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Some Effects of Pentobarbital on the Rabbit.

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It has been reported[1] that the intravenous administration of glucose to dogs under barbital anesthesia reduced the duration of the anesthesia by 50%. The original purpose of the investigation reported in this paper was to determine the effect of glucose administration during pentobarbital anesthesia.

Pentobarbital in doses of 40 mg. per kilo was administered to rabbits, intraperitoneally. At the time of maximum depression, as determined by muscular relaxation and diminished respiratory rate, 10 cc. of 50% glucose was slowly injected into the marginal ear vein. The results are shown in Table I.

TABLE I.
Duration of Depression after Pentobarbital.

	No. of obs.	Mean duration, min.	Mean dev.	Mean dev. of the mean
Normal-fed, no glucose	31	151	60	11
Normal-fed, with glucose	17	143	38	9
Starved, no glucose	22	226	52	11

It will be seen that the injection of glucose to normal-fed animals did not materially shorten the period of depression. However, fasting for 20 hours increased the duration of the period appreciably. This is in agreement with Reidel,[2] who obtained similar results on rabbits during "avertin" anesthesia. He reported that 20 cc. of

[1] Johnson, C. A., Luckhardt, A. B., and Lighthill, J. A., *J. A. M. A.*, 1930, **95**, 576.

[2] Reidel, Ilse, *Arch. f. Exp. Path. u. Pharm.*, 1930, **148**, 111.

20% glucose did not shorten the period of anesthesia, but fasting doubled it.

Although all of our animals received 40 mg. of pentobarbital per kilo, their response varied between no apparent depression and death. Approximately 110 observations were made on the blood sugar level before the injection of the pentobarbital and the same number of determinations were made at the time of maximum reaction to the anesthetic. The blood sugars were determined by the Somogyi[3] micro blood sugar method. The results are divided into 3 groups corresponding to "no depression," "slight depression" and "marked depression". The mean blood sugar levels are shown for each group in Tables II and III.

TABLE II.
Blood Sugar Levels Before Pentobarbital: Normal-fed.

No. of obs.	Mean, mg.	Mean dev.	Mean dev. of the mean	Subsequent reaction to anesthetic
17	110	10	2	No depression
19	109	12	3	Slight "
76	109	12	1	Marked "

TABLE III.
Blood Sugar Levels After Pentobarbital: Normal-fed.

Maximum reaction to anesthetic	No. of obs.	Mean, mg.	Mean dev.	Mean dev. of the mean
No depression	17	116	70	17
Slight "	19	104	10	2
Marked "	75	110	17	2

Since the mean deviations for each group, both initial and at depression, were greater than the differences between the means of these groups, it is evident that there is no correlation between the blood sugar levels and the susceptibility to the drug.

The effects of pentobarbital upon the blood sugar at the time of marked depression and at recovery are shown in Table IV.

The mean blood sugar level is not changed at the time of maximum depression. However, the blood sugar at this time did show

TABLE IV.
Pentobarbital and the Blood Sugar Level: Normal-fed.

	No. of obs.	Mean, mg.	Mean dev.	Mean dev. of mean
Initial	113	109	13	1
Anesthesia	110	110	18	2
Recovery	22	90	13	2

[3] Somogyi, M., *J. Biol. Chem.*, 1926, **70**, 599.

significantly increased variability. Approximately one-third of the observations showed a rise, one-third a fall, and one-third no change. This is reflected in the large mean deviation. In spite of the constancy of the mean sugar level during the depression, there is a very definite drop in this level at the time of recovery. This cannot be due to inanition since Scott[4] has shown that a 2-hour fast period produced in the rabbit a mean drop of only 5 mg.; 4 hours of fasting produced a drop of 10 mg. Since our recovery samples were taken on an average 2½ hours after the injection of the pentobarbital and show a mean drop of 20 mg., it is evident that the fall is due to something other than the inanition. Just what this mechanism may be we are at present unable to say.

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Inulin and its Suitability for Intravenous Administration in Man.

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After having administered dahlia inulin (lot 661-non-toxic) intravenously in large doses to dogs, and to man in 42 instances in doses ranging from 30 to 150 gm., without reaction, an unexplained transient reaction consisting of chills, fever, lumbar pain, nausea, vasomotor depression, herpes and anuria was encountered. The same reaction was encountered simultaneously in another laboratory where an independent sample of inulin was being used. The material that produced the reaction in our laboratory (lot 661-toxic) was a new shipment which had been purified separately by the manufacturer from the same batch of crude inulin as had supplied lot "661-non-toxic." At our request the manufacturer supplied a fresh, highly purified sample (lot 681) prepared from a new batch of dahlia roots, which proved to be, if anything, more toxic than "661-toxic", 1.0 gm. sufficing to produce either chill, fever, headache, nausea or lumbar pain. This reactive inulin appeared to be relatively innocuous for dogs, rabbits and guinea pigs, even when administered in very large doses. Boiling for 30 minutes in distilled water did not appreciably diminish the toxicity; partial hydrol-

[4] Scott, E. L., *Arch. Int. Med.*, 1929, **43**, 393.