

cells, were successful in isolating Polio, Coxsacki and ECHO viruses from fecal samples collected from infants and young children from Puerto Rico and Washington, D. C.

Inability to isolate any virus from this group of severe diarrheal cases is noteworthy in view of the numbers of viruses which have since been isolated by various investigators from fecal samples of infants and young children using monkey kidney tissue cultures alone (10-14). However, Stulberg, *et al.* (15) were unable to isolate any cytopathogenic agents from a group of newborn infants with diarrhea caused by *E. coli* 0-127. Absence of viral agents from our cases, as detectable by methods employed, does not preclude the possibility of a virus actually being present, but the likelihood of any viral agent known to date causing this outbreak, either alone or in combination with *E. coli* 0-111:B₄, appears to be remote. It should be added that sera from 2 of these patients, which had been kept frozen at -20°C for the intervening period, were tested for presence of circulating antigen of *E. coli* 0-111:B₄ by means of hemagglutination-inhibition test (16) and both gave a strongly positive reaction. This result, together with negative viral findings, lends further weight to the conclusion that *Escherichia coli* 0-111:B₄ is by itself the true causative agent in some cases of highly infectious fulminating infant diarrhea.

Summary. Systematic viral isolation attempts were made from an outbreak of infant gastroenteritis in which *Escherichia coli* 0-111:B₄ was found. Treated stool samples

collected from 25 infants were inoculated into monkey kidney and HeLa cell tissue cultures, embryonated eggs and a variety of young animals by various routes. No viral agent could be detected. It is concluded that this outbreak of gastroenteritis was caused by *Escherichia coli* 0-111:B₄, uncomplicated by other microbial agents.

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Received December 15, 1958. P.S.E.B.M., 1959, v100.

Effects of Total Hypophysectomy, Adenohypophysectomy, and Neurohypophysectomy on Brain Excitability. (24704)

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It is generally accepted that the endocrine system exerts a definite influence on brain excitability, using the minimal electroshock seizure thresholds (EST) for determination. Age (3), ACTH (2,4,7), STH (2,6), adrenocortical steroids (2,3,7) and pitressin (6) also af-

fect EST. The role of the pituitary gland in altering threshold values has been demonstrated (1,2,4,5,7) by measuring the changes induced by complete hypophysectomy. In view of the fact that the pituitary gland is composed of 2 lobes and that the hormones

TABLE I. Comparison of EST Changes Due to Total Hypophysectomy, Adenohypophysectomy and Neurohypophysectomy in Male Sprague-Dawley Rats in 6 Experiments.

No. rats	No. determination per rat	Age at surgery (day)	EST age (day)	EST, % difference from nonoperated controls		
				Hx	Antx	Postx
35	5	36	50-59	-17.5	-23.9	-10.7
27	1	35	55	-36.7	-18.3	- 7.9
11	5	34	60-73	-24.5		
11	5	33	52-54	-20.5		
12	3	38	63	-18		
32	1	59	65	-13.5	-25.8	- 1.9

secreted by these lobes produce opposing effects on EST, the present study was undertaken. This investigation was designed to evaluate and establish how adenohypophysectomy and neurohypophysectomy carried out separately influence EST.

Method. One hundred and twenty-eight male Sprague-Dawley rats were used in 6 different experiments. Total hypophysectomy (Hx), adenohypophysectomy (Antx) and neurohypophysectomy (Postx) were carried out by the parapharyngeal approach. The accuracy of surgery was verified by gross observations of hypophyseal area and adrenal size. Electroshock seizure thresholds were determined by measuring the milliamperage required to produce facial clonia when the animals are stimulated with a 60 cps stimulator for 0.2 sec through 10,000 ohms internal resistor *via* corneal electrodes. In Exp. I, body, brain and adrenal weights were measured in the animals sacrificed 30 minutes after the last EST reading (59 days). In 3 experiments (III to V) EST measurements were made only of total hypophysectomized and nonoperated animals, while in the others, EST values were determined for Hx, Antx, Postx and non-operated controls. Average threshold effects of pituitary deficiencies are expressed (Table I) as percentage of change of operated animals in comparison to non-operated controls. Negative changes represent a lowering of thresholds or increase in excitability.

Results. Two to 4 weeks after total hypophysectomy (Exp. I to V), EST values were 17.5 to 36.7% lower than in nonoperated controls of the same age. In animals operated at 59 days of age (Exp. VI), EST was 13.5% lower than the control value. Antx rats in

Exp. I, II and VI, had EST readings 18.3 to 25.8% below their controls. In contrast, EST values of Postx rats operated at a younger age (Exp. I and II) decreased by 7.9 to 10.7%. In the one group operated at a later date (Exp. VI), the threshold decreased by 1.9% only.

Body, brain and adrenal weights in Postx rats and control animals were about the same, in contrast to the considerable body and adrenal weight reduction following total and anterior hypophysectomy.

Discussion. Removal of the anterior lobe approaches the effect of total hypophysectomy on EST more than removal of the posterior lobe. In fact, in 2 out of 3 experiments, adenohypophysectomy gave a greater EST reduction than total extirpation. On the other hand, in all 3 experiments neurohypophysectomy induced a more moderate EST reduction. Total hypophysectomy induces reductions in adrenal size and EST without suppressing the zona glomerulosa.

The increase in excitability following this operation may be related to a hyposecretion of corticosteroids, since adrenalectomy gives similar effects. Maintenance of the zona glomerulosa and the fact that mineralocorticoid steroids increase EST(8) would suggest

TABLE II. Effects of Total Hypophysectomy, Adenohypophysectomy and Neurohypophysectomy on Body, Adrenal and Brain Weights.

Treat-	No.	Body wt,	Brain wt,	Adrenal wt
ment	rats	g $\pm$ S.D.	mg $\pm$ S.D.	(2), mg $\pm$ S.D.
Hx	10	107.1 $\pm$ 5.9	1447 $\pm$ 72	12.58 $\pm$.91
Antx	10	117.6 $\pm$ 6.3	1514 $\pm$ 39	12.89 $\pm$ 1.36
Postx	10	198.5 $\pm$ 21.4	1592 $\pm$ 60	32.06 $\pm$ 10.74
Intact	5	213.4 $\pm$ 15.7	1588 $\pm$ 80	39.40 $\pm$ 2.86

S.D. = Stand. dev.

that these steroids are not responsible for the phenomenon noted.

On the basis of Rosenblum's(6) observation that exogenous pitressin lowers EST, one would expect that removal of an endogenous source, *i.e.*, neurohypophysectomy, should give a rise in EST. Since the opposite effect occurred, the question arises whether endogenous and exogenous pitressin influences EST by the same mechanism. The endogenous hormone may have a more complex regulatory effect, perhaps involving other endocrine factors, in contrast to the exogenous one, which may directly stimulate some portion of the central nervous system.

Summary. The effects of total hypophysectomy, adeno-hypophysectomy and neurohypophysectomy on EST were compared in rats. 1. Hypophysectomy and adeno-hypophysectomy severely lowered EST and reduced body and adrenal weight. 2. Neurohypophysectomy, although reducing EST had less effect

on threshold than the other operations, without significantly altering body weight and adrenal size.

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Received December 18, 1958. P.S.E.B.M., 1959, v100.

Disturbance in Porphyrin Metabolism Caused by Feeding Diethyl 1, 4-dihydro-2, 4, 6-trimethylpyridine-3, 5-dicarboxylate. (24705)

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In previous studies on fluorescence of forestomach in mice various fluorescent and non-fluorescent substances were fed to determine stainability of mucus in the forestomach. When mice that received diets containing diethyl 1, 4-dihydro-2, 4, 6-trimethylpyridine-3, 5-dicarboxylate (hereafter called "collidine derivative") were sacrificed for examination and photography of fluorescence in beam of near ultraviolet light, the gall bladder and liver appeared to be red fluorescent. Since the substance itself was intensely blue fluorescent, the red fluorescent bile and livers were thought to be a reflection of an increased por-

phyrin excretion. This investigation involves the study of the nature of this type of altered porphyrin metabolism. Dose relationship has been studied and types and amounts of porphyrins involved were determined.

Materials and methods. Fifty-one Strain A male mice, weighing 20 to 25 g, were fed a diet containing 2.5 g of collidine derivative/45 g ground food. Animals were sacrificed daily and liver and kidneys removed immediately for examination in beam of near ultraviolet light. One-gram samples of liver, cut so as to include the gall bladder and upper portions of biliary tree, were ground in a mortar with ethyl acetate-glacial acetic acid (4/1 v/v). Extractions were continued until red fluorescence could no longer be detected in the supernate. Total extract was fractionated according to the method of Schwartz

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† Supported by Grants from Anna Fuller Fund, Am. Cancer Soc., Md. Div., and Grant from Nat. Cancer Inst., U.S.P.H.S.