1.8	8.5	
12:40	0.8	8.5	
2:00	Slitlike	8.5	
3:07	0.8 mm.	8.5	Atropine (4 mgm.) subcutaneously.
3:30	0.8	11	Light reflex absent.
3:45	0.8	11	Atropine (10 mgm.) subcutaneously.
4:05	0.8	12	
4:10	0.8	12	Atropine (4 mgm.) intraocularly into right eye.
4:20	1.5	12	Light reflex absent.
4:40	1.5	12	

To Mr. Eugene Marti of the Sandoz Company we are indebted for a liberal supply of ergotamine tartrate.

³ Zunz, C. R., *C. R. des Séances de la Soc. de Biol.*, 1924, xc, 379.

⁴ Hess, W. R., *Klin. Monatsbl. fur Augenheilkunde*, 1925, lxxv, 295.

⁵ Poos, F., *Klin. Monatsbl. fur Augenheilkunde*, 1927, lxxix, 222.