TABLE I.
Anaphylactic Shock in Dogs with Obstructive Jaundice.

Exp. No.	Sensitization period days	Obstructed days	Plasma Bilirubin mg. per 100 cc.	Bromsulphalein test 5 min. %	Bromsulphalein test 30 min. %	Degree Shock	Remarks
203	33	4	2.57	60	40	+++	Slow development
204	35	6	5.70	60	40	0	Bl. pr. at shock level before injection of serum
205	14	2	1.0	—	—	++++	
206	17	5	14.4	80	60	++++	
207	33	7	4.09	80	50	++++	Slow development
210	17	8	14.0	60	45	+++	
212	21	12	11.7	—	—	++++	
213	12	14	18.0	80	50	++++	

centage of fatal reactions obtained is higher than that occurring in a large series of normal animals. In this connection it is interesting to note that Ravdin[4] has reported that there is an increased content of histamine in the livers of dogs after common duct obstruction, in view of our general hypothesis that histamine is the causative agent of the vascular reaction and death in anaphylactic shock. If the bilirubinemia produced by common duct obstruction may be interpreted as producing a reticulo-endothelial blockade, these results then confirm our observations in blockade produced by other agents.

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Blood-CNS Barrier in Experimental Poliomyelitis.*

EDWIN H. LENNETTE AND N. PAUL HUDSON.

From the Department of Hygiene and Bacteriology, The University of Chicago, and the Department of Bacteriology, The Ohio State University.

A selective mechanism regulating the exchange of substances between the blood and the central nervous system, and usually referred to as the hemato-encephalic or blood-brain barrier, has long been known to exist. McIntosh and Fildes[1] showed that after intravenous injection of salvarsan no arsenic could be found in

4 Ravdin, I. S., *Arch. Surg.*, 1929, **18**, 2191.

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1 McIntosh, J., and Fildes, P., *Proc. Roy. Soc.*, B, 1914, **88**, 320.

the brain, although it could be detected in tissues outside the central nervous system. Friedemann and Elkeles,[2] among others, believe that the mechanism controlling the passage of substances between the blood and the brain is localized in the cerebral capillaries and is intimately concerned with the permeability of the vessel walls. Trotter[3] has emphasized the virtually complete isolation of nervous tissue from the somatic tissues, a point of considerable importance in the pathogenesis of neurotropic virus diseases and one frequently overlooked in procedures devised to confer immunity against these viruses. Thus, W. S. Gordon,[4] using louping-ill virus, found the central nervous tissue of sheep difficult to immunize. F. B. Gordon,[5] of this laboratory, attempting to immunize Rhesus monkeys to poliomyelitis virus, experienced the same difficulty.

The striking ineffectiveness of the vascular route of inoculation in producing poliomyelitis in Rhesus monkeys (*Macaca mulatta*), unless comparatively huge amounts of virus are used, presumably rests on the ability of an intact blood-CNS barrier to keep injurious substances of hematogenous origin from reaching the nervous tissues. Using the technic devised by Sawyer and Lloyd[6] for a yellow fever protection test, we attempted to damage the barrier by intracerebral injection of sterile starch.

Nine normal and 2 immune monkeys were given intravenously a single injection of 10 cc. of a rapidly centrifuged, 10% crude virus-cord suspension. Three of the normal animals and both immune animals were injected intracerebrally with one cc. of a sterile 2% starch solution.

The 6 controls, given only virus intravenously, survived without symptoms. Of the animals receiving starch and virus, the 3 normals succumbed to infection and the 2 immunes failed to react.

It was assumed that inasmuch as poliomyelitis virus has a marked affinity for nervous tissue, it should also cause infection of the central nervous system by traveling up nerve trunks after absorption from a site of nerve injury. Large peripheral nerves (femoral, sciatic or vagus) were sectioned in 7 monkeys and 10 cc. of a 10% crude virus suspension was injected intravenously into each monkey 4 hours later. Two of the animals succumbed

2 Friedemann, U., and Elkeles, A., *Lancet*, 1934, **1**, 719 and 775.

3 Trotter, W., *Brit. Med. J.*, 1926, **2**, 103.

4 Gordon, W. S., *Brit. Med. J.*, 1934, **1**, 885.

5 Gordon, F. B., Personal communication.

6 Sawyer, W. A., and Lloyd, W., *J. Exp. Med.*, 1931, **54**, 533

to infection, 2 showed a questionable rise in temperature and 3 failed to react to the virus. The advent of poliomyelitis after subinfective intravenous doses of virus when nerves are sectioned adds support to the existence of an insulatory mechanism between the nervous system and the blood.

Normally well isolated from the rest of the body,[3] nervous tissue is protected from noxious agents in the vascular system. Trauma to the nervous system, either central or peripheral, breaks down the mechanism regulating the exchange of substances between neural and somatic tissues, and permits the virus to parasitize susceptible nerve cells.

We[7] have previously shown that sectioning the olfactory tracts prevents infection from the blood stream, even when large intravenous doses of virus are injected. Since intranasally instilled virus is highly successful in infecting monkeys and intravenous inoculation with small doses of virus unsuccessful unless neural tissue is damaged, we interpret the results of the experiments recorded at this time as further evidence that poliomyelitis virus passes directly from the nasopharynx to the brain via the olfactory tracts.

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Effect of Large Doses of Progesterone in the Female Rat.

H. SELYE, J. S. L. BROWNE AND J. B. COLLIP.

From the Department of Biochemistry, McGill University, Montreal, and the University Clinic, Royal Victoria Hospital, Montreal.

In a previous communication we drew attention to the fact that large doses of œstrone markedly enlarge the pituitary, the adrenals and the corpora lutea in the rat.[1] The mammary glands were also greatly developed, but this development was seen only in the normal and not in the hypophysectomized rat. More recently, our findings have been confirmed by Reece, Turner and Hill,[2] although

[7] Lennette, E. H., and Hudson, N. P., PROC. SOC. EXP. BIOL. AND MED., 1935, **32**, 1444.

[1] Selye, H., Collip, J. B., and Thomson, D. L., PROC. SOC. EXP. BIOL. AND MED., 1935, **32**, 1377.

[2] Reece, R. P., Turner, C. W., and Hill, R. T., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 204.