

TABLE III.
Treatment of Castrix Poisoning in Rats with Sodium Pentobarbital.

Dose of Castrix (mg/kg)	No. of rats	Pentobarbital initial dose (mg/kg)	Schedule of pentobarbital treatment Hr after Castrix				% survival
			1	1.5-2	3	6	
5	5	45	30	20			100
5	5	45	30		20		100
10	5	45	30	30		30	100
20	5	30	30		15		60
20	5	30		30	20	15	60

and parenteral administration. Diets containing 0.25% to 1% of Castrix are readily eaten by rats and are highly toxic. No perceptible sex difference in susceptibility and no noticeable tolerance were observed in rats but some

seasonal variation in susceptibility was noted. Sodium pentobarbital is an effective antidote against at least 10 LD₅₀ doses of Castrix in rats and dogs even when administered after convulsions have begun.

16239

Lack of a Hypoglycemic Response to Intrathecal Injection of Glucose.*

H. I. WEILAND, R. H. BROH-KAHN, AND I. ARTHUR MIRSKY.

From the Departments of Neurology and Psychiatry, University of Cincinnati, and May Institute for Medical Research, Jewish Hospital, Cincinnati, O.

Marinelli and Giunti have recently presented data which clearly indicated that an increase in the glucose concentration of the spinal fluid of dog and man induced a rapid and pronounced reduction in the peripheral blood sugar level.¹ Lackey failed to obtain similar results in dogs.² In view of the paucity of evidence concerning the mechanisms whereby the central nervous system exerts its influence on the regulation of the blood sugar level, it was considered advisable to attempt to confirm the observations of Marinelli and Giunti in man. Consequently, we studied the influence of an increase in the cerebrospinal fluid glucose concentration on the blood sugar level.

Methods. Subjects suffering from a variety

of cerebrovascular and psychiatric disorders were studied after a preliminary fast of approximately 12 hours. Samples of blood were obtained from the antecubital vein before and at intervals after the intrathecal injection of glucose. Spinal fluid samples were obtained throughout the period of observation by means of an inlying needle inserted into the lumbar subarachnoid space. Glucose was injected into the spinal fluid in quantities of 5 to 10 ml of a 5% sterile solution in distilled water (250-500 mg) by way of either the cisternal or lumbar routes. The glucose concentrations of both blood and spinal fluid were determined by the Nelson modification³ of the Somogyi method.

Results. The data obtained in this study are listed in Table I. In no instance was there noted any significant change in the blood sugar level in spite of the marked increase in the cerebrospinal fluid glucose content. It will

* Aided in part by Research Grant No. 917 of the Research Grants Division, U. S. Public Health Service.

¹ Marinelli, L., and Giunti, V., *Proc. Soc. Exp. Biol. and Med.*, 1947, **65**, 23.

² Lackey, R. W., *Science*, 1947, **106**, 618.

³ Nelson, N., *J. Biol. Chem.*, 1944, **153**, 375.

TABLE I.
Blood and Spinal Fluid Sugar Levels After Intracisternal Injection of Glucose in Man.

Subject	Glucose injected into cisterna mg	Spinal fluid* sugar—mg %				
		Before	15 min.	30 min.	45 min.	60 min.
1	250	62	70	63	64	61
2	250	76				
3	400	57	1011	913	832	630
4	500	60	239	406	761	830
5	500	60	118	80	76	126
6	500	66	65	70	84	97
7	500	72	536	736	782	736
8	500	56	208	638	742	767

Blood sugar—mg %						
		Before	15 min.	30 min.	45 min.	60 min.
1	250	85	82	83	81	76
2	250	88	96	94	97	104
3	400	72	68	70		71
4	500	76	76	71	73	74
5	500	86	90	88	86	86
6	500	79	85	83	82	82
7	500	98	95	100	97	100
8	500	80	85	91	98	81

* Drawn from L4.

also be noted that the intracisternal injection of glucose was followed by a marked rise within 15 minutes in the glucose content of spinal fluid withdrawn from the lumbar region. Such a finding indicates the free diffusion of the injected glucose and may be taken as presumptive evidence that every part of the central nervous system was in contact with an increased concentration of glucose.

Since similar results have been obtained in subjects free from neurologic and psychiatric disorders, it is obvious that an increase in

the glucose level of the cerebrospinal fluid does not initiate a chain of reactions resulting in a decrease of the blood sugar level. It seems fairly definite, therefore, that any mechanisms that may be involved in the regulation of carbohydrate metabolism by the central nervous system are not significantly influenced by increase in the glucose content of the spinal fluid.

Summary and Conclusion. Increases in the spinal fluid glucose concentration do not produce any effect on the blood sugar level.

16240

Infectivity of Sporozoites of *Plasmodium Cathemerium* 3H2 Exposed *In Vitro* to Hen and Canary Bloods.*

HARRY BECKMAN.

From the Department of Pharmacology, Marquette University School of Medicine, Milwaukee.

In this laboratory the avian malarial parasite, *Plasmodium cathemerium* 3H2, has been maintained by continuous mosquito-canary-

mosquito passage since February, 1937. During all of this time there has never been a failure to infect a canary; *i. e.*, in the rare instances in which a first trial has not succeeded a second trial has always done so. But

* This research was supported in part by a grant from the National Institute of Health.